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TECHNICAL WRITING MEETS INSTRUCTIONAL DESIGN

Sharon Jendrisak and Jennifer Beaujon

This presentation will take the attendees past the old stigmatism of technical writing, and show them how instructional design is not as different as it appears to be. Attendees will get a glimpse of the differences and similarities of the two jobs, and hear about a company that understands that a person can actually effectively perform both functions. They will learn what tools are used in each industry, and then dive into the myths about technical writing and instructional design. They'll see examples of how taking a simple procedure can involve a different approach, depending on what the outcome will be. Finally, attendees will gain the knowledge of how to transition themselves from a technical writer to an instructional designer.

MYTHS

There are many myths about the fields of technical writing and instructional design. The following table describes the common myths and provides an explanation about why these myths are not true.

Field	Myth	Fact
Technical Writing	Technical writers spend all their time writing.	While majority of time is spent writing, technical writers also: <ul style="list-style-type: none">• Structuring content• Setting up styles• Formatting• Information gathering• Content updates• Other
	Everyone can write; companies do not need technical writers.	Technical writers do more than just copy content. They think of the end user and determine the best way to convey information.
	Technical writers do not need to be creative.	Technical writers often have to convey extremely technical information to a non-technical end user, and must determine different avenues of information deliverance.
	Technical writers must remain objectives.	While this remains true the majority of the time, some companies are allowing more freedoms than they used to.

Field	Myth	Fact
Instructional Design	Instructional designers do not need to understand technology.	Instructional designers often have to create interactivity throughout the courses. They must know the functionalities of the program to be able to utilize it to the fullest capacity.
	Instructional designers do not need to know graphic design tools.	Though instructional designers do not have to be experts, it is good to have a basic understanding of these tools to be able to create or alter graphics.
	The instructional designer will never have to look at another manual.	Many companies are converting manuals to other forms of communication (elearning, webcasts, etc.), and you will need to use the manuals as source and reference material.
	Once the project has been designed, the instructional designer is finished.	The instructional designer may be asked to perform usability testing. Also in some cases, the instructional designer is the programmer or facilitator.

COMPARING/CONTRASTING JOB FUNCTIONS

The following are job descriptions for each field:

- **Instructional designer:** When working on a project for a client, instructional designers assume the role of teachers. They plan the overall instructional flow of the program and see that content is both appropriate and clearly communicated. Instructional designers must be familiar not only with the content to be learned and the level of the learner, but also with a computer's means of presenting information and interacting with users.
- **Technical writer:** Technical writers explain in simple language scientific and technical ideas that are difficult for the average reader to understand.

The following table describes the types of deliverables for each field:

Field	Deliverable Types
Technical Writing	<ul style="list-style-type: none"> • Manuals • Job Aids • Quick Reference Guides • Workflows
Instructional Designer	<ul style="list-style-type: none"> • Training class materials • Webcasts • Elearning courses

TOOLS USED IN EACH FIELD

There are many tools that can be used by each field. The following table several of the top tools used in each field:

Field	Type	Tools
Technical Writing	Word Processing	<ul style="list-style-type: none"> • Microsoft Word • Open Office • Google Docs • Author-It
	Desktop Publishing	<ul style="list-style-type: none"> • Adobe Framemaker • Adobe InDesign
	Online Help	<ul style="list-style-type: none"> • Robohelp • Madcap Flare
	Image Capturing and Editing	<ul style="list-style-type: none"> • Techsmith Snagit • Adobe Photoshop
Instructional Design	Elearning	<ul style="list-style-type: none"> • Lectora • Captivate • Articulate • Adobe Presenter
	Instructor-led Classes	<ul style="list-style-type: none"> • Microsoft Word • Leaderguide Pro
	Image Capturing and Editing	<ul style="list-style-type: none"> • Techsmith Snagit • Adobe Photoshop

The following list of questions can be used to help you determine the best tool to use in each field.

- Technical Writing
 - What is the size of the project?
 - Will there be multiple chapters?
 - In your final deliverable, will you need to provide links to different sections of documents for online viewing?
 - What is your output/deliverable?
 - Is your deliverable going to be text-based or graphic heavy?

APPROACH USED BY EACH FIELD

Each field has its own approach to developing and delivering the necessary content.

Technical writing uses the following steps:

1. Analyze the content.
2. Organize the content into a format that would be most useful to the end user.
3. Present the content to the end user.

Instructional designers follow the ADDIE model:

1. Analyze the content.
2. Design the course/class.
3. Develop the course/class.
4. Implement the course/class.
5. Evaluate the course/class.

ADDITIONAL RESOURCES

www.online-learning.com

www.instructionaldesign.org

Mergel, Brenda (May 1998). *Instructional Design and Learning Theory*.
<http://www.usask.ca/education/coursework/802papers/mergel/brenda.htm>

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<http://blog.thewritersgateway.com/2009/07/17/technical-writing-vs-instructional-designing-is-it-really-a-tug-of-war/>

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CORRELATIONS BETWEEN EDUCATORS' COMMUNICATION AND LEARNING STYLES

Lucille Mazo

While there has been significant research conducted in the areas of communication styles and learning styles, what is challenging to acquire is critical information on how communication style and learning style preferences are applied by university educators when they are developing, delivering, and debriefing lessons. Understanding the relationship between these two styles provides important insights into the ways that university educators apply their learning styles and how they use their communication styles during lesson activities. Examining this relationship also provides knowledge that can be used to inform university educators on communication and teaching approaches and strategies. This study involved university educators from Grant MacEwan University, Edmonton, Alberta, Canada who participated in completing an inventory that identified how they applied their communication and learning styles while engaged in three main lesson activities: 1) development, 2) delivery, and 3) debriefing. The results provide important information about how educators apply their communication and learning style preferences in instruction, and in teaching and learning situations.

BACKGROUND

University educators are critical contributors to the development and communication of programs, courses, and lessons. As part of their role, educators are expected to create comprehensive lessons that are communicated to learners through key information on specific topics. There are various factors that affect how educators develop and communicate their lessons, two of which are the personal communication and learning styles that educators bring to the processes involved in creating lessons. Minimal research exists that examines the correlations between communication and learning style preferences of educators and how these styles intersect when educators are engaged in the three main activities of a lesson: development, delivery, and debriefing.

PURPOSE AND METHOD

Purpose of the Study

The purpose of this study was to identify, determine, and explain the correlations between university educators' communication styles and learning styles as they are applied when developing, delivering, and debriefing a lesson. The knowledge derived from this study can be utilized by individual faculty members when developing lessons, or be created into a faculty development session where faculty members gather to learn, discuss, and strategically apply these two types of styles.

Method of the Study

This study collected quantitative data in a secured online environment using the Educators' Application of Their Learning and Communication Styles (EALCS) Inventory (Mazo, 2010) in order to capture information about university educators' applications of these two styles while engaged in lesson activities.

Research questions. 1) How do university educators apply their communication and learning styles when engaged in the three main activities of a lesson: development, delivery, and debriefing? 2) How can information regarding the correlations between these two styles be used to guide university educators in developing successful and creative lessons?

Theoretical Base

Considerable discussion and research has been conducted in the area of communication and learning styles. Various theories and models have been formulated to identify and to demonstrate the structure, criteria, and conditions of communication and learning styles based on observations during learning situations and based on active and vicarious experiences. Significant effort has been expended on the development and explanation of communication and learning styles, the bases from which they have been established, and the various methods in which they have been applied. Various theories informed this study including McLuhan's (1964) theory regarding communication (pp. 8-9), and Jung's ([1921] 1971), Dewey's (1963), Lewin's (1951), and Piaget's (1973) theories on cognitive approaches, information processing, and learning styles. More specifically, Alessandra's and O'Connor's Communication Styles Theory and its four communication styles (1998), and Kolb's (1984) Experiential Learning Theory (ELT) and its four learning modes and styles were directly applied in this study. Following are descriptions of these two theories.

Alessandra's and O'Connor's Communication Styles Theory. Four communication styles comprise Alessandra's and O'Connor's (1998) theory; 1) controller/director, 2) supporter/relater, 3) promoter/socializer, and 4) analyzer/thinker. According to the researchers, the *controller/director* communication style applies a command style when completing work, when making decisions, and when delegating to others. This type of communicator values accomplishing tasks efficiently, is results-oriented, is enterprising, and is competitive. These communicators are strong problem-solvers who seek answers through effective communication and articulation of ideas. The *supporter/relater* communication style values harmonization of ideas, circumstances, and events through the blending of perspectives and approaches for the purpose of establishing stability in a situation. This type of communicator believes that the acceptance of ideas through careful and evaluative listening skills facilitates solid decision-making processes. Communicating with people and building relationships are critical to this type of communicator, as networking with others maintains important communication connections (Alessandra & O'Connor, 1998).

Two additional communication styles complete Alessandra's and O'Connor's (1998) inventory. The *promoter/socializer* communicator values enjoyment, helps others, is open to others' opinions and ideas, and generates and originates many and various new ideas. Flexibility in communication is critical to these types of communicators who are also intuitive, creative, and optimistic. What shapes the *analyzer/thinker* communication style is the application of the skill of assessment in all that is communicated. This type of communicator respects accuracy in details and in being correct in those details. Decision-making processes are driven by thoroughness in communicating these details before acting on a decision. The undercurrent of logic is strategically applied as this type of communication style approaches decisions with contemplation, caution, and deep reflection (Alessandra & O'Connor, 1998).

Kolb's Experiential Learning Theory (ELT). When developing his theory, Kolb (1984) drew knowledge regarding learning from Jung's ([1921] 1971) research on psychological types (pp. 78-80), and from Dewey's (1963), Lewin's (1951), and Piaget's (1973) traditions on experiential learning (p. 17). From these theories and his own research, Kolb deduced that "learning [was] a continuous process grounded in experience" (p. 27). To further demonstrate how these learning experiences and processes interconnected, Kolb developed a model and four learning styles that explained how these processes functioned in learning.

Within his ELT, Kolb (1984) identified four learning modes that combined into pairs which formed four learning styles: 1) convergent 2) divergent 3) assimilation, and 4) accommodative (pp. 77-78). According to Kolb, the *convergent* learning style applies the learning modes of "abstract conceptualization (AC) and active experimentation (AE)," creatively and extensively using problem solving during daily decision making, with a focus on the details of tasks and problems rather than on people. With respect to the *divergent* learning style, "concrete experience (CE) and reflective observation (RO)" are the two learning modes that are combined to form this style. This style focuses on working effectively and efficiently, viewing a topic creatively from a broader perspective (pp. 77-78).

Kolb's (1984) ELT included two other learning styles: assimilation and accommodative. Using "abstract conceptualization (AC) and reflective observation (RO) learning modes," the *assimilation* learning style focuses on the ability to gather many pieces of information and then assemble them into a holistic idea or image (p. 78). With respect to the *accommodative* learning style, the learner combines the "concrete

experience (CE) and active experimentation (AE)” learning modes in order to understand the relationships between things and people, viewing people as a key asset to learning (p. 78). As such, Kolb argued that all four learning styles were integrated when the learner reached adulthood, but also recognized that each individual had a preference to one of these learning styles (pp. 64-65). Kolb also depicted learning as a cycle and explained that individuals entered the cycle when and where appropriately needed based on the type and nature of the experience.

Application of Theories

In this study, Kolb’s (1984) four learning modes were articulated in the form of statements that constituted questions 1-18 in the EALCS Inventory (Mazo, 2010). As well, Alessandra’s and O’Connor’s (1998) four communication styles were articulated in the form of statements that constituted questions 19-36 in the inventory. When university educators completed the inventory, the result was an identification of their communication and learning styles and how these styles were applied during the three main lesson activities.

Population and Data Collection

Research population. Data collected from the EALCS Inventory (Mazo, 2010) were obtained from 72 university educators who taught at Grant MacEwan University, Edmonton, Alberta, Canada. These educators derived from four faculties: business, arts and sciences, fine art and communications, and health and community studies.

Data collection process. This study collected quantitative data for eight (8) weeks using a secured online environment where the EALCS Inventory (Mazo, 2010) was made accessible to university educators who took approximately 15-20 minutes to complete it. The inventory was designed using a combination of Alessandra’s and O’Connor’s (1998) communication styles and Kolb’s (1984) learning styles, which assisted in shaping and formulating the 36 sets of statements comprised within it. Data was collected on how university educators applied their communication and learning styles when engaged in the three main lesson activities of development, delivery, and debriefing. A research assistant facilitated the data collection process to ensure there was anonymity between the researcher and the research participants.

RESULTS

The results of data collected from the EALCS Inventory (Mazo, 2010) are indicated in Table 1 with further explanation provided.

Table 1: Correlations between Communication and Learning Styles when University Educators Engage in Three Main Lesson Activities: development, delivery, and debriefing

Three Main Lesson Activities	Dominant Communication Styles applied by University Educators (N=72) (%)	Dominant Learning Styles applied by University Educators (N=72) (%)	Common Attributes of Dominant Communication and Learning Styles	Correlations between Dominant Communication and Learning Styles Usage patterns based on the three main lesson activities.
Activity One: Develop a lesson	Promoter/ Socializer Communication Style (DCS 3) (66%)		Full of ideas to discuss openly. Seeks others' opinions in discussions.	<u>Usage Pattern 3 = DCS 3 and DLS 2:</u> Promoter/Socializer (DCS 3) (66%)
		Convergent Learning Style (DLS 2) (71%)	Harmonizes ideas and relationships Values acceptance of ideas, circumstances Builds networks of individuals	Convergent (DLS 2) (71%) Disciplines that applied this dominant usage pattern mostly derived from English, Business, Education, and Sciences.
Activity Two: Deliver a lesson	Promoter/ Socializer Communication Style (DCS 3) (56%)		Full of ideas to discuss openly. Seeks others' opinions in discussions.	<u>Usage Pattern 3 = DCS 3 and DLS 2:</u> Promoter/Socializer (DCS 3) (56%)
		Convergent Learning Style (DLS 2) (67%)	Harmonizes ideas and relationships Values acceptance of ideas, circumstances Builds networks of individuals.	Convergent (DLS 2) (67%) Disciplines that applied this dominant usage pattern derived from English, Business, Education, and Sciences.

Three Main Lesson Activities	Dominant Communication Styles applied by University Educators (N=72) (%)	Dominant Learning Styles applied by University Educators (N=72) (%)	Common Attributes of Dominant Communication and Learning Styles	Correlations between Dominant Communication and Learning Styles Usage patterns based on the three main lesson activities.
Activity Three: Debrief a lesson	Analyser/ Thinker Communication Style (DCS 4) (71%)		Assesses all things. Values accuracy and being right. Makes decisions through planning. Idea oriented. Logical, thrifty, efficient approach.	<u>Usage Pattern 11 = DCS 4 and DLS 1:</u> Analyzer/Thinker (DCS 4) (71%) Assimilation (DLS 1) (85%)
		Assimilation Learning Style (DLS 1) (85%)	Assimilates many ideas from others into one integrated explanation. Applies inductive reasoning (logic).	Disciplines that applied this dominant usage pattern mostly derived from Classics and Sciences.

Correlational usage patterns. The results indicated fourteen correlational usage patterns. The dominant correlational usage pattern for activity one (develop a lesson) and activity two (deliver a lesson) was Usage Pattern 3 = Promoter/Socializer (DCS 3) and Convergent (DLS 2). This indicated that when university educators were engaged in developing lessons, selecting materials for their lessons, and then delivering these instructional materials to students in the classroom, that an average of 61% (N=72) applied the dominant communication style of promoter/socializer and that an average of 70% (N=72) applied the dominant learning style of convergent. The common attributes of these two styles included the ability to discuss and harmonize the ideas of others and to value and accept these ideas in the context of building relationships and networks with individuals. As such, this suggests that educators seek the opinions of others (colleagues and students) and are collaborative in their communication and learning styles approaches.

With respect to activity three (debrief a lesson), the dominant correlational usage pattern applied by university educators was Usage Pattern 11 = Analyser/Thinker (N=72; DCS 4, 71%) and Assimilation (N=72; DLS 1, 85%). When an educator reviewed and reflected on a lesson that he or she had taught, there was a shift in the application of communication and learning styles. Educators changed their dominant communication style from one that promoted open discussion and socialization during activities one and two (development and delivery of a lesson), to a dominant communication style that was analytical and logical when engaged in activity three (debriefing of a lesson). Educators also changed their dominant learning style from one that sought harmonization and acceptance of ideas during activities one and two (development and delivery of a lesson), to a dominant learning style that assimilated various ideas through the application of logic and reason.

INSTRUCTION: COMMUNICATION AND LEARNING STYLES

By developing a better understanding of the ways that university educators apply their communication and learning styles when creating a lesson, this knowledge can assist educators in developing, delivering, and debriefing their lessons to improve quality. The following provides considerations and suggestions on how university educators can apply their communication and learning styles during lesson activities (Table 2).

Table 2: Strategies for educators when applying communication and learning styles during lesson activities

Lesson Activity	Communication Style and Application Strategies	Learning Style and Application Strategies
Lesson Development	<p><u>controller/director</u>: control content by selecting relevant information directed to the concept being taught</p> <p><u>supporter/relater</u>: select learning materials that communicate through human relationships</p> <p><u>promoter/socializer</u>: include open and creative discourses to promote idea exchange</p> <p><u>analyzer/thinker</u>: include problem-solving, and reflection activities</p>	<p><u>convergent</u>: select lesson materials, determine which instructional techniques should be used during delivery of the content</p> <p><u>divergent</u>: ensure that hands-on learning experiences are included in the lesson</p> <p><u>assimilation</u>: integrate lesson materials for collaboration during delivery</p> <p><u>accommodative</u>: include content that considers relationships between things and people</p>
Lesson Delivery	<p><u>controller/director</u>: follow lesson plan closely to ensure all content is covered</p> <p><u>supporter/relater</u>: use discussions and debates to communicate the interrelationships between individuals and situations</p> <p><u>promoter/socializer</u>: promote dialogue between individuals through brainstorming, comparison, and critiques</p> <p><u>analyzer/thinker</u>: use case studies and narratives to communicate solutions to problems and to articulate these solutions through reflection</p>	<p><u>convergent</u>: creatively and extensively using problem solving, with a focus on the details of tasks and problems rather than on people (e.g. group projects requiring decision-making processes)</p> <p><u>divergent</u>: ensure that hands-on learning experiences are included such as experiments in labs, and field excursions</p> <p><u>assimilation</u>: engage in writing, debate, and deep discussions that form part of a collaborative assessment regarding teamwork, and team skills</p> <p><u>accommodative</u>: engage learners by connecting people with events.(e.g. historical and political people and events)</p>

Lesson Activity	Communication Style and Application Strategies	Learning Style and Application Strategies
Lesson Debriefing	<p><u>controller/director</u>: record and outline the details of what worked and did not work in the lesson</p> <p><u>supporter/relater</u>: review the communication dynamics between content and learners</p> <p><u>promoter/socializer</u>: verbally discuss with others what worked and did not work in the lesson</p> <p><u>analyzer/thinker</u>: critique the outcomes of the lesson, reflect on solutions to changes, and record details</p>	<p><u>convergent</u>: identify needed changes for lesson improvement and quality</p> <p><u>divergent</u>: re-enact the learning experiences to ensure they worked</p> <p><u>assimilation</u>: review lesson details to ensure collaboration of ideas occurred and that teamwork was engaged</p> <p><u>accommodative</u>: review content to identify where learners understood the relationships between events and people; identify ways to</p>

CONCLUSION

The application of communication and learning styles are fundamental to instruction and learning. University educators are positioned to create effective lessons that provide accessible learning. When educators understand how they apply their communication and learning styles and the patterns in which they apply them, then they can better facilitate change in lesson activities to ensure quality.

While this study indicated some correlations in the application of university educators' communication and learning styles, additional research using other similar groups of post-secondary educators would be useful and gaining further insights into these correlations. As well, gathering qualitative data through in-depth interviews with research participants would provide deeper understandings of these correlations.

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BULLET PROOFING YOUR CAREER ONLINE

Ben Woelk and Hannah Morgan

What are the 10 key steps to building and securing your online reputation? A security guru and a career sherpa provide their perspectives on how to create an online presence that enhances and promotes your career safely and effectively.

INTRODUCTION

We come from very different backgrounds and training, but we see the potential of the interconnected world in the same way.

There are risks; let them be calculated.

The world is different in so many ways; let's take control by educating ourselves.

PRESENTATION FORMAT AND CONTEXT

Bullet Proofing Your Career Online is presented as a dialogue between Ben Woelk, a security guru, and Hannah Morgan, the Career Sherpa. The presenters take a light-hearted look at how common terms have different meanings or nuances in their respective fields of information security and reputation management. These proceedings provide a brief summary of the common terms and their meanings.

WORDS

In information security, complex, but easy-to-remember *passwords* are critical in practicing safe social networking and in securing data in general. In reputation management, *keywords* are useful for searching career information online and making your information accessible to search engines used by recruiters.

STAYING CURRENT

Staying current is important in both fields. To avoid successful malware attacks, you must keep your software current through the use of *auto-updates*. In a more positive light, it's important to employ *skill-updates* to ensure that your skills are current for the marketplace.

PUTTING UP WALLS

Firewalls provide protection against worms and hackers on networks. For career success, you must avoid *cubism*--putting up walls that keep you from networking successfully with co-workers and potential resources. (Yes, we know that's not the correct definition for cubism, but it works well in the presentation.)

TRUST

Knowing who to trust or whether a website is trustworthy is one key in avoiding online *scams*. In reputation management and job searching, *authenticity* is the key in how you present yourself and your skills. You must be trustworthy.

SOCIAL NETWORKS

Both the security guru and the career sherpa believe strongly in the value of social networks. The career sherpa encourages you to *engage* others to widen your network. However, the security guru discourages you from sharing too much information about yourself. He's concerned that you maintain your *privacy*.

WHO'S WATCHING

Both presenters believe that it's critical to remember you're not alone on the Internet. You don't know who's watching. It could be *your next boss* or it could be *cyber criminals*. You need to ensure you don't post information that could damage your reputation nor do you want to provide information that can be used for identity theft.

SHOULD I CONNECT?

Do you know who it is that you're connecting with, or "friending" on social networks? In a research study, Sophos, a UK-based security firm created a Facebook profile with a congenial-looking toy frog and sent out successful *friend* requests to over 100 people. In both fields, it's important to separate *personal* vs. *professional* connections. You don't want that personal connection to reflect badly on you.

MESSAGING

Messaging is important. Again, the security guru urges caution and advises you to maintain *confidentiality* and not share company secrets inadvertently. The career sherpa believes that *building brand* recognition through consistent professional messaging is important for managing your career reputation.

MONITORING

Both presenters share tips on *monitoring* your online presence. The security guru advocates using Google Alerts to track how and when your name appears online. The career sherpa recommends using SocialMention to keep track of how your name is used in social media.

ARRIVE SAFELY

The goal of our discussion was to enable you to arrive safely, with you brand and career reputation intact. After attending our presentation, you should understand how to:

- Engage safely online and build a personal brand.
- Not let fear and misunderstanding about social networks and online communication prevent you from interacting.
- Prevent potentially putting yourself and companies at risk.

ADDITIONAL RESOURCES

Words

Lastpass Password Manager. www.lastpass.com

Password Gorilla, <http://www.fpx.de/fp/Software/Gorilla/>

Create a Complex Password, [technet.microsoft.com/en-us/library/dd700991\(v=ws.10\).aspx](http://technet.microsoft.com/en-us/library/dd700991(v=ws.10).aspx)

Wordle.net

Staying Current

Microsoft and Apple updates

TED Talks: <http://www.ted.com/talks>

MIT OpenCourseware: <http://ocw.mit.edu/courses/>

iTunesU: www.apple.com/education/itunes-u/

Intelligent YouTube from Open Culture: <http://www.openculture.com/smartyoutube>

Smartbrief (by industry): <http://www.smartbrief.com>

Putting Up Walls

Zone Alarm Firewall, www.zonealarm.com

Trust

Phishing scams and spoof emails at Millersmiles, www.millersmiles.co.uk

Anti-phishing Working Group, APWG.org

Snopes.com

National Cyber Security Alliance <http://www.staysafeonline.info/>

Hire for Attitude, by Dan Schawbel, Forbes, 1/23/2012,

<http://www.forbes.com/sites/danschawbel/2012/01/23/89-of-new-hires-fail-because-of-their-attitude/>

Social Networks

11 tips for social networking safety, Microsoft: <http://www.microsoft.com/security/online-privacy/social-networking.aspx>

Infosec Communicator Blog, benwoelk.wordpress.com

FB Privacy policy

LinkedIn Training: LinkedIn Learning Center: <http://learn.linkedin.com/>

Who's Watching

Onguard online.gov

Microsoft Study conducted by Cross-tab, Online Reputation in a Connected World,

<http://go.microsoft.com/?linkid=9709510>

SHRM, The Use of Social Networking Websites and Online Search Engines in Screening Job Candidates Survey Findings, 8/25/2011:

<http://www.shrm.org/Research/SurveyFindings/Articles/Pages/TheUseofSocialNetworkingWebsitesandOnlineSearchEnginesinScreeningJobCandidates.aspx>

2011 Social Recruiting Results, Jobvite: <http://recruiting.jobvite.com/resources/social-recruiting-survey.php>

Your Future Employer is Watching you online, you should too, Michael Fertik, Harvard Business Review, April 3, 2012: http://blogs.hbr.org/cs/2012/04/your_future_employer_is_watching.html

Should I Connect?

Sophos study, <http://www.sophos.com/en-us/press-office/press-releases/2007/08/facebook.aspx>

Multiple Personalities And Social Media: The Many Faces of Me, Meghan Casserly, Forbes, January 26,

2011: <http://www.forbes.com/sites/meghancasserly/2011/01/26/multiple-personalities-and-social-media-the-many-faces-of-me/>

Messaging

The Promise of Personal Branding, August 2010, Galen Tinder, WorldWide ERC:

<http://www.worldwideerc.org/Resources/MOBILITYarticles/Pages/0810-Tinder.aspx>

10 Steps to an Authentic Magnetic Personal Brand, Meg Guiseppi, Execute Career Brand, 2/12/2010:

<http://executivecareerbrand.com/10-steps-to-an-authentic-magnetic-personal-brand/>

Staying Alert

Me on the Web Google.com/dashboard

Vizibility.com

Brandyourself.com

SocialMention.com

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Hannah Morgan is career strategist and founder of CareerSherpa.net. She is an energetic, compassionate conveyer of no-nonsense career advice. Hannah shares information on the latest career management and job search trends and techniques on her blog, Career Sherpa, and is a featured blogger on other nationally-recognized sites. Her expertise and insight comes from 10+ years supporting and guiding dislocated workers from a broad range of industries and occupations. Hannah was a Career Consultant with Lee Hecht Harrison and Trainer/adviser in Workforce development. Hannah was recognized by Monster.com as one of the top 11 job search bloggers to watch in 2011.

UNDERSTANDING AND OVERCOMING RESISTANCE TO CHANGE

Dr. James Conklin

The research literature often depicts resistance as an emotional or irrational reaction to beneficial change. A newer constructionist perspective views resistance as arising from the actions and values of people in specific social contexts. The resistance encountered among people who are asked to adopt a new technology or innovation is a system-level phenomenon related to the interaction pattern of specific groups of people. Resistance is a social phenomenon that should be understood and worked with rather than eradicated.

INTRODUCTION

Before I went through my latest career transition in 2009 and accepted a full-time job in academia, I spent twenty years running a technical communication consulting business. Much of my work involved participating in large project teams that were developing and implementing new, enterprise-wide computer systems in large public and private sector organizations. Over time I found myself focusing more broadly on the human side of organizational change, and thus it was that I became personally and intimately acquainted with the social phenomenon that is known fondly as “resistance to change.”

THE SOCIAL SCIENCE OF RESISTANCE

We live in an era that has created a mythology around change. The world is growing smaller, we are told, and time is moving faster, and technology is creating new social architectures that are revolutionizing the ways in which people learn, play, form relationships, and deliver services. To survive in this fast-moving world, organizations need a new capacity to rapidly transform themselves.

The result has been a new industry in organizational change and change management. While writing this paper I googled the term “change management” and received 114 million hits (a search on the term “organizational stability” produced fewer than 20 million hits); a similar search in google scholar produces 3 and a half million results. Organizations must change! But according to the voluminous literature on the subject, many change efforts fail, and the most common culprit goes by the name “resistance to change” (del Val & Fuentes, 2003).

The social science on resistance to change suggests that there are two broad perspectives on the subject. On the one hand, the **first perspective** sees resistance as a negative social phenomenon whose source can be found in the attributes of resisters. For example, some suggest that resisters are fearful and defensive, or that their mental models prevent them from grasping the benefits of change (Bruckman 2008; Cutcher, 2009). Others argue that people resist changes that do not bring clear benefits or advantages to the resisters (this is the WIIFM, or “what’s in it for me,” phenomenon) (Trader-Leigh, 2002). Many commentators suggest that if people could understand and accept the need for change, their resistance would diminish (Galpin, 1996; Washington & Hacker, 2005). Yet another view is that resistance is grounded in personal characteristics such as age and socioeconomic background (O’Conner, 1993), personality type (Barger & Kirby, 1995), personal psychological factors such as a tendency to be defensive (Bovey & Hede, 2001), or a desire to protect cherished workplace identities (Cutcher, 2009; van Dijk & van Dick, 2009). Several researchers claim that resistance derives from a combination of cognitive, emotional, and behavioral factors that determine how people react to new social situations (Oreg, 2006; Piderit, 2000; Smollan, 2006).

According to this first view, resistance is thus an objective fact that is lodged in the hearts, minds and behaviors of the resisters. It is like a thing, a roadblock, that prevents us from moving toward the future.

“Resistance is futile,” intoned the Borg on Star Trek. That is undoubtedly the hope of many who work as internal change agents or external change management consultants.

Recently, however, a **second perspective** on resistance has emerged in the research literature. This view is new in a number of ways. First, it sees resistance as a phenomenon that is constructed through the interactions of people in a social system. It is not a brute, objective reality that stands like a monolithic barrier to change, but is rather the confluence of the subjective experiences of system members. Second, resistance is seen as both inevitable and natural—we all to some extent are reluctant to change our behaviour and our outlook when presented with new situations. Third, this perspective suggests that resistance can play an important and useful role in a complex change process. Finally, this new view of resistance does not presuppose that the resisters are always wrong.

For example, some suggest that the focus on resistance to change is now a management orthodoxy that conveniently allows leaders to blame their failures on less powerful members of their organization (Dent & Goldberg, 1999). Others point out that resistance can be a source of stability during turbulent times (Waddell & Sohal, 1998). A common emerging theme in the literature is the idea that resistance is evident in the conversations that occur in organizational settings, and that resistance is a form of organizational sensemaking through which people attempt to construct their identities and sense of purpose and competence within the workplace (Conklin, 2010a; Ford et al., 2002; Ford et al., 2008).

My own research has focused largely on health care practices and organizations that are struggling to keep up with a heavy workload, and that are also being pressured to implement new innovations and improvements (Conklin, 2010a; Conklin, 2010b). I have found that people in my research sites develop stable patterns of interaction that allow them to achieve their goals, complete their tasks, and act in ways that are congruent with important values. For example, in one health care practice I found that workers were struggling to find the time to provide psychosocial support to their patients, and they were also committed to providing support to their colleagues. Change initiatives often threatened these valued practices, and this led them to be suspicious of, and sometimes uncooperative with, internal change agents. To label them as stubborn or resistant is an unhelpful reduction of a complex and contextual response to ambiguous situations. It also might lead one to overlook the fact that implicit in their behavior were commitments and values that made their work important and purposeful.

STRATEGIES FOR WORKING WITH RESISTANCE

Those who favor the first perspective on resistance consider it to be a negative force that must be reduced or eradicated. They recommend strategies for confronting the resistance of workers, in order to win people over to the cause of change. This can involve analyzing the history and competencies of the resistant group, creating trust, or studying the attitudes or personality preferences of resisters (Adadwani, 2001; Barger & Kirby, 1995; Bruckman, 2008). The overall approach is often to analyze a group’s readiness to change, develop strategies to reduce or obliterate resistance, and then taking action to ensure that the change initiative moves forward.

The second perspective suggests a more nuanced approach to resistance. In general terms, resistance is seen as flowing within the narratives that are shared and conversations that occur as people interact in the organization. One might conceptualize this as an ongoing conversation that embodies the ongoing tendency within an organization to create both stability and adaptability (Brown & Duguid, 2000). This means that to change an organization, one must change the prevailing conversation that unfolds within that organization. This, in turn, calls for participative methods that allow people to engage meaningfully in processes of change.

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HOW PERSONALITY TYPE AFFECTS NEGOTIATING STYLE AND TONE

Mary Knepper and Chance Longo

Personality types fall into various categories, depending upon the assessment instrument, such as Myers-Briggs, DISC, or Colors. Each type has a corresponding negotiating style—accommodation, withdrawal, adversarial, compromise, and collaboration—and this negotiating style manifests itself in written and oral communication. When the negotiating style is appropriate for the audience and purpose of the communication, the communication is well received; if inappropriate, however, the best work and plans can meet resistance and even abrupt termination, cause disruption in a team, or alienate a client, because the audience does not accept the tacit negotiating style underlying the communication transaction. Understanding personality types and their influence on negotiating style can smooth interaction in the workplace. By understanding how personality triggers negotiating styles, communicators can control the words and structures that create tone to ensure successful communication.

UNDERLYING SCHEMA

- Business is built upon relationships. The healthier the relationship, the easier to conduct business.
- Communication creates and confirms relationships. To the extent communication does so positively through content and tone, business is enhanced. When it does not, business suffers.
- By knowing their personality type, communicators can predict their “default” negotiating style. Regardless of personality type, communicators need to control tone by recalling the appropriate relationship with their audience, which this paper suggests is most often the “collaborative style,” and by applying the structure and word choice specific to collaboration.

PROBLEMS WITH WRITTEN COMMUNICATION ARE EXACERBATED BY

- No body language
- Hurried composition
- Objectification of the other party
- Insufficient “prewriting”—choosing the appropriate negotiating style, regardless of personality or mood

BIOLOGY AND PERSONALITY

Genes influence personality dimensions.

1. Brain-imaging procedures show that extraverts seek stimulation because their normal brain arousal is relatively low.
2. Genes also influence our temperament and behavioral style.

E.g., differences in children’s shyness and inhibition may be attributed to autonomic nervous system reactivity.

PERSONALITY TYPES

THE “BIG FIVE” PERSONALITY FACTORS

(Memory tip: Picturing a CANOE will help you recall these.)

Trait Dimension	Endpoints of the Dimension		
Conscientiousness	Organized	↔	Disorganized
	Careful	↔	Careless
	Disciplined	↔	Impulsive
Agreeableness	Soft-hearted	↔	Ruthless
	Trusting	↔	Suspicious
	Helpful	↔	Uncooperative
Neuroticism (emotional stability vs. instability)	Calm	↔	Anxious
	Secure	↔	Insecure
	Self-satisfied	↔	Self-pitying
Openness	Imaginative	↔	Practical
	Preference for variety	↔	Preference for routine
	Independent	↔	Conforming
Extraversion	Sociable	↔	Retiring
	Fun-loving	↔	Sober
	Affectionate	↔	Reserved

Source: Adapted from McCrae & Costa (1986, p. 1002).

QUESTIONS ABOUT THE BIG FIVE

1. How stable are they? Quite stable in adulthood, but changing with development
2. How heritable are they? Fifty percent or so for each trait
3. How about other cultures: Common across cultures.

INDIVIDUALS AND ENVIRONMENTS

Different people choose different environments

Our personalities shape how we react to events.

Our personalities shape situations.

THREE PERSONALITY/NEGOTIATION STYLES

Altruistic-Nurturing

Trust, optimism, idealism, loyalty

Goal: Promote harmony

Assertive-Directing

Self-confident, persuasive, forcing

Goal: Attain a result

Analytic-Autonomizing

Logical, self-reliant, rational

Goal: Solve a problem

Cummings, L. L., Harnett, D. L., & Stevens, O. J. (1971).

FIVE NEGOTIATING STYLES

Accommodation: To appease, or try to keep the other party happy. A temporary solution. Used to avoid disagreement, perhaps while looking for common ground, create an obligation, gain time, create goodwill, or leave a bad situation

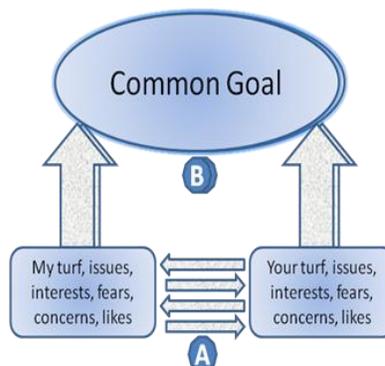
Adversarial: To subscribe to a win-or-lose mentality, use of authority, power, or advantage to defeat the other party. An effective but temporary solution. Used when you do not care about the relationship with the other party, you have no option, the stakes are high, your principles are at stake, you are the stronger party, you want to gain status, or if you are playing a sport or game

Withdrawal: To give up, show disinterest, retreat. A passive tactic that generally does not solve a problem, but can be temporarily effective. Used to gain a short-term advantage, remain neutral; to unnerve the other party, buy time; when the problem could solve itself, you cannot win, you win by delay, and stakes are low

Compromise: To give something and to get something back; bargaining. The best attainable, solid solution at the time, but one that can break down if an inequity is perceived later. Used to give both parties something, maintain the relationship, avoid enmity, and get something instead of risking everything; when the other party is equally strong; no time to ensure winning

Collaboration: To work toward a common goal, which both parties achieve. A long-term solution because the root of the problem is addressed and both parties' needs are met. This method requires good communication skill, open dialogue, patience, and trust in the other party. Used when both parties view each other as partners and value their work together toward a common goal, have complementary skills, full confidence in each other, want to reduce the cost and frustration of arbitration, have sufficient time to address a situation or opportunity fully, want to preclude use of other, less favorable methods.

ENVISIONING COLLABORATION



- How conflicts are born and how they build: Discussion stays at level A.
- How conflicts are resolved: Discussion posits B and means to reach it.

Figure 1: Model for Collaboration

STRUCTURE

1. Begin with courtesies.
2. Evoke a common goal.
3. State or allude to working together to achieve the goal.
4. Supply tactical details describing how to reach the goal, using deferential terms and balancing the load.
5. Conclude with an action plan or action courtesies, such as, “Let me know if you have questions.”

WORD CHOICE

1. Eliminate negatives.
2. State forward-looking actions.
3. Use active voice and shorter sentences to imbue the sense of momentum.
4. Use “we” unless the reader objects, as some clients might if their internal department feels rivalry toward you and your service.

ADDITIONAL RESOURCES

<http://literacynet.org/icans/chapter05/negotiation.html>

<http://www.adrr.com/adr1/essayb.htm>

http://www.ehow.com/list_6569615_five-negotiation-styles-managing-conflict.html

[*http://onlinemba.unc.edu/research-and-insights/developing-real-skills-for-virtual-teams/the-rise-and-staying-power-of-virtual-teams/](http://onlinemba.unc.edu/research-and-insights/developing-real-skills-for-virtual-teams/the-rise-and-staying-power-of-virtual-teams/)

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THE TECHNICAL COMMUNICATOR'S ROLE IN THE FACILITATION OF HIGH RELIABILITY ORGANIZATIONS

Judith L. Glick-Smith, Ph.D.

High Reliability Organizations (HROs) are organizations that are able to perform at maximum capacity in situations and environments where there is extreme potential for error and disaster. Examples of HROs are the fire service, the police, the military, hospital emergency rooms, and air traffic control systems. HROs offer an innovative model for business organizations. This model is driven by setting expectations, communicating those expectations, setting up systems that support the work of contributing individuals, and fostering a culture of mindful decision making and critical thinking. This paper describes what HROs are and discusses the ways that technical communicators can contribute to positive organizational transformation.

Most business organizations, with a few exceptions, do not have the same level of potential for error and disaster as organizations, such as the fire service or police. However, in recent years, we have witnessed negative corporate transformation at a magnitude that actually has resulted in disaster in the form of a tanked economy and a rapidly shrinking middle-class. This trend can be reversed by building and managing organizations in a way that allows them to anticipate unexpected events, such as market fluctuations, new entrants into product/service space, or the disappearance of the need for products or services. In addition, when (not "if") unexpected events occur, the organization must have processes in place to contain the impact of the event. This is what High Reliability Organizations (HROs) do best.

Once again, technical communicators find themselves in a position to be change agents in our organizations through our core competencies in message development and information design and organization; our service-orientation; and our ability to attend to detail while retaining our 40,000 foot vision.

PRINCIPLES OF HIGH RELIABILITY ORGANIZATIONS

What makes an organization a High Reliability Organization? HROs have the capacity to anticipate unexpected problems and events and they have the capacity to contain unexpected events when they do occur. They accomplish this by being mindful in their day to day decision making. Weick and Sutcliffe (2007) identified five principles by which HROs operate: (1) preoccupation with failure, (2) reluctance to simplify, (3) sensitivity to operations, (4) commitment to resilience, and (5) deference to expertise.

What enables an organization to have the capacity to anticipate is situational awareness, not only at the organizational level, but at the individual employee level. The principles of anticipation—numbers 1-3 above—focus on prevention of disruptive events. The principles of containment—number 4 and 5 above—focus on managing the event when it does occur.

PREOCCUPATION WITH FAILURE

HROs are preoccupied with failure. They recognize that events usually unfold gradually. They know that small discrepancies may indicate something is wrong and may occur gradually, almost imperceptibly. HROs are constantly, consciously looking for these discrepancies. They know that errors are easier to correct when they are caught early. People are encouraged to report errors without fear of being blamed or punished. HROs know that errors are going to happen. They encourage the reporting for the purposes of learning. In addition, people are encouraged to articulate mistakes they do not want to make. Individuals and the organization as a whole regularly assess the possibility that certain strategies can increase the risk of triggering mistakes.

RELUCTANCE TO SIMPLIFY

HROs are reluctant to simplify. When we categorize and generalize information, we risk the diminishment of the ability to accurately diagnose problems. Situational awareness is dependent on the ability to see the big picture while staying focused on the task at hand. Because of this reluctance to simplify, HROs welcome diverse experience—they realize that the more diversity they have, the richer the knowing will be. They practice skepticism toward received wisdom, encouraging critical thinking. Teams learn to negotiate tactics that reconcile differences of opinion without destroying the nuances that diverse people detect. And they do this often within very tight time constraints. Recognizing an event as familiar is a source of concern, because similarities may mask deeper differences that could prove fatal. When we organize, we simplify. It is important to be mindful and deliberate about our choices when we organize. Assumptions are what drive how complex a project will be.

For example, Weick and Sutcliffe (2007) dissect the Cerro Grande wildland fire that occurred in Los Alamos, New Mexico in May 2000. One of the biggest contributors to the devastation of that fire was due to a technical communication breakdown. The burn boss calculated the complexity of the event using a scale that was posted on the Internet. Based on this scale, he determined that the fire was of low to moderate complexity, when, in fact, it was a high-complexity fire. As a result, he waited too long to ask for additional resources. There were other simplifications that were applied in this event that caused a cumulative disaster. “Each misjudgment erred in the direction of underestimating difficulty” (p. 12).

SENSITIVITY TO OPERATIONS

HROs pay close attention to operations. They are big planners, but recognize that plans are only as good as the context to which they are applied. The “big picture” is less strategic and more situational. HROs are aware that the real work is accomplished on the front line and, as a result, give attention to those doing the work. This comes in the form of providing resources, training, and a work environment conducive to getting the job done. By doing this, they facilitate a workforce that focuses on developing a higher level of situational awareness, which, in turn, allows for continuous adjustments that prevent errors.

HROs recognize that, when people refuse to speak up out of fear, the system is undermined. They also understand that managers undermine the system when they don’t take the time to learn what people know. Conflicting content and interpretations of policy can stall operations and decision making. Training and communication are the keys to minimizing these misinterpretations.

COMMITMENT TO RESILIENCE

Even when organizations practice mindful attention to anticipating unexpected events, events still develop. When this happens, the HRO shifts its attention to containment. The fourth principle—the commitment to resilience—is enables the organization to adjust quickly in situations where the unexpected has happened. Resilience is the ability of a system to stretch and return to something resembling its former shape. HROs understand that there will be errors regardless of how efficient they are. The goal is to learn from error, rather than avoid it.

Resilience occurs when the system continues to operate despite failures in some of its parts. The organization is able to withstand the strain and continue to function. It is able to recover from unforeseen events. It is able to learn and grow from past experiences. The goal is to minimize or eliminate unwanted variability so that the system can continue and rebound. The better the organization is able to process negative feedback, the faster it will recover from unforeseen events. When the organization can learn from this feedback quickly, it becomes better equipped to deal with future events.

DEFERENCE TO EXPERTISE

HROs understand the need to decouple authority and expertise, because experience is no guarantee of expertise. In other words, decision making needs to be done by those with expertise, not necessarily by those with authority or rank. HROs also recognize that expertise lies in relationships, as well as individuals.

HROs cultivate diversity because diversity enables a better response to complexity. Events that may have started out as minor errors that were not caught early actually often explode because those minor errors have combined with higher-level errors to make the issues much bigger. By pushing decision making down and around, HROs facilitate a more diverse response to complex events.

HROs foster an environment of credibility, trust, and attentiveness within the team. This is evident within the “family orientation” often found in HROs. These values are necessary for expertise to flourish at the team level. There is an unspoken acceptance that expertise is as much collective as it is individual. Good HROs see it as a sign of strength to know when you have reached the limits of your personal knowledge and know enough to ask for help. Expertise consists of knowledge, experience, learning, and intuitions—rarely is this found completely within one person.

CREATING AN HRO CULTURE

Culture is more than content; it is also knowing and sense-making. While leadership always serves as the model for cultural change, ultimately change happens when individuals choose to change. Individual mindfulness champions mindful behavior, setting the example for others.

Unfortunately, culture change is often born out of tragedy. However, it is also possible to deliberately change organizational cultures. This is done by first addressing the organizational issue at hand. The trick is to focus on existing cultural strengths rather than attempting to change those elements that may be weaknesses. This requires mindful, objective analysis. Close scrutiny must be paid to paradigms associated with the cultural issue to be addressed. This has to happen by addressing cultural change integrally, addressing the organization as a whole. It is also possible to change culture through differentiation in a localized manner or through fragmentation, or issue-specific, manner. However, unless all three approaches are addressed, change will not be complete.

THE TECHNICAL COMMUNICATOR’S ROLE

How does the technical communicator fit into the effort to create an HRO? Culture change is initiated through the identification of and codification of symbols and “artifacts” which enable people to act their way into new values. Content related to culture is about the specifics that are loosely shared, binding people together. These specifics are in the form of specific approaches, methods, and practices; priorities and the ways priorities are set; the assumptions used to make decisions in various scenarios; the expectations people have about the organization and how it operates; the value system in place; the identification of significant events and the ability to create and sustain meaningful ritual which honor those events. These are all activities that are in the purview of the technical communicator. We know how to capture the essence of all these activities, create the proper messaging deliverable, organize the ideas and content in a way that communicates, and push it out to those who need it. These abilities facilitate an informed culture. An informed culture is a mindful culture.

HROs focus on wariness to stay mindful, informed, and safe. Common content is a thread in mindful cultures and enables people to focus on wariness, which is instilled when we gather, process, and communicate the right kinds of information. The fire service does this through near-miss reporting. Near-miss reporting is the reporting of events in a way that avoids blame. Firefighters share a website that has been established specifically for near-miss reporting. Anyone can access this website to learn how others handled various critical incidents. “The National Fire Fighter Near-Miss Reporting system is a voluntary, confidential, non-punitive and secure reporting system with the goal of improving fire fighter safety” (*National Fire Fighter*, n.d., para. 1). Reports submitted to this system are reviewed by fire service professionals. All identifying

information is removed to protect the identities of the submitting firefighter. Then the report is posted on the website for others as a learning tool (Glick-Smith, 2011). This type of candid reporting of errors takes trust and trustworthiness.

An informed culture is (1) a reporting culture; (2) a just culture, which refers to how people apportion blame; (3) a flexible culture, which is how people adapt to sudden and radical changes within events; and (4) a learning culture, which is how people convert lessons learned in to reconfigurations of assumptions, frameworks, and action. As technical communicators, we can facilitate all of these subcultures through all of our core competencies. In the past few years, we have focused on minimalism and conciseness, which are still worthy goals, but we have a responsibility to be mindful about how we organize and simply information. We must always remember who our audience is and communicate the appropriate level of information for that audience.

CONCLUSION

High Reliability Organizations focus on the abilities to anticipate and to contain. Anticipation consists of a preoccupation with failure, a reluctance to simplify, and sensitivity to operations. Containment refers to commitment to resilience and deference to expertise. Improvements in resilient performance lie in the hands of those who have a deeper grasp of how things really work. Mindful people hold complex projects together because they understand and communicate what is happening. Information design, organization, and delivery help untie the inherent knots within complex systems. Capturing the knowledge of experts and coordinating the dissemination of that knowledge is key. Communication facilitates trust among all stakeholders. HROs cannot function without trust and trustworthiness. Technical communicators are the logical professionals to take on the role of change agents for organizations who want to be HROs.

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Judy has a Ph.D. in Transformative Studies with a concentration in Integral Studies from the California Institute of Integral Studies. Her dissertation research involved an investigation of critical decision making in the fire service. She has a Master’s of Science in Conflict Management from Kennesaw State University and a BBA in Accounting with a minor in Information Systems from Georgia State University.

Judy is a Fellow and Past President of STC. She has been elected to serve on STC’s Nominating Committee for the 2012-14 years. She is STC’s 2006 recipient of the President’s Award. She currently serves as a member of the CAC’s Outreach Team.

VIRTUAL VS. LOCAL TEAMS: COMMUNICATION SUCCESS AND FAILURE

Kathleen Moore

Some work projects are better suited to the distributed or virtual approach; some workers, some teams adapt to the virtual workplace more easily. In all cases, there are advantages and disadvantages associated with either on-site or virtual teams. As Western private life has evolved to include so much online commerce and socializing, managers now assume that technological workers are as eloquent and at ease in the virtual world as in their own skins. The contribution of communication and technical communicators in team success is discussed. We also look to future trends for virtual teams and communication.

TEAM CONTEXTS

Virtual teams have become almost inevitable for today's high-tech worker. As electronic communication and social media infiltrate our lives, many managers may now assume that interactions in the virtual world are as comfortable as in the traditional office. Indeed, some scholars suggest that the anonymity and invisibility offered on the internet and on some virtual teams provide heightened comfort compared to real life for some practitioners (Turkle 2011).

Common drivers for virtual teams include projects that cross corporate structure and geography; the geographic complications involved in company mergers and acquisitions; a desire to recruit remote talent; or increasing time coverage by spreading a team over multiple time zones. The changes in technology that saturate our personal lives--communication strategies like text messaging, Twitter, chats, Facebook, Google+, and other technology mediations that virtualize daily life--leak into work as well, and affect the operation of virtual teams. Each technology option is a new factor in the permutations and combinations of choices for a virtual team's communication methods.

Virtual teams take many forms: telecommuters, on-site teams with consultants open source projects comprised of volunteers nonprofit teams with a small staff coordinating dispersed volunteers large corporate worldwide departmental or project teams, and many others. For the purposes of this discussion, "local team" is a group of people working on a unified goal over a period of time at a single geographic site.

Like the variety of virtual team charters, there is a plethora of synonyms for the pair of terms used here: "virtual team" and "local team."

Virtual Team	Local Team
V-team	Co-located team
Distributed team	Traditional team
Off-site team	Local team
Nontraditional team	On-site team
Global team	Office team
Out-sourced team	Face-to-face team
Geographically dispersed team (NDT)	Nonvirtual team

CHARACTERISTICS OF TEAMS

In pursuit of information for this article, I not only read recent literature and also queried STC SIG members and searched the TECHWR-L archives. The positions presented by the two main information sources are:

Literature: The literature was predominantly aimed at team leaders and managers rather than members and described virtual team projects as huge, monolithic tasks that consumed a person’s attention and energy as their primary assignment. The articles were overall pro-virtual team and focused mainly on culture, communication, and technology.

STC: The reports from the tech writing community represented both team leads and members, with experience on one or more virtual teams. They reported that communication is of the utmost importance, that there are advantages and disadvantages to their virtual team experiences, and that the impact of culture on their teams varied. Technical writers’ reported advantages included a 24-hour turnaround time, working from home to accommodate a disability, improved productivity with reduced distractions, plus a better organization than silo’d work teams. They emphasized that face-to-face meetings and overall communication are areas to focus on.

Contrasts between virtual teams and local teams are highlighted in the following table. The defining difference of *geographic dispersion* often results in expanded work hours. Additionally, absence from the physical office tends to blur work hours outside of traditional office hours for many “virtual” workers. As geographic spread increases, so does diversity, leading to additional cultural considerations for participants of a virtual team. Computer-mediated interactions make the virtual team technology-dependent, which potentially hinders growth and response or creates a crisis when it breaks down, and the lack of human face-to-face interaction historically underlies many of the trust and bonding issues associated with virtual teams (Arnison and Miller 2002). Virtual teams’ lack of prior definition and wide horizons allow for innovation in team creation and scope that isn’t even considered when forming traditional teams.

Virtual Team	Local Team
Geographic dispersion	One site
Time shifted	One time zone/site
24-hour cycle	Time constraints
Increases diversity	Accustomed diversity
Tech-dependent	Usual platforms
Minimal face time	Customary interaction
Flexible	Corporate or organizational time ethic
Malleable definition	Traditional “team”

WHY NOT VIRTUAL?

The characteristics listed in the table above mean that a virtual team is an *intensified* team. They require more management, team building, project infrastructure, technology infrastructure, communication, cooperation, attention, and preparation and administration time than traditional, local teams typically do (Brown, Huettner et al. 2007). A wise team leader takes many actions to help a virtual team be the best it can virtually be.

Virtual team members have their own tools to apply to virtual team success. These are similar to the tools we all use for any kind of team success—planning, communication, consideration—but in the virtual environment they need to be applied more frequently, thoroughly, and conscientiously. More intensely.

Of all the balls to keep up in the virtual air, communication is widely acknowledged as fundamentally important (TECHWR-L archives 2002; Brown, Huettner et al. 2007; Skill Soft 2008), and we, as professional communicators, are in prime position to contribute to successful communication strategies and behaviors on our teams.

When teams work virtually, they miss serendipitous interactions and cues that underlie bonding in office settings. No hallway run-ins, break-time soccer games, lunchroom chit-chat, or shared constitutionals. Virtual teams are also likely to lack commonalities, such as the similar offices, technology systems, commutes, and office protocols that create community in a local project team. Additionally, in a case when these factors do vary on-site, the differences are more likely to be apparent and knowable, not mysterious information that is only obtainable through some sort of personal query. So virtual teams must pay extra, deliberate, attention to bonding, communication, and trust-building to overcome these barriers (Brown, Huettner et al. 2007). There are other costs or disadvantages associated with virtual teams, not so closely associated with communication, that are not addressed here. To learn more about them, see the resource list at the end of the article.

OPTIMIZING VIRTUAL COMMUNICATORS

Communication is a key area for virtual team success: It is the basic tool to address isolation, cultural differences, status and administration, and building a sense of community and esprit de corps. Without effective and properly calibrated communication, both the quality of the team's work and the day-to-day experience of its team members will be reduced.

The most common complaint from virtual team members at the end of projects relates to some form of communication flaw (Skill Soft 2008). Since 70% of face-to-face communication is nonverbal, that component is lost in most virtual teams. To compensate, *overcommunicate*: Enunciate clearly, speak with energy, write with extra care. For voiced media such as phone calls or teleconferences, enliven your voice by walking around, gesturing, and having a target such as a photo or avatar at which to address your comments. Verge on the theatrical (Economist Intelligence Unit 2009). Like the adage that the "camera adds ten pounds," the electron muffles messages.

As a team, define your communication protocols clearly and early, perhaps using a team exercise. On virtual teams it is important to be explicit about topics like email response times and out-of-office messages, providing reading material before meetings, and similar administrative behaviors that on local teams are understood, are taken in stride, or that are less likely to become serious roadblocks when malfunctioning. Team-building exercises emphasizing communication processes can help open communication on the virtual team.

The importance of clear communication can be seen in a software company's hiring of a consultant to provide coaching to improve meetings. Although the majority of their meetings involved dial-in participants, the preparations failed to uncover the need to discuss that topic. All of the virtual, dial-in meeting participants and the virtual meeting coach suffered consequences of inadequate communication. Since poor meetings lead to bottom-line effects, presumably everyone at the company suffered the consequences eventually.

An example on a larger scale is the loss of a NASA Mars orbiter in 1999, when the two teams working on the orbiter failed to notice they were each working in different measurement systems: one metric, one Imperial. Their routine project communication did not uncover the assumptions.

The most commonly recommended recourse for virtual teams is to hold face-to-face meetings, particularly for the initial set-up phase. At this initial gathering, the group can clarify expectations, get acquainted, have a social outing. There should be regularly scheduled follow-up gatherings. Video meetings may help with some teams, but not everyone prefers video over less-personal methods (Turkle 2011). For example, some studies report that males prefer to avoid eye contact during negotiations and East Asians have a preference for texting (Economist Intelligence Unit 2009).

During your team communications, go big. Enlarge your personality, be thorough, follow through. Accentuate your humanity. Outside of face-to-face meetings, celebrate, share “in” jokes, and distribute treats, photos, and bios.

Remember that on a virtual team, you ARE your communication. Your colleagues know you by your style, frequency, cooperation, clarity, and competency.

Be forewarned: The changes advised here—“overcommunicate” or “share jokes”—for many in the high-tech virtual meeting cohort, such advice is difficult or unwelcome. We all know that programmer who prefers to be in the dark cave, head down over the keyboard, communing over the chat window or bonding in a forum, or that QA Tech who wants to be the quiet one in the back of the room meeting deadlines and getting good reviews without individual fanfare. Working on a virtual team generally requires open-mindedness in work style to accommodate the diversity of the membership and also flexibility and accommodation from the lead or management to fit the quirks and flair of particular members. To diagnose and address culture and style issues on the team requires healthy communication. Part of the diversity on teams is that some people see the value in changing their behavior to improve the functioning of the team, but others are skeptical or simply so uncomfortable that the requested change will never be an option for them. Part of the team culture is adjusting to the outliers on the virtual team norms for procedures and attitudes. Are they criminal, weird, or charmingly different? How much deviation from perfection can this virtual team’s processes handle?

The communications dependency of virtual teams also has this cost: Members sometimes wish for protection from a deluge of emails, texts, or other messages from one or more team members. Depending on the team’s time-clock protocols, members may also find communications leaking into their “real life” as meetings and messages demand their attention during nontraditional work hours. Some reports associate a loss of work/life balance with virtual teams, while others suggest that the flexibility improves work/life balance (TECHWR-L archives 2002).

VIRTUALLY COMMUNICATING

The ubiquitous mobile and social technologies that virtual team members use in their personal lives help some virtual workers navigate gracefully through virtual work communities, while others introduce the same problems that online communities experience, such as inattentiveness, heroic members and almost invisible lurkers, and the varieties of isolation and aggression exhibited by some drivers in their insulated automotive environment (Turkle 2011).

While social media may allow team members to navigate electronic media more gracefully, they do not automatically ensure higher quality, more realistic interactions. People adapt online personae and behaviors for their social tweets, chats, IMs, etc., that may be counterproductive for the work environment. On a virtual team, churning out messages can give a misleading feeling of productivity when the end product or progress toward the goal is what truly needs to be produced. Electronic media allow a sense of intimacy, but because of the complete at-will nature of the most commonly used forms, such as email and chat, the levels of socialization and familiarity that we are accustomed to when teamed more traditionally in a brick-and-mortar location typically are not achieved on virtual teams (Kimble 2011; Turkle 2011).

Even after you’ve succeeded in communicating with your teammates, more communication challenges lie in wait. Others have their own personal communication preferences; some introverts prefer to work undisturbed and tend to ignore calls for discussion or feedback; some are rules-oriented while others want free-form interaction guided by their own impulses. Some speak up only when directly questioned; some speak just to fill a silence. Virtual team members need to adapt to team meetings that include momentary pauses allowing slow speakers opportunities to be heard; permission to question, disagree, and admit mistakes, and methods that solicit information from the heads-down introverts without leaving them feeling battered.

Electronic media are increasingly integrating into our lives. Recent news reports include a British man who embedded a docking station for a cell phone into his prosthetic arm, development of a digital tattoo by Nokia that is predicted to vibrate alerts for medication doses, phone calls or other messaging, and work on augmented reality glasses from Google.

As the Gen Y workers, who grew up with the internet as a birthright, move up through the workforce, attitudes toward virtual teaming and electronic communication will continue to evolve. A Gen Y worker's relationship to their electronic devices is passionate and inseparable, and the norm may be shifting to virtual as the preferred team format and in-person as the less-desired method of relating—one that requires extra-special, face-to-face skills (Chidambaram 2005).

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WHAT SHOULD TECHNICAL COMMUNICATORS DO WHEN PRODUCTS “JUST WORK”?

Ellis Pratt

One of the challenges Technical Communicators face is the sometimes held belief that “no one reads the manual”, and that the technical documentation budget would better spend on improving the usability of product itself. We’ll look at how to deal with this belief, and what it means for our future.

WHAT DO I MEAN BY “JUST WORK”?

In this presentation, I describe products that “just work” as products that: are straightforward to install, very rarely go wrong, are intuitive to operate, and are efficient and effective in fulfilling their purpose.

A PROFESSION IN AN EXISTENTIALIST CRISIS?

In the United Kingdom, there has been a reduction in demand for Technical Communicators, when compared to other roles in the IT sector, in recent years. This has also been reflected in the salaries and rates for both permanent and contract Technical Writers. For permanent writers, the average salary advertised between 2004 and 2011 has risen barely in line with inflation, and for contract writers, the average rate advertised has remained the same for the last seven years – so in real terms, they are worse off.

This has been caused in part, because Technical Communication is a profession that struggles to measure its value. For example, we often cannot tell how many “customers” we have (i.e. how many people read the documents we produce) or the effects of people reading the information we produce.

We have seen new software and technological products released that have minimal user documentation. These include Software as a Service (SaaS) applications and products such as the iPad. This has led some developers to believe good design can replace the need for a manual.

This has resulted in uncertainty with regard to the future direction for the profession, career progression, and how best to promote the value of technical documentation.

Where we have seen a demand for Technical Communicators, it’s often been for those with specialist expertise, for example in regulatory compliance or API documentation. This has led some to suggest Technical Communicators need to become ever more technically adept.

I believe this is an incorrect assumption, because there is likely to be only a limited demand for writers who know these specialist subjects.

THE EVOLUTIONARY STAGES OF TECHNOLOGY

I have come to the conclusion that the demand for Technical Communicators has reduced because a great deal of technological products and software have moved into a new “evolutionary stage” of development in recent years.

In two TED.com presentations, futurologist Kevin Kelly argued that technology is evolving in a way similar to the way life evolves. As life has evolved through spurts of diversity, complexity, specialization and so on, technology is doing the same.

If we take some of the key factors in the evolution of life and use these to map the “evolutionary state” of technology, for many years technological products have traditionally been complex, specialist and varied.

The origins of the approach to technical writing today lie in post war standards such as Quick Reader Comprehension (QRC), Sequential Thematic Organization of Publications (STOP), Information Mapping, Minimalism, SGML, DocBook and, more recently, DITA. These standards recommend an approach for technical writing that is geared towards products that are typically expensive, potentially dangerous and complex: write clear, succinct, authoritative content.

THE NEW EVOLUTIONARY STAGE OF TECHNOLOGY

However, in recent years a great deal of consumer and office technology is no longer complex, specialist and varied. In the areas of greatest technological growth, such as in mobile telephony, Web-based applications, portable media devices and tablets, the products have been typically easy-to-use, ubiquitous, and perhaps even mundane.

HOW DO WE ADAPT TO THIS CHANGE?

So some Technical Communicators find themselves working in organizations that believe their products just work. They argue that, in the same way users no longer need guidance on how to use a light switch, they won't need guidance on how to use their products.

WHAT IF THEY ARE CORRECT?

If products simply work (or work simply) then the traditional writing models may not be appropriate and the traditional cost/benefit arguments for technical documentation may not apply. For example, if users are throwing the product away when they get stuck, rather than calling a support line, then there is less benefit from technical documentation reducing the number of support calls.

A product may have become a commodity, which might not be what the organization wanted. Where there is little to differentiate between products, organizations often focus on creating customer loyalty through branding. In this situation, Technical Communicators may need to focus on creating documentation that improves the brand image. This may require a change in writing style, to something that is similar to marketing copy. You may need to engage and entertain readers, as well as inform.

It is often the case that there is a great deal of complexity in the background of a product that causes it to be easy and intuitive for the user. In this situation, technical communication becomes a Usability and User Interface issue. Research carried out by Briana Wherry, Documentation Manager at Alfresco Software Inc., into why popular "cool apps" (such as Facebook and Box.net) were "cool" revealed that there was, in fact, a great deal of User Assistance embedded into the User Interface. It was "Help" albeit under different names and with two extra "x factors", but online Help nevertheless. In this situation, Technical Communicators may need to be responsible for the dialog and error messages.

It may be the case that technical communication may have become part of the training provided by the organization. You may only need to explain concepts to new users.

So, even where the product does "just work", there still will be a need for technical communication.

WHAT IF THEY ARE WRONG?

I believe developers will, in most cases, fail to design away completely the need for User Assistance.

Not all products work simply. If we go back to our light switch example, there are situations where users actually do need help - for example, when faced with a bank of switches controlling the lights for a theatre stage, or knowing how to turn the lights on a Jumbo Jet.

Industry “game changers”, innovative products that can shake up and dominate a sector, typically introduce instabilities into a market. That’s because this new product may require users to understand new concepts or it may be unstable as well as innovative.

Adrian Warman PhD. argues Technical Writers tend often to be compensating for the lack of simplicity in “perfect products”. Their role is to connect users back to a simpler positioning.

Like the product that sells itself, the product that doesn’t need a manual may well be a sign of organizational hubris.

As developers create more sophisticated and complex SaaS (and other Web) applications, and new technologies are integrated with other devices, it’s possible we’ll move to an evolutionary stage of technology that’s broadly the same as the traditional shape we looked at earlier.

The challenge for Technical Communicators is to get their organization to recognize its products are less intuitive, more complex and more specialized than it currently believes. Getting colleagues to draw a radar diagram (describing the product’s levels of complexity, specialization, ubiquity, sociability and diversity) and comparing that with other products may be one way to achieve this.

CONCLUSION

It would be a mistake to assume that any decline in the demand for Technical Communicators has been because products have become more technical. Instead, it may be because of the opposite reason - many products have become simple to use.

Technical Communicators are likely to have to deal with two different documentation models, in the future. For products that remain potentially expensive, dangerous or complex, the traditional model for documenting products and the demand for technical documentation will remain. For the other products that “just work”, we’ll need to adopt different approaches for assisting users.

ADDITIONAL RESOURCES

Pratt, Ellis, Gamification (UAEurope conference 2011) <http://www.youtube.com/watch?v=Y40AnBOE20w>

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WHY NOT DOCBOOK?

Richard L. Hamilton

No tool or technology is perfect for every application. However, we often lose sight of that fact when it comes to a new technology. At the moment, DITA is widely seen as the “go to” XML schema for technical communicators. While DITA is the right choice in many situations, there are other choices that may fit your needs better. In particular, DocBook is a mature, well-supported standard that has wide acceptance in areas like publishing and open source projects.

BEFORE YOU CHOOSE AN XML SCHEMA

Selecting an XML schema is like selecting any technology. **Rule one:** never choose any technology (including an XML schema) until you understand your audience, your content, and your deliverables. **Rule two:** when in doubt, you probably don't understand your audience, content, or deliverables well enough.

Technical communicators like to think of themselves as problem solvers, and that is an important part of our job. However, if we're not careful, that problem solving tendency can lead us to jump to potential solutions before we understand the problem we're trying to solve. When that happens, we are likely to bend the problem to fit that solution, and when that happens, our “solution” will likely no longer fit the original problem.

As soon as you inject a technology into the discussion, it essentially becomes a requirement itself. That is, saying we need to do XYZ with schema D is significantly different from saying we need to do XYZ. In fact, it goes deeper. Saying we need to do XYZ and assuming the technology will be XML-based also inserts a requirement that distorts the problem and can lead to the wrong solution.

That said, in typical technical documentation situations, XML is the likely best choice for your underlying technology. But before you can say that for sure, and certainly before you select an XML schema, you need to consider the following elements of your content strategy:

- ⤴ **Your audience:** who do you need to reach, why do you need to reach them, and what do they need?
- ⤴ **Your message:** what are you trying to communicate to/with your audience?
- ⤴ **Your content:** what information do you need to develop or repurpose for your audience?
- ⤴ **The media:** how do you need to reach that audience?

All of this needs to come before you even start thinking about technology. But, once you have a good understanding of your content strategy and understand the media you will use to reach your audience, it is appropriate to consider technology and schemas (assuming XML is in the mix). This discussion assumes you have reached that point and are now considering schemas.

CHOOSING AN XML SCHEMA

The chances are pretty good that unless you have special needs, or an existing customer or industry requirement, the pressure will be on to use DITA. DITA has a lot going for it. It is well-supported by a wide variety of tools, and it is designed to be customizable through a process called “specialization,” which in addition to giving you a great deal of latitude, also guarantees interoperability if handled correctly. If you need help from an expert – and the odds are that you will – there are plenty of very good consultants to choose from.

However, no XML schema, including DITA, is perfect for all situations. Just as you don't want to tie yourself to any particular technology before you have worked out your content strategy, you don't want to tie yourself to a particular schema before you understand your requirements and how you're going to use that schema.

So, when should you follow the crowd, and when should you break away?

If you are working in certain industries, for example Aerospace, you will probably need to use an industry-specific standard like S1000D. If you're in that boat, then you probably don't have much choice. If not, your choice probably boils down to DITA and DocBook.

If you are building a solution for a large organization, are using topic-based authoring, need to customize for your requirements, and have a budget for a content management system, consulting, and training, then you should give DITA a serious look.

If you are a smaller organization, need minimal or no customization, and have a limited budget, then you should give DocBook a serious look.

THE CASE FOR DOCBOOK

Conventional wisdom is that DocBook is your best choice for “book-like” documentation, and DITA is best for topic-based documentation. While there is some truth in this, it is possible to create topic-based documentation using DocBook and books using DITA. I have done both. My company, XML Press, has published books using both DocBook and DITA, and the company I used to work for, Hewlett-Packard, used DocBook for topic-based help systems as well as books. While I would lean towards DocBook for books and DITA for topics, there are other considerations that I think are more important.

SIMPLICITY

While it may be strange to call a schema with around 400 elements (DocBook) simpler than one with less than 200 (base DITA), simplicity in a schema is more than a count of elements. Simplicity is as much a measure of usability as it is a measure of breadth. DocBook is built around the concept of a book, and out of the box, its elements and attributes are likely to be understandable by anyone who has written anything longer than a Facebook status update.

Out of the box, DITA gives you – deliberately – a very loose schema with broadly-defined elements that are meant to be specialized. You can use DITA out of the box, but it doesn't give your writers much guidance on how to use the elements, and it is quite possible to generate truly bizarre structures. Therefore, most DITA experts recommend against using DITA out of the box.

A properly designed DITA specialization can be as simple to use as any schema, but that specialization needs to be properly designed by skilled engineers, and will need to be documented and taught to writers. If you can justify the return, then go for it. There are existing specializations for particular domains, but they have additional elements and also require a certain amount of training.

On the other hand, DocBook gives you a complete, fully realized set of elements that are likely to be intuitive to your writers, even if the set isn't an exact fit to your needs. If they are close enough to meet your needs, you can avoid specialization altogether.

Another aspect to complexity comes in linking and references. DITA comes with a wide variety of useful capabilities that support reuse. These include the conref facility, which allows you to include content in context, and the keyref facility, which supports indirection in addressing. While powerful, these capabilities need to be mastered and carefully applied to be effective.

DocBook provides a simpler linking model, which though less capable, is easy to use if you don't need the more complex capabilities provided by DITA.

Finally, in another case of complex capability versus simplicity, most non-trivial DITA applications make extensive use of maps to create deliverables. While powerful and very flexible, you may be able to do what you need with DocBook's simpler, but still capable, structure.

Overall, if you need to support complex structures with extensive reuse, then it may be worth the effort to look at DITA. But you will need to spend some effort understanding how DITA works and how to make the best

use of it. Even if you are already expert in using XML, you will find some aspects of DITA foreign. In fact, you may actually have more trouble if you are familiar with other XML schemas, because DITA simply works differently.

If your structures are straightforward and book-like, then DocBook is going to be simpler. There is a new effort in the DocBook Technical Committee to create “assemblies,” which are similar to DITA maps, and to support transclusion, so if you’re starting out simple, and need to grow to more complex structures, you can still do that with DocBook. But, these new capabilities do not change the basic, straightforward nature of DocBook.

TOOLS AND SUPPORT

Both DocBook and DITA have associated XSL stylesheets. At this time, the DocBook stylesheets are more mature, better documented, and more capable than the DITA stylesheets (the DITA Open Toolkit). The DITA Open Toolkit stylesheets are regularly updated and will allow you to do nearly everything you might want to do, but the DocBook stylesheets have the advantage of many years of development and use.

You can create a complete book – with TOC, index, bibliography, and all the other things you associate with a traditional book – with out-of-the-box DocBook. To do the same with DITA, you will need to use the DITA for Publishers specialization and toolkit plugins, which, though capable, are not as complete as the standard DocBook stylesheets.

Both will create eBooks in ePub format, though again you need to use the DITA for Publishers add-on or an equivalent customization with DITA.

If you have skilled engineers who have experience with XSL, you can make either do what you want. If not, you will probably find the DocBook stylesheets easier to use and easier to customize, in large part because of Bob Stayton's book, *DocBook XSL: The Complete Guide*, which is an in-depth guide to the DocBook stylesheets. At the moment, there is no equivalent guide to the DITA Open Toolkit.

There is an active set of mailing lists for DocBook, including one dedicated to DocBook applications and the stylesheets. DITA also has a good mailing list, and the mailing lists for both schemas are followed by top experts who participate actively.

Another aspect of tool choice is content management and content management systems (CMS). You can use either schema with or without a CMS, but you will probably find that you need a CMS with DITA sooner than with DocBook because there will almost always be more moving parts with DITA, and as your system grows, you will want tools to support all those moving parts.

MAKING THE CHOICE

DocBook is an attractive alternative to DITA for organizations that need a solid, capable, XML platform. It is particularly applicable where you need functional out-of-the-box performance at a reasonable cost. If you need to be on the cutting edge of reuse and topic-based authoring, and you can afford the time and expense to build a custom environment, I would recommend looking closely at DITA with a capable Content Management System (CMS). Otherwise, I say, “Why Not DocBook.”

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He is the author of *Managing Writers: A Real-World Guide to Managing Technical Documentation*, and is a member of both the DITA and DocBook technical committees at OASIS Open.

CREATING EPUBS: WHAT'S THE BEST TOOL FOR ME?

Scott Prentice

You've decided that making your documentation available as EPUB files is the way to go. But with so many tools available, how do you decide on the best option for your specific workflow?

This paper lists the most popular tools currently available for creating files in the EPUB format. It discusses the pros and cons of the tools, as well as how that tool or process can fit into your documentation workflow. Many tools claim to export to EPUB, but some fall short of being truly useful and efficient for that task. After reading this paper you'll have a better idea as to where to focus your time when researching your EPUB creation options.

EPUB OVERVIEW

An EPUB is an ebook file format that can be read on almost every device and platform. You'll often see "EPUB" cased as "ePub" or "ePUB," but EPUB is the trademarked term. To read an EPUB requires a reader application or dedicated reader device.

An EPUB is a collection of XHTML, XML, CSS, and media files wrapped up in a "zip" archive, conceptually similar to an HTML Help (CHM) file.

Because an EPUB is just a collection of file types you're probably familiar with, you might consider creating one by hand like you would a website or simple Help system. Technically, this is possible, but it's best to use a tool to ensure that all of the pieces are in place and the files are linked properly. Regardless of how you create your EPUB, you should always use the epubcheck validator utility to confirm that it meets the requirements of the standard.

The best way to learn about the EPUB format is to open one up and review the contents. This can be done quite easily by changing the extension to ".zip" and using your archive extraction tool to extract the contents to a folder. If you review the contents of multiple EPUB files, you'll likely see that the arrangement of the files inside each EPUB can vary a fair amount. This is to be expected, since it's the relationship between the references in the files that is important, not the actual file names or folder structure.

All EPUB files will have a container.xml file in a META-INF folder, this file contains a reference to the "OPF" file. The OPF file will often have an ".opf" file extension, but this is not required. The OPF contains metadata, then a manifest section, which lists all of the files within the EPUB, and a spine section, which defines the reading order for the content. One of the items referenced in the manifest is the NCX file. Again, this file is not required to have a ".ncx" file extension, but that is common. The NCX file defines the order and hierarchy of entries in the TOC. By understanding these relationships, you'll be able to open up and decipher any valid EPUB file.

The EPUB specification is maintained by IDPF (International Digital Publishing Forum). In October 2011, IDPF released the EPUB 3 specification, which supersedes EPUB 2.0.1. EPUB 3 substantially updates the earlier specification by integrating HTML 5 as the content format and CSS 2.1/3.0 for layout and styling. This opens up many new options for supporting multimedia, scripting, and interactive design. EPUB 3 also adds updated support for SVG as well as MathML, among other features. However, as tempting as it might be to take advantage of these new features, there is limited support (as of this writing) for EPUB 3 in the current authoring tools and reader applications.

METHODS FOR CREATING AN EPUB

There are basically two options:

- ⤴ Author directly in a tool that exports to EPUB
- ⤴ Convert from a source format into EPUB

Some tools will end up in both categories since they may offer an authoring interface as well as provide the ability to import from other formats and export to EPUB. Depending on your situation, this may be the first thing to ask yourself when choosing a tool. For people in the technical communication industry, it's likely to be more common that they would be converting to EPUB since single-sourcing is a key component to that publishing workflow.

In general you'll get nicer looking output if you author specifically with EPUB output in mind. When authoring for EPUB it is important to use named paragraph and character styles. This is the case whether you're authoring in a tool that exports to EPUB or authoring in another tool then converting to EPUB. A well designed conversion or export process will convert the named styles into CSS selectors, and use those in the underlying HTML.

OTHER CONSIDERATIONS

When choosing an authoring or conversion tool, you'll find that there are a number of options for the Windows platform, fewer for Mac, and even fewer for Linux and Unix-based systems. You're also faced with quite a wide range of prices, from free to many hundreds of dollars and up. Just keep in mind that while tempting, free tools often cost more in the long run, but that doesn't mean that the most expensive tools will do the best job. That said, there are some free EPUB tools that are very useful to have available during development. Additionally, because this is a relatively new field, there are new tools coming out all of the time. Watch for new tools and give them a try.

You'll find that it's good to have many tools at your disposal. Initially you will want to test as many as possible with your actual content, but in the end it's likely that you'll need multiple tools to get the job done properly. At this time, there is no single tool that produces the perfect EPUB. This is largely due to the fact that all ebook readers and applications will render the same EPUB slightly differently (some not so slight). When creating an EPUB you'll want it to look as good as possible on the widest array of readers. This will probably mean that you'll need to "tweak" the EPUB after it's been generated by whatever tool or conversion process you've selected.

POPULAR EPUB AUTHORIZING TOOLS

The following table lists the popular authoring tools which offer an EPUB export option. Some are designed specifically for EPUB authoring while others are more general purpose authoring tools. Many of these tools can also be used as EPUB conversion tools since they can import a variety of formats. Some tools also have the ability to perform batch conversion to EPUB through a scripting mechanism or API.

Authoring Tool	Platform	Cost
Adobe InDesign	Windows/Mac	\$700
Adobe RoboHelp	Windows	\$1,000
Adobe Technical Communication Suite	Windows	\$1,900

Authoring Tool	Platform	Cost
Apple iWork Pages	Mac	\$70
Atlantis Word Processor	Windows	\$35
eCub	Windows/Mac/Linux/FreeBSD/Solaris	\$0
Jutoh	Windows/Mac/Linux/FreeBSD/Solaris	\$40
MadCap Flare	Windows	\$1000
oXygen XML Editor	Windows/Mac/Linux	\$488
Scrivener	Windows/Mac	\$40/\$45
Sigil	Windows/Mac/Linux	\$0

Some authoring tools that do not offer a native EPUB export option can be extended with plugins which support EPUB creation. This list is not intended to be all-inclusive; check for the latest EPUB plugins available for your authoring tool.

Authoring Tool + Plugin	Platform	Cost
Adobe FrameMaker + ElmSoft EPubFm	Windows	\$50
Microsoft Word + Aspose.Words	Windows/Mac	\$0
Open Office Word Processor + Writer2ePub	Windows/Mac/Linux	\$0
Open Office Word Processor + Pincette ODF to ePub	Windows/Mac/Linux	\$53

POPULAR EPUB CONVERSION TOOLS

These tools offer no authoring interface, but provide various types of document conversion options. These can be used to convert a single document to EPUB or can perform batch conversions.

Conversion Tool	Platform	Cost
Calibre <i>Imports:</i> CBZ, CBR, CBC, CHM, DJVU, EPUB, FB2, HTML, HTMLZ, LIT, LRF, MOBI, ODT, PDF, PRC, PDB, PML, RB, RTF, SNB, TCR, TXT, TXTZ	Windows/Mac/Linux	\$0

Conversion Tool	Platform	Cost
DITA Open Toolkit + DITA for Publishers plugin <i>Imports: DITA (XML)</i>	Windows/Mac/Linux/others (Java)	\$0
DocBook EPUB XSL stylesheets <i>Imports: DocBook (XML)</i>	Windows/Mac/Linux/others (Java)	\$0
Pincette ODF to ePub Batch Converter <i>Imports: ODT (DOC, DOCX, RTF, STW, WPD, PSW, TXT, HTML, ...)</i>	Windows/Mac/Linux (Java)	\$400
WebWorks ePubublisher <i>Imports: FM, MIF, DOC, DOCX, RTF, DITA</i>	Windows	(?) \$800

SELECTING A TOOL OR WORKFLOW

There is no “perfect” tool for creating EPUBs; the right tool or workflow will depend on your needs and working environment. The tool you choose will likely be dependent on your target audience. Will your book be offered for sale or will it be available for free (or included as documentation with a larger product)? Does your book require a considerable amount of special formatting and include a lot of images, or is it mostly simple textual blocks of content? Will you be including audio, video, scripting, or other interactive components? And finally, are you just creating the occasional EPUB from various types of content, or are you looking to generate consistently formatted EPUBs from your publishing workflow? The answers to these questions will determine the tool and delivery options.

CREATING THE OCCASIONAL EPUB

Adobe InDesign is probably the most widely used authoring tool for creating finely crafted and professional ebooks. The latest release (CS6) supports both the 2.0.1 and 3.0 EPUB formats. If your goal is to create an ebook that looks really nice, and you're willing to spend the time crafting it specifically for EPUB delivery, InDesign is probably the tool for you.

If you're the type of person who enjoys HTML coding and development, you can probably get similar output from a less expensive tool or conversion process, then jump in and fix everything manually. But that's not for everyone, and is also quite labor intensive.

If you're creating the occasional EPUB and it doesn't need to be a highly crafted work of art, you can probably get by with one of the less expensive (or free) authoring tools. You'll be able to author or import the content, then apply limited formatting and set up the TOC. With a little effort, you'll be able to produce a perfectly reasonable ebook.

Another option for creating the “one-off” EPUB for content that was created in Microsoft Word or other authoring tool is to run that content through a conversion program (such as Calibre) that generates the EPUB. You can then open the resulting EPUB in Sigil or Oxygen XML Editor to clean up any formatting problems. When using the conversion option, you'll have much better results if the source document uses named paragraph and character styles, but does so sparingly.

There seem to be more (and better) options for exporting to EPUB from Open Office than from Word. If you're converting from a Word-sourced document, you might consider opening that file in Open Office then exporting to EPUB from a plugin such as Writer2ePub.

SETTING UP AN EPUB WORKFLOW

For those in the techcomm industry, it's likely that EPUB is just one of many documentation delivery formats. It's also likely that you can't spend much time crafting an EPUB or cleaning up after a conversion. If this describes your path, you'll want to choose a toolset and workflow that allows you to reliably, and with the least effort, save your source content to an EPUB. Yes, this is easier said than done, but with some setup and testing you will be able to produce nice EPUBs from your content. The tools you choose will likely be related to the format in which your content is created.

Tools like RoboHelp and Flare can be set up to import various types of content and automatically map from the styles in the source documents to those more appropriate for use in an EPUB. You can perform this import and export process interactively, or you can set it up to be scripted and included in a publishing workflow. If it just so happens that you're authoring in one of these tools, then your task is even easier!

WebWorks ePublisher is a conversion option that can produce an EPUB from FrameMaker, Word, or DITA content. It provides a style mapping process and can be used interactively or as part of an automated publishing workflow. Customizing the build process can be difficult, but once it's set up you will be able to generate consistent results.

If your source content is stored in XML formats such as DocBook or DITA, you can use XSL stylesheets to generate EPUB output. As with any conversion process, you'll need to spend the time up front to customize the XSL and CSS stylesheets, but once that's done, you should have a rock-solid workflow for generating EPUBs. In particular, the DITA for Publishers plugin for the DITA Open Toolkit produces very nice EPUBs from DITA files with minimal effort.

CONCLUSION

Regardless of your reason for creating an EPUB or the method you choose to get there, you'll need a handful of tools at your disposal to ensure that you provide the best possible output.

With Oxygen XML Editor, you can open and edit the files within an EPUB without manually extracting them from the archive. Oxygen also lets you validate and easily correct any problems. This is an invaluable resource, since it saves time and provides a solid XML editing environment for working with EPUB files. Sigil will also open an EPUB and allow you to make edits to the underlying code. Otherwise, you may need to manually disassemble the EPUB and correct any errors reported by the validation tools.

After creating your EPUB, you should test it on as many devices and reader applications as you can get your hands on. Doing this early in the process, will probably force you to go back to your mapping and styling stage to rethink what you're doing. In general, the simpler the formatting the better, but you'll have to balance that with your design goals and target audience.

As the final step of any EPUB creation process, you should validate your EPUB with the epubcheck validation tool. This won't tell you if it looks good or works well, but will ensure that it adheres to the EPUB specification.

As is the case when publishing to any online format, it is important to take the time to acquire the proper tools and set up the right workflow. Be sure to take the time to test and revise your workflow as often as needed. Publishing to EPUB is different from other formats because the reader applications and devices are constantly changing. If possible, remember to test on the latest devices to make sure your ebooks continue to look as good as possible.

TOOL RESOURCES

Adobe InDesign – <http://www.adobe.com/go/indesign/>

Adobe RoboHelp – <http://www.adobe.com/go/robohelp/>

Adobe Technical Communication Suite – <http://www.adobe.com/go/technicalcommunicationsuite/>

Apple iWork Pages – <http://www.apple.com/iwork/pages/>
Atlantis Word Processor – <http://www.atlantiswordprocessor.com/en/>
Calibre – <http://calibre-ebook.com/>
DITA Open Toolkit – <http://dita-ot.sourceforge.net/>
DITA for Publishers plugin – <http://dita4publishers.sourceforge.net/>
DocBook to EPUB XSL stylesheets – <http://sourceforge.net/projects/docbook/files/epub3/>
ElmSoft EPubFm – <http://elmsoftonline.com/>
eCub – <http://www.juliansmart.com/ecub/>
epubcheck – <http://code.google.com/p/epubcheck/>
Jutoh – <http://www.jutoh.com/>
MadCap Flare – <http://www.madcapsoftware.com/flare/>
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ePrdctn on Twitter. <https://twitter.com/#!/search?q=%23eprdctn>
EPUB Resources. <http://epubtest.com/resources.php>

IDPF – EPUB 3 Specification. <http://idpf.org/epub/30>

IDPF – EPUB 2.0.1 Specification. <http://idpf.org/epub/201>

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MIGRATING CONTENT: HOW TO TACKLE THE XML-L10N BEAST

Jean-Luc Mazet

Learn how to guide your team into XML and CMS and how to transition from a legacy system into a state-of-the-art content development and publishing system. You can let the languages get in the way or tame the XML-L10N beast by using tried-and-true methods and best practices to make this migration smoother.

When you decide to move into a structured, semantic content environment, the task can seem daunting as you have many areas to cover; it also becomes even less evident when content is going to be delivered in more than one language. The new system can be broadly defined as an XML- and XSLT-based, CMS- or source control-driven environment. The legacy or hybrid system can be defined as a combination of existing technical content development tools and some source control or flat file structure on a server. This presentation is geared towards Technical Communicators or Managers who are embarking on such a migration. This approach outlines the domains and areas to consider when converting from legacy to next generation systems. Topics include: identifying your plan of records, evaluating what lies ahead, addressing paradigm and role shifts, production and localization considerations (the conference presentation actually contains real-life examples and calls on the audience to share their own experiences), and sharing lessons-learned from successful implementations. This presentation is mostly geared toward preparing deliverables for localization when considering a conversion effort and does not claim to address or approach all aspects of the migration process.

CREATING A PLAN OF RECORDS AND DEFINING YOUR NEEDS

First and foremost, when considering a migration of any size, you should consider capturing the existing landscape of your content, video, audio, graphics, tools, and localization assets (like translation memories and translation glossaries or terminology databases). Analyzing your current documentation set will help determine what are your gaps and areas of redundancy in your existing system, and what opportunities for reuse and improvements you have in the new environment. This may involve some re-writing and maybe existing style verification and consistency checking to facilitate content conversion and maximize reuse and repurposing into multiple output destinations and languages.

One simple way to achieve that for the content is to create a spreadsheet (see Figure 1 on the next page) with a few columns that capture the source style name, a description of that style if it is not obvious, the target or new XML element name, its description, and any comments that will be useful during migration. What I found useful was to use this approach to determine which styles are redundant and obsolete, so you can consolidate or remove them. You can also create several sheets in your document for each source formats: FrameMaker, HTML, Word, etc. This is a great way to complete your inventory and set yourself up for a smoother migration.

If your environment is not ready for a full migration, or you have the opportunity to do a pilot or proof of concept before a full-scale conversion because you are always releasing new product versions, you should identify the content that you update the most or that is part of an on-going release in the localization stage, so that you can keep track of changes while converting to the new environment. You can also start with the deliverables that are not on any project critical path and start with those first to minimize disruptions and test out your conversion on more stable content.

previous projects. You should also have a plan for their training on the new system and what it will mean for them in terms of process and tool adaptation.

To expand on localization, here is a list of a few issues to watch out for:

- When you create your reusable content, make sure that the size and number of those reusable entities are manageable once you start referencing them. If you have thousands of those reusable chunks, it can quickly become a localization nightmare. For example, all languages will require a review pass to ensure that the common content fits in the context of the “page.” Especially once you introduce parts of speech with different gender and number in those chunks, you need to ensure that the gender and number agreement is still correct in the context where that chunk is placed.
- If you use extensive conditional processing, you must use the latest content with the exact condition that you want to extract from the CMS in the new system. For example, you may use conditional processing on content to create different deliverables based on an operating system or a specific product. This can become an issue for localization if you do not tell your supplier what conditions apply to which OS or product or if you have not explained to them what you are expecting as the final deliverable output.
- Translation memories (TMs) are ubiquitous assets for localization cost reduction. However, when you embark on content rewrites to better prepare your deliverables for the new system, your existing translation memories will be out of synch with the new source content and your suppliers will have to proceed with TM alignments. You should weigh the pros and cons before moving forward. For example, rewriting the content to improve reuse or repurposing and ultimately usability and readability will justify that TM rework.
- Will only changed content be sent to the supplier and can it be accessed within your repository or CMS? This could make it easier if you use a topic-based authoring model. It can be hard if you are in a book-driven model.
- Do standard XSLT support generated text and localization (if you are using an open source system)? If not, you are not leveraging existing technology and practices and may end up paying more for localization.

One luxury, if you can afford it, is to reach out to your customer base to survey their needs to see how they “consume” the information that you provide. This may give you insights into how you should restructure your deliverables and it could also allow you to eliminate some output formats in favor of new ones to reach more devices and communication platforms. It should be noted that the impact of this change in content creation and delivery system should be as transparent as possible to your customers.

Looking forward, you should also evaluate how you intend to grow your organization and your team. Take into account business drivers and company objectives. Will you be moving content out of traditional channels and into more crowd-sourced, user-driven content creation platforms or new and emerging media? How will the system and infrastructure grow with time to meet new information needs? Can you scale and customize the system? How will your team take on the challenge of new roles and responsibilities and grow their professional careers?

IDENTIFYING AREAS, PEOPLE, AND TECHNOLOGY

The scope of your migration to the new environment involves more than just mechanical tasks of content analysis and lists mapping styles and deliverables. Planning around existing processes and tools will ultimately lead you to the people aspect of this endeavor. The keystone being that your new system must be “user-centric”; you can replace the word user with author, editor, production specialist, reviewer, etc. Just like any project, you will have to take into account the intricate and sometimes hard-to-manage web of people and technology that make up your system. To ensure success, you should evaluate hard data as well as include more subjective considerations to fully comprehend and map this conversion.

I have already approached possibilities of content re-architecture and rewriting and its impact on localization. To take it one level deeper, your data conversion plan should include the following:

- A sign-off document (on your overall plan or approach) to ensure that everyone is on board.
- Your conversion approach detailing how you intend to proceed with the gains and risks associated with the new model. A workflow of the conversion process is also an invaluable asset to see the big picture and help identify gaps and opportunities. See figures 3 and 4 in later pages for examples.
- Your timeline with detailed milestones. This may include resource allocation and cost. Especially if you are looking at new tools and third party suppliers to assist with the conversion and implementation.
- A list of contact persons on your team; a buddy system to answer questions that arise during the conversion process.
- Conversion instructions, sample output, and troubleshooting.
- A list of output formats (for testing) and languages into which the deliverable is translated. This will help with pseudo-localization testing or supplier testing if this is part of your conversion approach.
- Audience level, type of deliverable, and phases in the event that not everything can be converted in parallel. This phased approach will be of tremendous assistance in identifying and keeping track of changes if the deliverables are being converted sequentially and not simultaneously.

Tools or retooling may be necessary. This area will depend on your budget and whether you have a company governance on software and hardware purchases. If you have a specific list of approved products and services to choose from, I highly recommend that you start there and see what is available before making a specific product or supplier part of your conversion plan. Be flexible and make sure that you justify the business need of any purchase; it will be easier to push the request through system if you put forth the business justification, the impact if your request is denied, and a viable alternative.

Here are a few things to consider in the process arena:

- What types of processes do you currently use in the creation and distribution of your products and services?
- Will your documentation delivery mechanism be impacted or modified as a result of the changes in your authoring and publishing system? This is where you have to be specific and detailed.
- Do you have a given review process that entails working defects against the deliverables that you create? If it is the case, use that process to review how fixes and improvements to your deliverable set will map in the new environment.
- How will the new system impact indexing and sorting (of the actual content).
- Are there downstream systems (like a knowledge base or support documentation) that use or repurpose your content? Maybe you can show the gains of the new environment which could automate some of the content transformation for such systems.
- How will your new infrastructure serve the purposes of your development environment (Agile, wagile – waterfall-agile, or otherwise)? Where are the gains?
- Can you identify cross-functional team content reuse and repurpose opportunities (with training, support, or another team in your organization)?
- Do you have a process to capture and address localization-related defects? Maybe you can show the improvement in delivery speed of such fixes in the new content model.
- How is your editing process currently working? Will your technical editor and reviewers be working in the XML and the system that you choose (CMS or other solution) or will they have to receive the final output to proceed with their review?
- Will your localization supplier processes be altered as a result of your migration? How do they fit with yours?

Considering that the types of deliverables identified in the previous section on creating a plan of record are key to the migration, once this is established, you can definitely concentrate more of your time on the contenders for your source control and management tools. Will you be using a CMS, a DMS, or a straight forward source control repository? Will your XML editors be as easy to use as your WYSIWYG authoring tools or will they be more quasi-WYSIWYG? Can all of these tools be interchangeable in the new system, or will they require more work in case you or your IT department decides to support a different tool set than you originally decided on?

Answers to these questions will be crucial when you request that your localization suppliers use the same tools, so as not to compromise the integrity of your data. It will be decisive if you have a company-wide translation management system (TMS) or have implemented controlled authoring using certain commercial tools. Are your style guides already incorporated into your controlled authoring tool? Do you have a well-defined set of vocabularies? Have you identified your information structure and decided on your global content strategy?

The paradigm shift in people roles and responsibilities should be at the center of all these questions and decisions. Start with the current roles and responsibilities on your team and among your localization suppliers. This will guide the mapping that will happen between these exiting roles and the new ones. This document will require some thought and work on the part of everyone involved. It is also an opportunity for you to show the benefits of learning new skills and getting exposed to new career opportunities. Here are just a few examples of what to identify and define in that roles and responsibilities document:

- A person to respond to resource, tools, and timeline issues.
- Someone to ensure appropriate content versioning and tagging.
- A content owner to approve deliverables before they are released to localization suppliers.
- An expert to take care of all production tasks.
- Someone to work with internal teams to resolve hardware or environment roadblocks and issues (including system and tools performance, downtime, upgrades, and training).

Now, you are also ready to outline and test the best way to convert your deliverables. There are a few options for which you will have to weigh the pros and cons:

- A manual conversion with copy and paste (stripping all formatting in the process). Some pros and cons are:
 - You have a small amount of content and this makes more sense.
 - Your authors are not so familiar with your content (it has never been reviewed in its entirety or has been static for some time) and they can make necessary modifications (or re-writes) while copying and pasting. Always consider the localization impact of these changes.
 - The team does not have the technical expertise or the time to automate some to the conversion tasks?
- Scripts and batch files that automate the conversion (see Figure 2 for an example). Here are some pros and cons:
 - These scripts and automated files are too much overhead and feel like “a bazooka approach to kill a mosquito.” Maybe you do not have much content and it is easier to migrate it manually.
 - Your content is too disparate and your styles are too numerous. Maybe you need to start with consolidating some of those before migrating and then you can consider automation.
 - Your team and resources have rolling releases and do not have time to work on this. You cannot justify the value add and it does not make any business sense.
 - You can calculate the ROI in actual person-hours for the automated conversion process versus what you would spend in internal or external resources (if they did the migration manually).

- You can expand this automation to future deliverables or share it with other teams within your company migrating into a similar system.
- A hybrid conversion using some manual and some automated process. This may be the best approach as some content types are harder to map than others for an automated conversion process, especially if you do not intend to look at your existing styles and revise them to map more systematically to the new tags in your XML system.

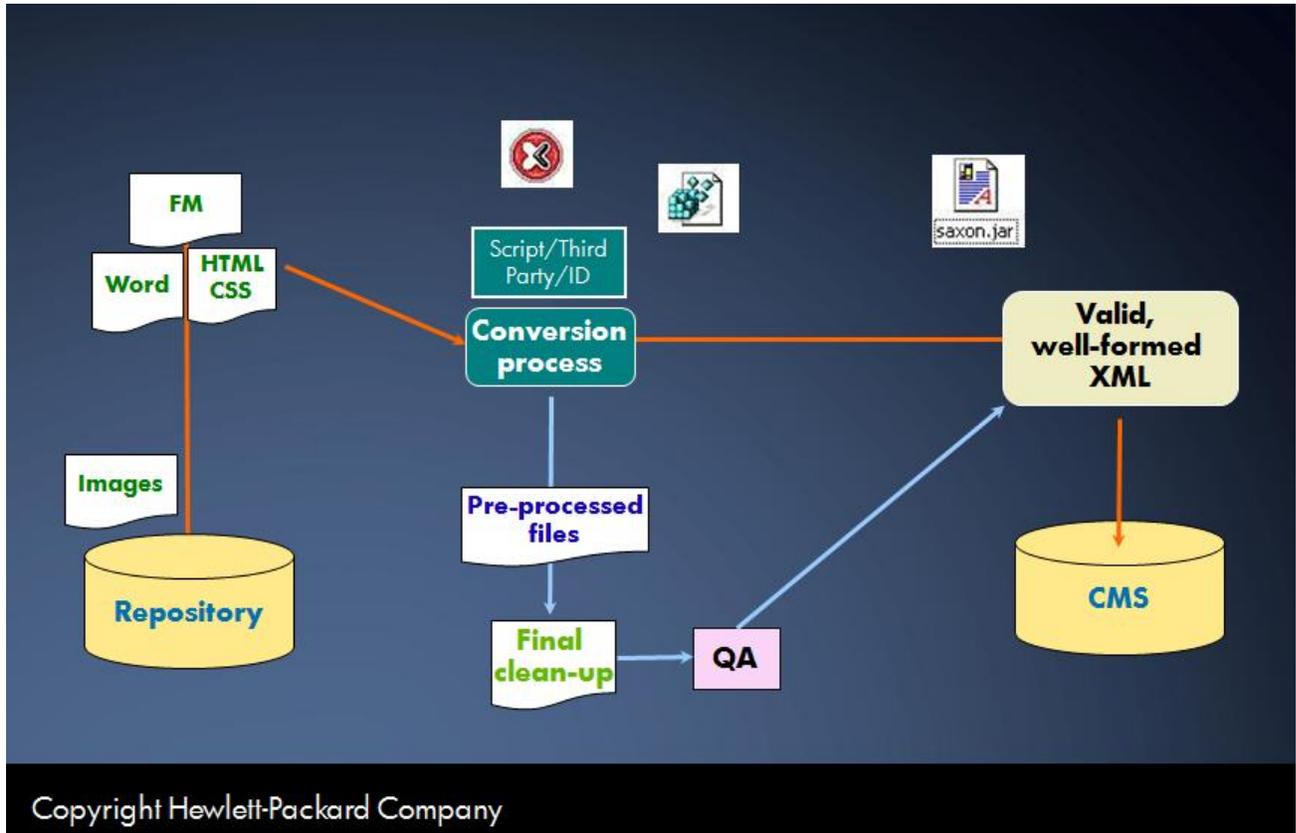


Figure 2: Automated Process Example

For all of these approaches, you should consider whether to use in-house or external resources to do the work. Maybe your suppliers are more familiar with these systems and can provide conversion expertise to you and your team. You may also have a developer pool familiar with conversion processes and tools; they could write the programs and help you with the XSLT. Do not get locked into one path; explore all possibilities and decide on the best one or best ones for your needs.

CREATING A VIABLE PLAN

Once all the preparation work has been completed, you are in excellent shape to start assembling your plan. One approach that allows you to scale is selecting a sub-set of your deliverables and doing a proof of concept. This is especially viable when you are considering building your system from scratch, if you are going to support a new product (for which the content has not yet been written), you can choose a deliverable that is not on any critical path for delivery to your customers, or if you are in an Agile environment (you may be discarding all your content after the first few sprints). This proof of concept should include a localization component to show that your environment can support multi-lingual content and supplier-driven processes. This can then evolve into a pilot program that could be folded into your phase one implementation once it is completed.

All along the way, it is a good idea to pay particular attention to who will have to approve purchases and sign off on your plan. You will have to convince (upper) management and co-workers and team members. Having a project sponsor among the management team will help you get buy-in and will facilitate convincing their peers. Your preparation work of inventory and supporting documents will have to be targeted to your audience, but it will prove invaluable once you need to show hard facts. Keep that roles and responsibility chart or document that we described in the previous sections ready as you will need it to show the value add. An overall picture of the system and process workflow and content lifecycle is also a good asset to have up your sleeve (see Figures 3 and 4 for examples). Do not forget to capture localization savings and return on investment, since this will be one of the more tangible savings of the new system. Your suppliers and some industry research can help you with the specifics.

The timeline needs to be precise and take into account product releases and other major calendar dates. You should outline the milestones for the conversion, the testing, the sign-off, and the actual implementation; even if you have not fully developed the implementation since you are waiting to see the results of your conversion efforts to tweak and adjust what you will do in the next phase.

Talking about phases, it is good practice to provide specifics on the phases that you use to roll out your plan. In my experience, starting small and growing to a larger scale implementation is always easier. It also allows you to review your strategy as you find out the realities of the conversion and how localization will impact your approach. Consider prioritizing the efforts to account for any shifts in personnel and assignments.

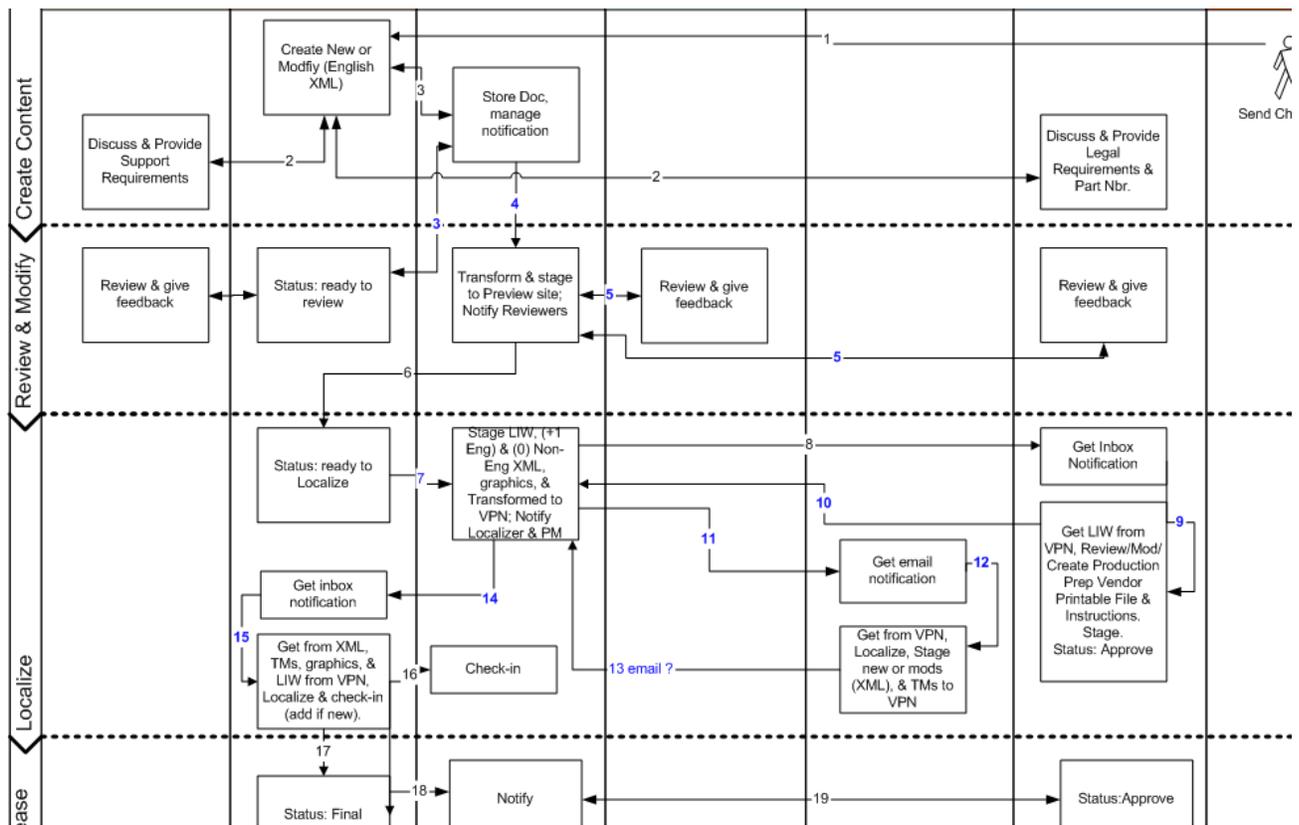


Figure 3: Example of System and Process Workflow

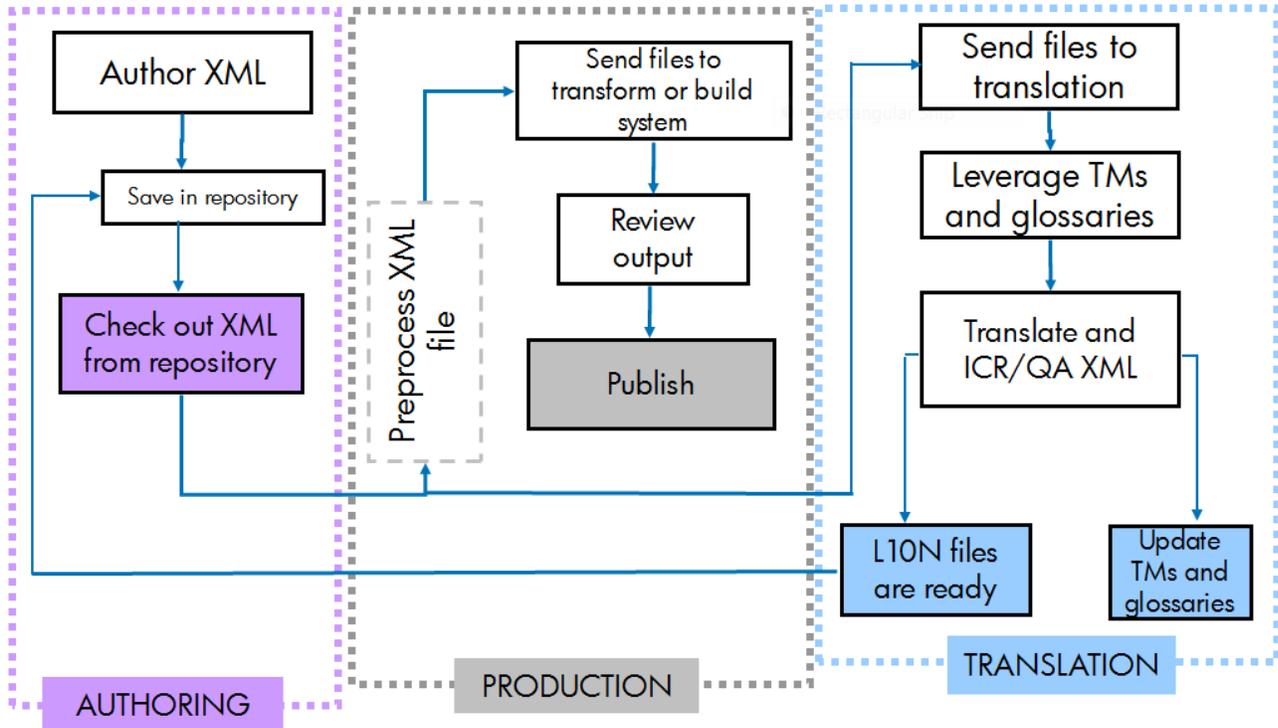


Figure 4: Example of Process Flow and Content Lifecycle

Once your proof of concept and pilot have successfully been completed, it is imperative that you build a strong quality review of your content to ensure integrity throughout the conversion. Then the “mass” conversion of your source files to valid, well formed XML will be more efficient and accurate. Some of the checkpoints can be for quality of converted content, transform tests, and localization verification in your CMS (by your supplier).

Change management is crucial as you start your conversion and later on implement the new system. Applying change management practices will ensure smooth and systematic processes and a scalable environment. Here is an example of what it should contain and who it should involve:

- Change Request Description
- Item/Area affected (with path in the CMS)
- Requestor
- Assignee (this could be multiple names)
- Change request “states”: Identified, Being analyzed and evaluated, Approved/Rejected, In Progress, Completed (if approved)
- Reason for Rejection (for the “Rejected” state)

Each change request requires approval and will not be applied until the full change process is completed.

The training becomes more important as you move into the actual conversion phase. This should be in place, tested, and documented as you create your migration approach. You may have to create some new authoring guidelines to support your team during the migration. You can show the similarities between both authoring models to help adoption and ease the transition. You can also devise XML and other templates as well as custom style sheets to facilitate content creation and still rely on the previous model’s processes. Localization supplier training and support should be part-and-parcel of your internal resources’ training, as your suppliers may raise issues that you or your team did not anticipate. Here is an example of what a high-level training outline could look like (mixing internal and supplier topics):

- Architectural changes and system overview
- Style changes (deprecated, replaced, new)
- System functionality
- Graphics' and video use in the system
- Authoring (including indexing)
- Roles and responsibilities mapping
- Editing and review process changes
- Production tasks and ownership
- Localization preparation, testing, and quality review
- Conversion demo
- Q&A

PREPARING LOCALIZATION FOR SYSTEM IMPLEMENTATION

Although the topic of this presentation is not the actual XML system implementation, during the conference, this section was dedicated to an open discussion about the next steps that involve implementation and some of the lessons learned from the participants. To assist with what to consider for that phase of your project, I am providing some production and localization considerations based on lessons learned and actual successful implementations. These items will give you an idea of the top issues related to XML migrations as they relate to localization and pitfalls to avoid. You can include them in your pre-migration and implementation checklists.

Issue	Details	Possible Solution
Use of proprietary grammar. Lack of standardization.	Your organization has developed its own DTD or XSD and this requires extensive training and special customizations that do not leverage open standards.	Try to use open standards and recognized models even at a start for your implementation. Most of the tags that you need have already been created by someone else. This will facilitate training and ramp up of localization suppliers and of new hires.
Supplier tool lack interoperability (XLIFF, TMX).	Most platforms should be created around standards, but most of the ones out there create proprietary file extensions that are hard to migrate from one project to the next.	Ask for open standards and, bottom line, ask for a delivery of raw XML and see how it fares when you try to upload it to another platform or CMS.

Issue	Details	Possible Solution
Lack of metadata.	The information about your XML is one of the main assets for searching and finding specific segments and information chunks, especially if you use a CMS.	Refer to the Dublin Core meta data (15 base text fields, to describe and catalog most resources) and always mark up your XML with it. By extension, you should assign relevant information to your XML to allow for efficient processing and searching. This strategy should be created with all players involved (editors, authors, suppliers, etc).
Use of translatable attribute values.	This is a problem, since some of the attributes should remain untranslated and if you translate them, it will not match the structure in your DTD or XSD.	Create a mechanism to specify what attributes are translatable and can identify nodes rather than just attributes, in case you encounter complex instances. Use a definition file for those values (to make them available to other programs).
Lack of xml:lang attribute or overuse of it in multilingual XML content.	Multilingual document that contain different xml:lang attributes can be hard to localize, some tools can make the distinction on that attribute for what to translate. It can be hard to piece that multilingual document back together when the translations come back.	Make sure that you use this attribute in all your documents even if they are not yet destined to localization. It is a good practice to not use it on every element or tag.
Translatable text in CDATA sections.	Some translation tools support CDATA sections well; in other instances, it might be difficult for the tool to keep the CDATA information.	It is better to stay away from CDATA and use <block> elements or more specific tags instead to tag your content.
Special character used without using entities, UNICODE, or UTF-*	Using Windows or other copied and pasted characters (like diacritical marks) are hard to process, especially upon rendering.	Use entities (like & ampersand, U+0026, or &)
Using the wrong encoding for a file.	Using "iso-8859-1" encoding for a file and not preparing the file for localization makes it hard when it is returned with the wrong encoding for the language and locale it was translated into.	Make sure you declare the encoding, for instance: <?xml version="1.0" encoding="UTF-8" ?>. Make sure the encoding is modified when needed for translation; you can duplicate the document using XSLT and just change the encoding before sending to translation.

Issue	Details	Possible Solution
Well-formed documents with no indicator to translation tools on how to address translatable text.	N/A	You need to tag anything that needs to be translated – some CMS put an xml:lang attribute on each paragraph or even node, making your life easier but overusing that attribute.
Not extracting conditional processing when delivering to the supplier.	This was mentioned earlier on in the presentation when dealing with setting up the right conditional processing in your new system.	It is very important to provide the right content extract or let your supplier know how to get what they need to replicate the conditional processing from your source content (for example based on the product operating system).
Duplicate or lack of IDs.	IDs are important when using a CMS to identify unique content chunks. It is also very important when referencing content in a reuse model.	You need to ensure that you either use tools or create a script that cycles through the files and finds duplicate IDs. This is a common problem – even if you have a robust ID naming convention.
Customized renditions that do not leverage generated text	Generated text is usually text that can be found in admonitions, like Note, Warning, Danger, etc.	This text should have its equivalent in all languages and is usually part of non-modifiable text that gets generated at rendering time. Keeping this separated from your XML content will standardize your output.
Issues with existing hybrid model Translation Memories (TMs) that are not working in XML.	When converting your content, some of the tags that the translation tools use to separate content segments for TMs may be different or completely stripped upon conversion into your new system, This can be costly when you need to localize updated content.	There are possible steps to follow and that were explained in the actual conference presentation. Bottom-line, you need to either re-sequenced or even redo your TMs with the new content or you can strip all original tags before migration and reapply your TM segments to the new content and see how many 100% percent matches you get.

Issue	Details	Possible Solution
Document-to-document hard-coded linking.	In your existing system, you may have hard-coded intra-document links (like <olinks>) but once you migrate, you won't be able to make full use of multi-destination output, since links for instance will be broken if you hard-coded links to local, relative path files before conversion. This can be huge if you have 40+ languages to deal with.	You will have to use either the CMS to point to IDs instead of local file names and the transforms will dynamically generate the appropriate link for each output format.
Variable and other non-translatable items that have the wrong language attribute in XML (in the CMS).	These are your company name (if it remains the same in every country) or your product names for example. Avoid sending them tagged as "translatable" to the translators as they will come back with questions.	Ensure that these types of content are tagged with the same language attribute as the source content, so they can remain "as is" since they should not be translated. This saves time and money.
Some tags can contain localizable content but are not tagged accordingly and remain in English.	This is the opposite from the previous entry. You want to translate this content but it is tagged as non-translatable and does not get sent to the translators.	When you are doing your conversion, make sure that you identify all content that needs to be localized and that you apply the correct language attribute for the target translation. Use your asset inventory document to call this out.
All graphics are tagged to be sent to localization and come back with questions from the translators.	Some graphics can be created so that they do not need to go to translation (either using Latin or other text or by using numbered call-outs). The author still needs to use the right language attribute on that graphic so it is not sent to translation.	Adding a special note in your image inventory list before migration would help with this issue by identifying which target language graphics or images can remain the same as the source ones.

Examples of XML Localization Issues and Pitfalls

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After completing his Masters in linguistics, civilization, and technical interpreting and translating, Jean-Luc taught at the University of Texas at Austin. In the past two decades he has contributed to and managed several hardware and software documentation and localization projects for several international companies of all sizes and in industry sectors. He has been in charge of creating migration paths for large-scale, enterprise-level localization and content creation and delivery systems. He has also implemented conversion projects for hybrid systems into standards-based (like DocBook) and proprietary systems, including CMS-driven solutions. Currently, as Localization Program Manager and Principal Information Developer at HP, he is leading and implementing complex, remote, multi-team, and multi-cultural projects and programs. He is a Certified ScrumMaster.

OPEN SOURCE AUTOMATED DOCUMENTATION IN A DEVELOPMENT ENVIRONMENT

Neale Morison

This presentation discusses free, portable tools and techniques for automating documentation, particularly in hardware or software development environments.

INTRODUCTION

Groups developing hardware or software are typically small, but may have pressing documentation needs and limited time to devote to the task. In these environments engineers and scientists do their work by some form of coding. Developers frequently use automation for their own development purposes.

Coding may prove the solution to many documentation problems in these environments.

There exist tools for extracting documentation from code and code comments.

Development output can be captured in a form suitable for extracting documentation. For example, a circuit description may be output in XML, a delimited text format, or stored in a database.

Internet tools and techniques, such as HTTP Servers, HTML and JavaScript, provide methods of presenting documentation that transcend print. These systems lend themselves to automation.

Databases and other data storage and distribution systems provide solutions to documentation problems insoluble by traditional techniques.

Graphical, visual and interactive systems may provide more accessible and usable documentation than a printed or electronic page.

This presentation discusses the range of free and open source tools and techniques available. Resources will provide pointers to further study. Case studies from the presenter's experience will illustrate the kind of problems that can be solved, available technologies, and how to acquire the necessary knowledge.

WHY OPEN SOURCE?

Open Source software is free, it's developed and supported by enthusiasts, and it's portable to most platforms. I have done most of my work on Windows and Linux, and ported it without difficulty to any of Windows, Macintosh, Linux and other Unix platforms.

There are many open source licenses. See <http://www.opensource.org/> for a comprehensive list of licenses approved by the Open Source Initiative.

Open standards are standards where the format is accessible to the general public. This includes HTML, XML and since June 2008, PDF, previously a proprietary format belonging to Adobe.

I am broadening the scope of the discussion to include free tools that don't have an approved Open Source License.

TOOLS AND STANDARDS

Tool or Standard	Description
Automatic Code Documentation	
Doxygen	Documentation generator for C, C++, Python and others. There's a special syntax for code comments. Doxygen can produce documentation directly from the uncommented code structure. See www.doxygen.org
JavaDoc	Java specific tool for generating documentation in HTML format from doc comments in source code. Currently maintained by Oracle.
LaTeX	A markup language that is compiled/processed into extremely high quality technical documentation. LaTeX is particularly good for mathematical formulae. Because the source is text, you can produce it by text processing.
XML/XSLT	Extensible Markup Language. XML is intended to be both human readable and machine readable. XSLT is a language for transforming XML data from one format into another. It can produce XML, HTML, and with the use of other tools, other formats such as PDF
Wiki Documentation	There are many open Wiki systems. Wikipedi uses MediaWiki .
Issue Tracking	Raising bugs, tasks, assigning them, managing workflow, closing them
Bugzilla	The issue tracker used by many large open source software developers, and others including NASA, Facebook, Nokia... See www.bugzilla.org
Redmine	Project management, issue tracking, wiki. See www.redmine.org
Version Control	Repositories with check out, commit, history of changes, revert
CVS	Aging and superseded in many areas. Doesn't handle binary files well
Subversion	In wide current use. Now owned by the Apache Foundation. See subversion.apache.org
GIT	See git-scm.com
Presentation of Documentation	Web servers with database back ends
Linux/Apache/MySQL or SQLite/Perl/Python/PHP	LAMP - A platform in very wide use for Internet and intranet applications
Windows/Apache/MSQL or SQLite/Perl/Python/PHP	WAMP - You can do all of this on Windows, although some of the system administration tasks and scheduling tasks are awkward.

Tool or Standard	Description
Graphics	
SVG	Scaleable Vector Graphics - a standard that has still to take off because of delayed support - not supported well by Windows XP/IE
HTML5	Almost here - not supported well by Windows XP/IE

Open Tools and Standards

CASE STUDIES

Several of these case studies come from my current employer, CSIRO - Commonwealth Scientific and Industrial Research Organisation.

Among its many inventions, CSIRO is claiming Wireless LAN. A patent, originating in the astronomy group in which I work, has been upheld and is being honoured by many companies producing Wireless LAN technology.

The project I'm working on is ASKAP, the Australian SKA (Square Kilometre Array) Pathfinder. This is 36-antenna radio telescope being built in Western Australia.

Other case studies come from previous employers.

FAIRLIGHT, 1985

AUTOMATED INDEX

This was my first taste of automated documentation. We were documenting the digital synthesiser using a computer we built ourselves, running a word processing system on a text terminal display. The same computers had been modified to provide the interface to the Fairlight. It had a light pen instead of a mouse.



Illustration 1: The Fairlight Series III Digital Synthesiser, with light pen

There was no automatic indexing, and I mentioned to one of the developers how nice it would be to have a good index to the manual. I waved my hands and vaguely described an algorithm. He furrowed his brow briefly and wrote a C program that read a list of phrases and page references, in any order, produced all the permutations of each phrase, then created an alphabetic index. The permutations just cycled mechanically:

Creating an index;

An index, creating;

Index, creating an.

I just had to make the original list, going through the manual page by page, run the C program, and paste the result into my manual.

Then the PostScript printer and the Mac with PageMaker arrived. The developer, who had been leafing through a PostScript manual in his tea break, took his terminal over to the printer, plugged it into the serial port and started programming pure PostScript from memory. Lines and shapes started coming out of the printer.

I was very impressed. Nerds were infinitely powerful. I wanted to be one.

CISCO RADIATA GROUP, 2004

GENERATED REGISTER REFERENCE FROM XML

The developers used Python scripts to generate XML that completely described the wireless integrated circuit chips under development. With the same script they generated the Verilog code that became the ICs themselves. They had developed this single source approach in anticipation of creating automated documentation, but they had no one to devote to the task. I was the technical writer so it was my job.

I developed a system to turn the XML directly into both HTML documentation and PDF documentation. An XSLT transformation took the XML from its original format to XSL/FO (Extensible Stylesheet Language Formatting Objects). It was then processed by Java tools into postscript and thence to PDF.

The result was a 250 page manual, essentially composed of tables of register descriptions, with hyperlink internal cross-referencing. After I added the additional processing to produce the cross-referencing it took a little over a minute to produce the document, where previously it had taken under 20 seconds. When I asked the group manager whether he thought this was a problem he said the links were definitely worth the wait.

For running an XSLT transformation, the Java application Saxon is highly efficient.

saxon.sourceforge.net

If you just want a Windows executable, and it's not a big job, there's Instant Saxon, a Windows executable.

Another Java based XSLT processor, Xalan, is available from the Apache site:

xml.apache.org/xalan-j

You run these as command line programs, on any platform with a compatible Java runtime: Windows, Linux, Mac.

You have to write the XSLT that performs the transformation from application specific XML to XSL/FO.

XSLT is quite manageable when you're doing something simple. It's mind-boggling when you try to do anything ambitious. This is because it's a functional programming language, like Scheme, a LISP variant, and unlike procedural programming languages like C, Python, or BASIC. A functional programming language has no loops and no mutable variables. You do everything with recursion. This can destroy your mind.

This was a success. It was fast, efficient and provided exactly what the group wanted.

Before coming to this project I didn't know XSLT. To complete the project I had to learn XSLT, XSL/FO, and evaluate various XSLT processors. This took time, but not so long that they shut me down. I already knew HTML, which I used to create the online version of the document.

Since then I've used the knowledge gained in that project many times.

GRAPHING WITH GNUPLOT

GnuPlot is an open source graphics application.

See www.gnuplot.info

The developers were running simulations that produced reams of data which they found difficult to analyse. It need to be plotted in some useful way. I used a free graph product called gnuplot. The data needed to be re-ordered and processed before it was plotted, and the gnuplot command lines could then be generated. The resulting jpg file outputs were limited in the amount of information they could provide. However I could plot the specifications as overlays over the data. I further processed the output into HTML tables, with highlights showing where the results went out of specification. The result was a fairly clear picture of where the simulated performance went out of spec. The developers were able to see quickly what issues had to be addressed and get back to developing.

Controlling the colours and spacing of the graphs made a lot of difference to how easy it was to interpret the results. Further processing could identify trends and pinpoint errors.

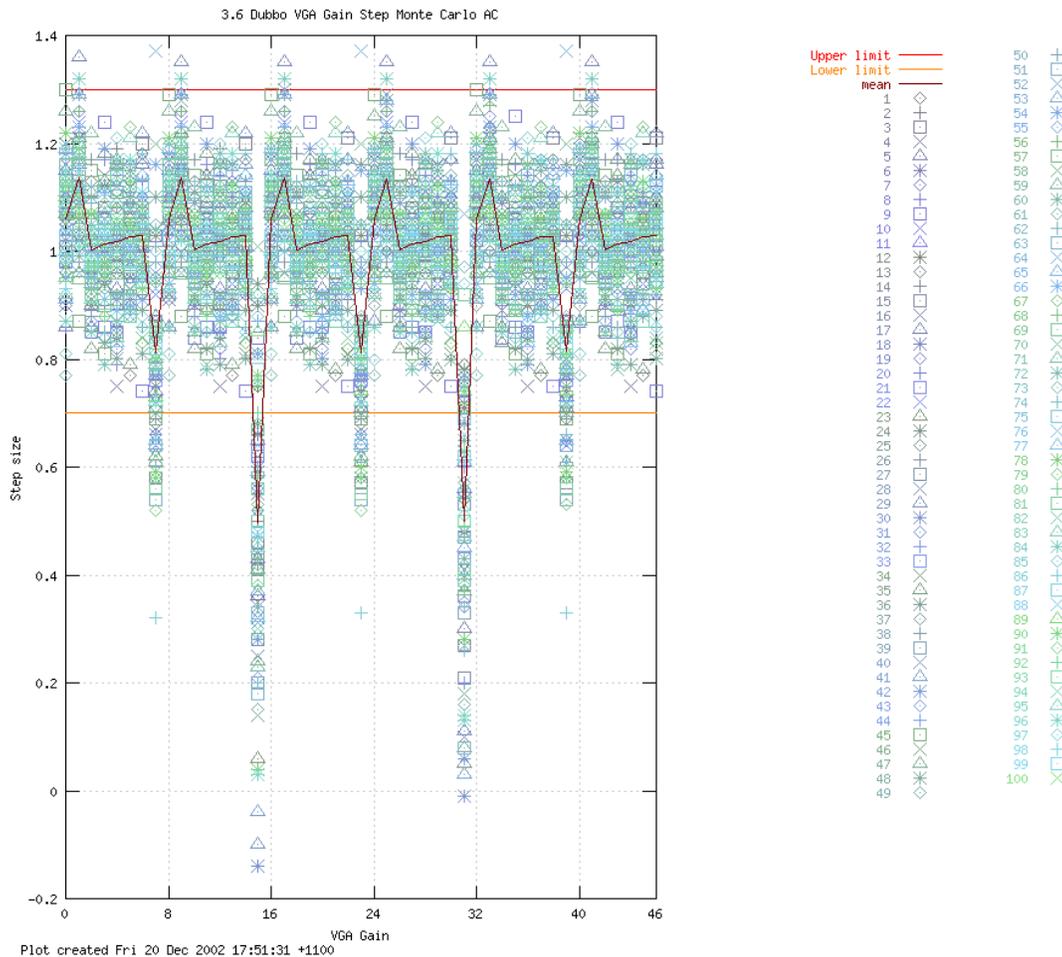


Illustration 2: Gnuplot graph of component gain versus specifications

This graph showed the error in an analogue to digital converter stage

VAST SYSTEMS TECHNOLOGY, 2003

VaST built models of embedded systems, which could then be simulated to produce a cycle-accurate emulation of the system. The developers of devices like mobile phones and automotive computers benefit from this kind of technology, because they can develop the firmware and software for their embedded system on the simulation, completing it before they get the chip back from fabrication. Sometimes the simulation ran faster than the hardware.

The model was built by the modeller using a GUI interface, which at the time was on Windows but was later redeveloped on the cross-platform open source Eclipse IDE (Integrated Development Environment). To review the structure of the model, the modeller could drill down through a hierarchical structure, a little like a typical GUI file and directory explorer. There was no printable description of the model.

The description of the modelled embedded system was stored in XML. I wrote an XSLT transformation that converted the model to a tabular layout.

Web browsers actually handle XML pretty well. They perform XSLT transformations if you let them. When you include a pointer to an XSLT stylesheet in an XML document, the Web browser displays the transformed result. The XSLT needs to transform the XML to HTML for browser display.

The XSLT was included with the distribution of the product. I asked the GUI developer to add a button to the interface that displayed the XML model description in the user's default browser.

That was all we had to do. We assumed the user had an XML/XSLT capable browser. If they didn't, they could download one free.

The result was automated documentation available to the user. After any change to their model, the modeller could instantly display a complete set of documentation, which they could then print.

I worked with one of the developers, who was ambitious to produce more and more complex and interesting tables and displays in the HTML output. This was challenging, and I ended up doing my head in with the recursion, but the results were rewarding.

Apart from how to produce the complex results in XSLT, there was nothing new to learn for this project. I already knew XML, XSLT, and HTML.

Peripheral Model Specification: PdbVastGpDmac

Properties
 Registers (8)
 Interfaces (6)
 Parameters (8)
 Nets (0)
 Tasks (0)
 Errors and Warnings

Summary

Below is a summary of the PdbVastGpDmac peripheral device model. It contains 8 registers, 6 interfaces, 8 parameters, no nets and no tasks. Names in the Registers table link to register detail.

Properties

Type	Version	Source Code Language	Class	Subclass	Description	Xml Version
PdbVastGpDmac	1.0.0	C	Peripheral		PdbVastGpDmac peripheral device specification	1.1.0

Registers

VCD Visibility: Enabled

Name	Size In Bits	Number Of	Power On Value	Reset Value	Pre Access Function	Post Access Function	Description	Bit Fields
DAR	64	16	0	0			Destination Address Register Array	0
DCNT	64	16	0	0			Dma Control Register	10
DCONT	64	16	0	0			Dma Count/Length Monitor Register	2
DINT	32		0	0		DINTPostAccess	Dma Interrupt register	2
DINTEN	32		0	0		DINTENPostAccess	Interrupt Enable Register	2
DSR	32		0xFFFFFFFF	0xFFFFFFFF			Read Only Status Register	2
DTCR	64	16	0	0		DTCRChanged	Data Transfer Count/Length Register	2
SAR	64	16	0	0			Source Address Register Array	0

Interfaces

StdBus Interfaces

Illustration 3: VaST Peripheral Model Specification, generated instantly from XML

CSIRO ASKAP PROJECT, 2010-2012

DOCUMENT DATABASE

Documentation was stored in a number of repositories, including Microsoft SharePoint on enterprise Windows servers and in Subversion repositories on Linux platforms. The task was to create an up-to-date index of the many thousands of documents, without requiring a radical shift in procedure from any of the highly productive groups building the telescope.

The solution was to build a database of document metadata, running on a Linux Apache platform. A dynamic web interface to the database provides a range of search tools. The repositories are scanned to keep the document database up to date.

Via the web interface, any member of the team can add or edit document metadata, constantly improving access to documents.

I built the CGI interface in Python. I had done similar interfaces in Perl and PHP before, but when I asked what they wanted the scripters said they all preferred Python. I had worked in Python before but this was my first CGI project.

DOCUMENT MANAGEMENT SYSTEM

You can assemble a document management system from freely available open source components. The Document Database discussed above forms part of the system, providing an index to documents.

To this you add a repository. A version management system like Subversion is sufficient. We used both Subversion and SharePoint for historical reasons.

In addition, you need an issue management system, such as Bugzilla or Redmine. We used Redmine. This is used not only for tracking bugs, issues and tasks in software and hardware development. It is also used for tracking the document review and approval process for each document.

The issue tracker captures all discussion and key points in the review and approval cycle. It can contain attachments and file pointers in the form of URLs

URLs link the document database, the issue tracking system, and the repository. For this to work, document URLs have to be stable. This is easier to make workable if document file names are based on a unique document ID, and if the documents are always stored in a fixed place in the repository.

If document file names and locations do change, it's not the end of the world. It requires work to repair links. However you can use the document database as an intermediary link to make the task of maintaining links much easier. A link to a known, fixed record in the document database can then link to a file whose location and name are more flexible.

NAVIGABLE SYSTEM HIERARCHY

Developers viewed the system as a hierarchy that they diagrammed in block diagrams on whiteboards. Every node in the hierarchy had a unique id. The plan was to have a separate document for every node, and to assign this to the appropriate authors. The team leader finally transferred the diagrams to a PowerPoint presentation and said he wanted a way to drill down through the hierarchy to find the documents.

Diagrams can convey information in a very concise and powerful way, but they are a maintenance nightmare. I tried to put off the inevitable by producing an interactive navigable hierarchy on the group intranet site.

To do this I devised a text format to capture from the diagrams the information about hierarchy, connections, unique IDs, and related documents. I then processed this into a form in which it could be fed to a JavaScript program that rendered it as a hierarchy.

Using this approach meant that I had a single source for the information in my text file.

This project used Python, JavaScript, and HTML.

In addition I used the Microsoft PowerShell to control Microsoft Word as a COM Object. This way I could automatically generate all the documents from a single template and populate them with the appropriate authors, IDs, titles and other standard and custom properties extracted from my single data source text file.

I'm permitting myself to discuss Microsoft PowerShell because it's free.

NAVIGABLE SYSTEM DIAGRAMS

The team leader liked my navigable hierarchy, but he hadn't forgotten about his diagrams. So I had to decide how to provide them. The idea was to click on a block to open the expanded block diagram for that block. Associated with each block in a diagram was a link to the relevant document and a possible link to a deeper expanded block diagram.

It sounded simple. I spent some time investigating graphical format possibilities, including SVG (Scaleable

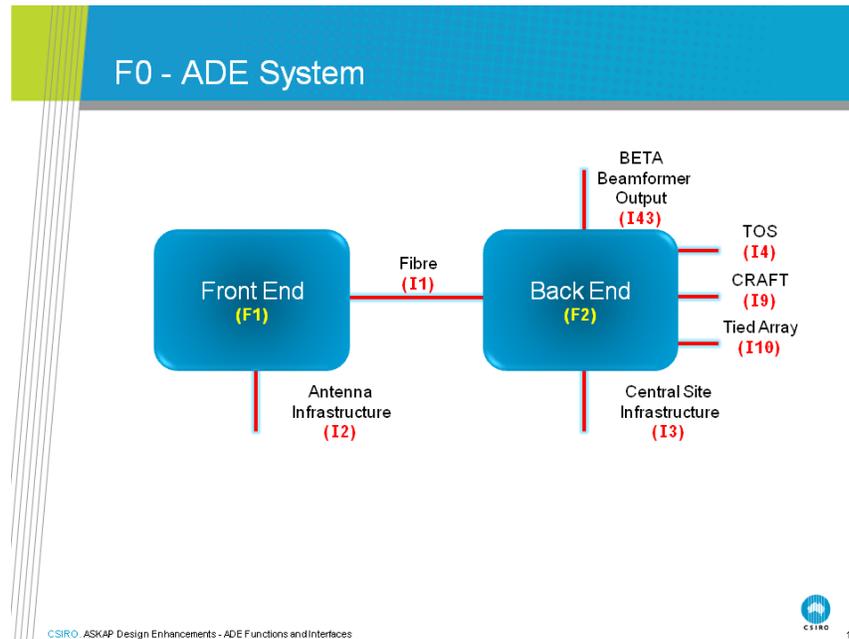


Illustration 4: First diagram in a cascading hierarchical set of system block diagrams

Vector Graphics) and HTML5. The problem was that like many organisations, CSIRO has a mixed computer environment. There are Mac users, Windows users and Linux users. There are Microsoft servers and Linux servers. There are probably Solaris servers running in there somewhere.

Many people were still running Windows XP, the ten year old operating system that works well enough. However Microsoft does not intend to provide Internet Explorer 9 on Windows XP, and Internet Explorer versions before 9 do not support SVG and HTML5.

There were workarounds and plugins that might have solved the problem of cross-browser support, but after trying hard I had to give in. The results just weren't reliable.

I spent a while with PDF files and urls. This system worked, but it was clunky and slow and it was awkward to define the links on the diagrams in PowerPoint.

I even considered Flash, but decided it was too proprietary. I might have been able to achieve the results I wanted with a lot of work in ActionScript, but I didn't know it and the combination of a learning curve and proprietary system that would soon be superseded by HTML5 was too much.

Then it occurred to me that there was an old HTML technology that would work on all the browsers. The image map is hardly ever used now in a world where Flash creates the online graphical environment. Moreover it is very limited. It just allows you to define a clickable area with an associated URL. But if I combined that with JavaScript to produce overlays on the images, I could achieve the result I was after.

It turned out that this was a fairly efficient solution. It was easy enough to define the clickable rectangles, using an old free tool I found online, Meracl Image Map Generator.

The images themselves I simply took from the PowerPoint presentation created by the team leader. I saved them as jpg files and png files. The png files were better quality. The Image Map Generator required jpg files, but the maps I created would then work with the png files of the same dimension.

Because I was going to process the image maps with JavaScript, I could minimise the information they contained. Instead of defining a full URL for each document or other link, I provided only the ID and the type of link. The JavaScript then processed that information to create the full URL.

The result was a maintainable system, most of which could be automated in some way.

It was fast and smooth and responsive. Best of all, I could use JavaScript to generate links that integrated it with my navigable hierarchy.

CONCLUSION

As the case studies demonstrate, there are many opportunities for automating documentation tasks, and many excellent, free and open tools to use in the process. There is effort required in learning to use them, but this is not necessarily a drawback. Confronted with a choice between making an effort to learn a fixed, proprietary system, or learning to create or modify a flexible, open system, it's clear what effort will provide the most enduring benefit.

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AUTHOR BIOGRAPHY

Neale Morison is a writer of words and code.

His roles have combined technical writing and development with analysis, design, project management and general management tasks. His experience includes twenty five years in hardware and software development, IT writing, technical writing, journalism, and twenty years in Internet development.

He has been providing documentation and automation for development groups since his employment with Fairlight in the early 1980s. Fairlight produced one of the earliest digital music synthesisers, echoes of which are still heard in sound engineering. Since then he has produced documentation for many startup development groups and larger companies such as Cisco and Fujitsu, working in intranet development, integrated circuit and embedded systems development. He is currently the technical writer for ASKAP, the Australian Square Kilometre Array Precursor, a radio telescope being built by CSIRO, the Australian Commonwealth Scientific and Industrial Research Organisation. He is automating documentation using the tools to be discussed in this presentation.

As a communicator, in the role of editor, journalist or web content developer, Neale is able to deliver in a large range of styles to meet the specific needs of his audience.

His output includes technical books, manuals, news, features, reviews, and public relations. In 2000 he won an industry writing award for his The End humour column in the Australian Industry Standard. His Web sites have also won awards.

His short science fiction story "All Over Rover" was published in the Futures section of Nature journal, April 10 2008. Another short science fiction story, "Can of Wormholes", was published in Nature Physics in June 2008.

Neale Morison writes fiction, humour, poetry and music.

12 KEY MOBILE USABILITY GUIDELINES YOU NEED TO IMPLEMENT NOW

Marta Rauch, STC Senior Member and Mentor for the Silicon Valley Chapter

Mobile devices are the new PC. With sales outpacing desktop systems in 2011, consumers increasingly use smartphones and tablets to access products and services. However, mobile usability lags behind desktop usability, and the user experience is often difficult and disappointing.

To meet the needs of mobile customers, information developers need to ramp up on mobile usability and learn to provide effective mobile user assistance. This article summarizes mobile usability guidelines, and presents key requirements for user assistance on mobile devices, including tablets such as iPad, and smartphones such as Android and iPhone.

ANALYZE MOBILE USER TASKS

The first step is to determine whether the tasks performed in the application are appropriate for a mobile device. A Nielsen Research survey in July, 2011 found that the most popular mobile applications are, in descending order, games, weather, social networking, maps/navigation/search, music, news, entertainment, video/movies, shopping/retail, dining/restaurant, sport, productivity, communication, food/drink, travel, health, education/learning, and household/personal/car.

In addition, Budiu and Nielsen found that the tasks commonly completed on mobile devices:

- Have a deadline
- Involve rapidly changing information
- Require privacy
- Involve finding information about businesses
- Involve finding directions or public transportation information
- Are performed in an emergency
- Require communication with others

Key requirement for user assistance: Determine whether your target audience will use your applications and documentation on mobile devices.

DETERMINE THE TARGET MOBILE DEVICE

Mobile designer Josh Clark notes that smartphones are held in one hand and used while on the go, so users have limited dexterity and a shorter attention span. In contrast, tablets are held with two hands while users are seated. This encourages “a more leisurely and contemplative mindset, with longer sessions and more attention...so applications should reflect that calmer mindset.”

The ergonomics of the device are also important. Clark observes that users typically hold smartphones from the bottom, with their thumb positioned at the bottom corner at the base of the phone. In contrast, they hold tablets from the top, usually with two hands, with the thumbs positioned at the top corners. Locate the controls where they are easiest to reach.

Key requirement for user assistance: Design user assistance for the devices used by the target audience, including touch devices if applicable.

INCREASE USABILITY FOR SMALLER DISPLAYS

It is twice as difficult to read content on a mobile device. Nielsen asserts that this is due to the small screen size. Users cannot see the entire page to scan through text. Attention is diverted by the need to navigate, scroll, remember what was seen, and re-find the original location on the page. These distractions reduce reading comprehension.

To work around this, Noah Iliinsky recommends design techniques that help users understand the hierarchy of information on the screen. First identify the critical content, and then visually emphasize it by making it “bigger, bolder, brighter, more detailed, or called out with circles, arrows, or labels.” Likewise, de-emphasize less relevant content “with less intense colors, lighter line weight, or lack of detail.”

Another issue is the wide variation in display sizes for mobile devices. To ensure that content displays appropriately, Joe Welinske suggests using variables for the height and width of the display. For example, include a `viewport` tag in the `<head>` section of HTML files, and specify `viewport` metadata such as width, height, initial scale, minimum and maximum scale, and user-scalability.

Key requirement for user assistance: Ensure that navigation controls for documentation are usable, and that user assistance displays correctly on mobile screens.

ENHANCE USABILITY OF CONTROLS AND INPUT MECHANISMS

Mobile controls and input mechanisms present challenges. To improve usability:

- Place touch controls so that users can easily use their thumb to press the most common controls.
- Design applications so they can be used in either hand.
- For tap-intensive applications, such as a scientific calculator, provide an option for a right-handed or left-handed interface.
- Use appropriate size and spacing for touch control elements, to be sure users can tap them with their fingers.

Vendors do not have a unified definition for the tappable area. Apple’s *iOS Human Interface Guidelines* recommends making targets “fingertip-size,” defined as “44 x 44 points,” the size of the virtual keys on the iPhone calculator. Microsoft defines the tap region as 9.12mm or 38 x 38 pixels. Google recommends a virtual measure called “density-independent pixels (dp),” which enables the region to scale to different screen sizes.

For documentation files for ereaders, ensure that the most critical controls are usable, such as those used to acquire, store, and select content, and to read, search, and navigate. The most important input mechanisms are bookmarking, highlighting, and adding and sharing notes. For touch device instructions, use appropriate verbs, such as swipe, flick, tap, and pinch.

Key requirement for user assistance: Implement the navigation controls and input mechanisms required by your users. For touch devices, include navigational gestures.

CONSIDER PLATFORM DIFFERENCES

Platform standards vary widely. For example, iPhone applications typically include a Back button on the upper-left corner of the screen, whereas Android applications do not because Android devices have a printed Back control. At Developer Day 2010, Google advised that developers implement:

- A Dashboard with recognizable icons for the main tasks that can be performed in the application
- An Action Bar that shows users what they can do with each feature
- A row of controls at the top of the screen (instead of at the bottom of the screen, as on the iOS interface).

Usability can differ when an application is used on devices of different sizes. As described in “Usability of iPad Apps and Websites,” Budiu and Nielsen found that when users viewed an app on an iPhone, they used the controls on the tab bar at the bottom of the screen. However, when using the same application on the larger iPad, they did not notice them because their eyes were drawn further away from the controls.

Another consideration is screen size and resolution. For example, as of this writing, Apple’s web site notes that the current iPad has a 9.7-inch (diagonal) display and screen resolution of 1024-by-768-pixel resolution at 132 pixels per inch (ppi), whereas the iPad 4 has a 3.5-inch (diagonal) display and 960-by-640-pixel resolution at 326 ppi.

For touch controls, the touch zone must be as large as the icon displayed on the screen. For example, when Android touch controls are displayed on a tablet, the touch zone must be large enough that users can activate the control by touching anywhere within the icon.

Key requirement for user assistance: Consider platform differences, and ensure that touch controls scale appropriately for different screen sizes.

USE CARE WITH NAVIGATION AND INPUT MECHANISMS

In “Usability of Mobile Websites,” Budiu and Nielsen found that the biggest usability issue is entering data without a mouse: “menus, buttons, hypertext links, and scrolling all take longer time and are more error-prone... Text entry is particularly slow and littered with typos, even on devices with dedicated mini-keyboards.” Nielsen notes in “Mobile Usability that the main obstacles are download delays, small screens, and awkward input mechanisms. In a study of iPad and iPhone users, Budiu and Nielsen found these general issues:

- Inconsistent interaction design
- Unusual interfaces without intuitive controls
- Linear navigation, which hampers users from jumping to different locations as they do with web sites
- The use of “beautiful” interface elements that emphasizes form over function
- The frequent lack of a “Back feature, search, clickable headlines, and a homepage”

To improve mobile usability:

- Provide a search box and navigation controls on the main page
- Use auto-complete and suggestions for textboxes
- Allow for typos and abbreviations
- Use personalization and history to provide defaults
- Compute field values when possible
- Make the target area at least 1cm x 1cm
- Leave sufficient space around user interface elements
- Ensure that textboxes fit on the screen, for example 30 characters for smartphones
- In forms, provide field descriptions above the field
- To signal an error in a field, mark the textbox that needs to be changed
- Minimize the need to log in or register

Key requirement for user assistance: To improve mobile usability, minimize the need to enter data, and implement design techniques that reduce errors and maximize success.

INCLUDE “AWKWARD CONTROLS” WHEN NECESSARY

Because mobile devices are portable, users carry them throughout the day. This introduces the risk that devices inadvertently turn on and perform tasks accidentally. For example, a smartphone jostled against other items in a handbag can accidentally make a call. To guard against this, implement “awkward controls” for certain key tasks. Because these controls are a little more difficult, they require more attention and minimize inadvertent actions.

As designer Josh Clark puts it, “Awkward isn’t always bad...By requiring awkward or challenging gestures at well placed points of your interface, you can protect against miserable mishaps.” Examples of this design technique include the slide-to-unlock control used by Android and Apple, and Apple’s slide controls to answer, power off, and delete.

Apple and Android also provide confirmation screens for key actions, such as deleting. For example, to shut down the device, Android requires a long press on a hardware button and then an affirmative response to a confirmation message. Another example of this type of a control is a multi-tap combination, such as Apple’s triple-tap with three fingers to turn the screen curtain on or off.

Another technique for preventing errors is an Undo mechanism. To maximize screen space, include Undo buttons only for certain risky actions. For example, Google Gmail displays an Undo control for 5 seconds after users click Send.

Key requirement for user assistance: To guard against inadvertent actions on mobile devices, implement “awkward” user interface controls when necessary, and provide an undo mechanism for critical tasks, such as deleting.

CREATE PROTOTYPES TO VALIDATE THE DESIGN

To get feedback early in the development cycle, Joe Welinske recommends testing with simulators. For example, for Android, test with the emulator in the Android SDK (Software Development Kit) available on the Android Developer’s Site (<http://developer.android.com/sdk/index.html>). For Apple iOS, test designs with the Interface Builder’s Simulator.

Josh Clark recommends building rapid prototypes with HTML and CSS, and creating mockups with Keynote, Photoshop, or other tools. For example, Keynotopia (<http://keynotopia.com/>) provides helpful stencils of controls for iPad, iPhone, and Android.

Key requirement for user assistance: Create a prototype, and validate it to confirm usability.

TEST THE DESIGN ON MOBILE DEVICES

Test on as many actual devices as possible. As Josh Clark advises, it is important to “get onto the device as quickly as possible, to get a sense of not just how your pixels look but how your pixels feel in the hand.” Commercial applications such as Google’s map and Twitter’s TweetDeck are tested on 100 versions of the Android operating system.

Other key test considerations for mobile devices:

- Test software on actual devices instead of just emulators
- Run tests on a variety of devices, third-party software, and browsers
- Check error messages in all languages
- Test download speed

It is also possible to test remotely through a device lab, such as Device Anywhere or Perfecto Mobile. Joe Welinske provides many practical tips and suggestions for testing on prototypes and actual devices in *Developing User Assistance for Mobile Applications*.

Key requirement for user assistance: Know which mobile devices, operating systems, and browser versions your customers use most frequently, and test on as many of them as possible.

CONSIDER TRANSLATION FOR MOBILE DEVICES

Many translators have limited experience with user assistance for mobile devices, so it is important to get agreements with vendors early in the project. Translation issues include:

- Language-specific special characters
- Text truncation and dialog box resizing
- Line- and word-wrapping
- Abbreviated translations
- Localized screenshots of controls and the user interface
- The need to reduce file size for icons and screenshots

In “Localizing for Mobile Devices: A Primer,” Shailendra Musale advises that documentation must be small and compact, since file size is multiplied by the number of languages. Get agreement from translation vendors on:

- File size, which must be small due to limited disk space and memory on mobile devices
- File formats for localizable resources
- File-naming conventions
- Error message translation
- Translation for installers or setup applications
- The language for content development
- The language for gestures

Key requirement for user assistance: If the application is translated, ensure that translation vendors address mobile translation issues.

CONSIDER ACCESSIBILITY FOR MOBILE DEVICES

Mobile vendors offer a variety of accessibility solutions. Apple’s *Accessibility Programming Guide* provides guidelines for VoiceControl, Speech Synthesis, and VoiceOver. The gesture-based VoiceOver screenreader provides accessible support in 21 languages. Screen magnification and white-on-black (reverse video) provide better contrast for low vision users. Apple also provides accessible touch controls, and Braille displays are supported on iPad, iPhone 4, and iPhone 3GS.

Google’s accessible design guidelines are provided on the Android Developer web site. Google recommends testing with an accessibility service such as TalkBack, which comes preinstalled on many Android-powered devices and is available at no charge from the Android Market (<https://market.android.com/>).

Key requirement for user assistance: Build in accessibility features for mobile user assistance, and validate effectiveness by testing with assistive technology.

PROVIDE A MOBILE WEB SITE

For browser-based help on web sites, a common issue is that sites are not optimized for mobile devices. Jakob Nielsen observes that usability improves when viewing mobile-designed sites.

To address this, provide a separate site that is optimized for mobile devices. The site should detect a user’s device, and automatically direct mobile devices to the mobile site. Designer Luke Wroblewski takes it one step further, and advocates for a “mobile-first design process to improve user experience on all platforms.”

Another best practice is to provide a link from the full site to the mobile site, and from the mobile site back to the full site. Nielsen recommends the link labels “Mobile Site” and “Full Site.” In addition, mobile users are impatient with slow download times, so it is important to reduce the size and number of graphics and screenshots.

A final recommendation is to optimize the site for the browsers and browser versions used by target users. As the W3C points out, mobile browsers often differ markedly from desktop browsers. For prototypes, designers can use the Firefox Mobile Emulator or the Safari browser's developer mode, which enables it to simulate different browsers. For the final web site, test on a wide range of actual mobile devices, browsers, and browser versions.

Key requirement for user assistance: If a web site is required, detect the user's device and direct it to a site that is optimized for mobile devices. Provide links between the full site and the mobile site.

PUTTING IT ALL TOGETHER

The increasing proliferation of mobile devices means that we must learn to deliver effective mobile user assistance. To meet this need, this article examines usability guidelines throughout the development cycle: mobile task assessment; ergonomics; displays, controls, and input mechanisms; prototyping and testing; translation; accessibility; and mobile web sites. Understanding these guidelines will help us provide effective mobile user assistance that meets our customers' needs.

ABOUT THE AUTHOR

Marta Rauch is a Principal Information Developer at Oracle, where she leads the Planning ID team and played a key role in her department's effort to convert content to Kindle format, and in ID strategies for social media and online forums. Marta enjoys sharing her enthusiasm for mobile usability and other topics at conferences in the US and Europe, including STC Summit, LavaCon, WritersUA, Intelligent Content, Content Management Strategies/DITA, and IEEE PCS. She has given several STC Webinars on innovative documentation and continuous improvement, and her articles have appeared in the [STC Intercom](#) and the Center for Information-Development Management [Best Practices](#) journal. (This paper is based on Marta's own research, and the opinions presented are her own.) With over 20 years of experience in technical communication, Marta has received 15 STC awards for individual and team projects at the local, national, and international level. An STC senior member and mentor for the Silicon Valley Chapter, she holds a Certificate in Technical Writing from the University of California Extension and a BA from Stanford University.

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THINK-ALoud PROTOCOLS: DOES AGE MAKE A DIFFERENCE?

Erica Olmsted-Hawala¹ and Jennifer Romano Bergstrom²

The think-aloud protocol is one of the main techniques used by usability professionals when conducting usability studies. Two of the most common think-aloud protocols that usability practitioners use today are Concurrent Think-Aloud (CTA) and Retrospective Think Aloud (RTA). In this study, we analyzed whether think-aloud condition and age influenced usability measures of accuracy, efficiency, and satisfaction. We also assessed differences and similarities in verbalizations by age and by think-aloud condition. Results show that of the three age groups (young, middle-age, and older adults), only the middle-age adults in the CTA condition showed effects: they were more accurate for the difficult task and took longer to complete the task. Age did not affect satisfaction ratings. CTA led to a higher percentage of present tense, positive, and affective utterances, whereas RTA led to a higher percentage of past tense, insight and cognitive utterances. The differences in performance by age and think-aloud protocol highlight the importance of including demographic characteristics such as age when reporting results of usability testing. Depending on the goals of the usability study, a researcher might opt to use CTA when interested in obtaining a real sense of the users' experience with the interface. Conversely, if the researcher is interested in gaining a user's insight into what the issues are with a user interface, he/she might opt to do an RTA study.

Introduction: The think-aloud protocol is one of the main techniques used by usability professionals when conducting usability studies. During a think-aloud study, participants talk about what they are thinking as they work on a Web site, complete a survey, or interact with another type of interface. The benefit of using a think-aloud protocol is that once a researcher understands the participant's thoughts pertaining to the task and the specific screen (e.g., Web page), the researcher can identify what usability issues participants have with the interface and can subsequently work on potential solutions. Two of the most common think-aloud protocols that usability practitioners engage in today are:

- Concurrent Think Aloud (CTA), where the participant is encouraged to “think out loud” while working on a task
- Retrospective Think Aloud (RTA), where the participant talks only *after* the session is completed, typically while watching a video replay of his or her session.

Much of the research on think-aloud protocols in usability studies has compared the effects of CTA and RTA on verbal data quality and participant performance as measured by typical usability metrics (i.e., accuracy, efficiency, satisfaction), and the research conclusions vary. Some practitioners have found that a heavily-cued RTA (i.e., with video playback) gives insight into participants' thoughts, but session length doubles (Capra, 2002; Murphy & Norman, 2004; Van Den Haak, De Jong, & Schellens, 2003 and 2004).

Other studies show no performance or satisfaction differences between the two protocols, although there is a difference in the type of usability problems that participants talk about. CTA participants comment more on procedures, and RTA participants give explanatory or design-related comments (Bowers & Snyder 1990; Ohnemus & Biers 1993; Page & Rahimi, 1995). Van Den Haak et al. (2003) found accuracy and efficiency suffered in the CTA compared to RTA; however the usability problems identified were the same. Others have found that there are no (or minimal) differences in performance between participants using RTA and CTA

¹ This report is released to inform interested parties of research and to encourage discussion. Any views expressed on the methodological issues are those of the authors and not necessarily those of the US Census Bureau.

² At the time this work was performed, all authors were associated with the Human Factors and Usability Research Group of the U.S. Census Bureau. Jennifer Romano Bergstrom is now at Fors Marsh Group, LLC.

(Capra, 2002; Olmsted-Hawala, Murphy, Hawala, & Ashenfelter, 2010; Van den Haak et al., 2004). Krahmer and Ummelen (2004) summarize that most CTA leads to longer performance time on a specific task than RTA, while the accuracy of the task is not affected. Thus, there are many differences that emerge across the existing studies, and there is no clear indication which protocol is more desirable (that is, which protocol leads to a rich insight of the participants' thoughts and does not impact accuracy, efficiency, and satisfaction).

In our work at the Census Bureau's Human Factors and Usability Research Group Laboratory, we conduct usability studies with potential users of our products so we can identify what works well and what needs to be modified to better communicate with our users. During usability testing, as the participants work on their tasks, we typically have them follow a communicative CTA protocol (Boren & Ramey, 2000; Olmsted-Hawala et al., 2010). We often recruit older users to participate in our studies, so that we can ensure our sites are usable for people of all ages. This is particularly important because the US population is aging (US Census Bureau, 2009), and the use of the Internet by older adults is rapidly increasing (Madden, 2010). However, it is well known that performance for older adults decreases when they attempt to complete dual tasks (e.g., Hartley, 1992). Because of this, we were concerned that the dual task of thinking aloud in the CTA protocol while searching for information would lead to increased errors in performance. No studies to date have compared the different think-aloud protocols and the effects of aging. Thus, in this study, we examined the effects of think aloud and age on usability metrics (i.e., accuracy, efficiency, satisfaction), measures of performance that are common in usability testing. Using a linguistic analysis and word count tool, we also examined the quality of the verbal report given during the think-aloud protocol. It has been documented that the words people use often give insight into their mental and physical health (Stiles, 1992). We believed the analysis of the verbal reports could provide some understanding of the differences in the two conditions and highlight age-related differences. This analysis may be of particular interest to technical communicators who seek to understand what users are thinking and feeling as they work with a user interface. An outcome of such analysis may give insight to a technical communicator to identify pain points and potentially gain insight into how to address the design problems of a user interface while at the same time identify ways to increase the positive sense of the users' experience with the application.

METHODOLOGY

To test whether the think-aloud mode affected usability metrics differently by age group, we designed a 2 (Think Aloud) x 3 (Age) between-subjects study in which participants thought they were participating in a usability study but were, in fact, participating in an experiment (i.e., a putative usability study). We analyzed how age and think-aloud protocol were related to usability performance measures (accuracy: task completed correctly or not, efficiency: time on task, and subjective satisfaction ratings). In addition, we examined the effects of age and think-aloud protocol on the quality of verbal reports. In particular, when conducting usability tests with older adults, we wanted to know whether it is more beneficial to have older adults communicate what they are thinking about retrospectively or concurrently.

Ninety-five users from the metropolitan Washington, DC area participated. Young adults (ages 18-28), middle-age adults (ages 40-50) and older adults (ages 64-76) were assigned to a CTA condition or to a RTA condition. We identified the age groups prior to the study, intentionally selecting age ranges that were far enough apart to highlight any differences. All participants reported being experienced with computers and the Internet, and all reported being unfamiliar with the Web site tested. See Table 1 for demographic information.

	Young adults		Middle-age adults		Older adults	
	CTA	RTA	CTA	RTA	CTA	RTA
Gender	3M / 8F	6M / 15F	5M / 7F	9M / 10F	5M / 6F	9M / 12F
Age	22	22	45	46	67	68
Years of education	15	15	15	14	16	16
Ease of learning a new Web site*	1.36	1.47	1.83	1.42	2.36	2.38
Ease of navigating the Internet*	1.09	1.05	1.33	1.16	1.72	1.57

Table 1. Participants' Mean Characteristics

*Scale: 1 (Not difficult at all) – 5 (Extremely difficult).

Participants worked on five information-gathering tasks on the legacy³ version of the US Census Bureau's American FactFinder (AFF) Web site. AFF is the Census Bureau's primary data dissemination Web site about the population, housing and economy of the United States. The tasks stem from typical tasks that general users of the Website come to the site to accomplish. Two tasks we categorized as easy, and three tasks we categorized as hard. See Appendix A for a list of the task questions. The participant and the test administrator sat in separate rooms during the sessions and communicated via microphones and speakers. Although participants in the RTA condition completed all five tasks, due to time constraints, they only spoke retrospectively about the last task. The other four tasks were completed in silence, without a retrospective think aloud.

RESULTS

Usability Metrics: We examined the mean accuracy (across all tasks) and the mean efficiency for correctly completed tasks only. For satisfaction, we examined responses to a modified version of the Questionnaire for User Interaction Satisfaction (QUIS) that included 11 questions (Chin, Diehl, & Norman, 1988).

First we examined accuracy. A one-way ANOVA comparing average accuracy among groups showed significant age-related differences between young adults (63% task accuracy) and older adults (42% task accuracy) ($p < 0.01$) and between middle-age (57% task accuracy) and older adults ($p < 0.05$), such that young and middle-age adults completed more tasks successfully than older adults, while there were no differences between young and middle-age adults. We compared accuracy by think-aloud protocol, and we found no significant difference between CTA and RTA for any of the groups. Thus, although older adults completed fewer tasks successfully than both young and middle-age adults, think-aloud protocol did not affect overall accuracy for any of the groups. See Table 2 for mean usability metrics.

Next we examined accuracy by task difficulty. We examined the first easy task and the first hard task that participants encountered and attempted to complete. For young and older adults, a one-way ANOVA showed no significant differences in accuracy by think aloud condition for either task. However, for middle-age adults, a one-way ANOVA comparing think aloud condition showed a significant difference in accuracy for the difficult task only, such that the middle-age adults in the CTA condition correctly completed significantly more tasks (75%) than their RTA counterparts (42%) ($p = 0.07$). Thus, there was a difference in think-aloud condition by age for middle-age adults for accuracy such that CTA yielded higher accuracy for the difficult task but not for the easy task, and we did not find this same pattern for young or older adults.

³ In early 2012, a new American FactFinder (AFF) was released. The study described in this paper was conducted on the old AFF site. The old site is no longer available online and is referred to as the "legacy" version.

Next we examined efficiency. Across both think-aloud conditions, a one-way ANOVA showed a significant difference between young adults (155 seconds) and older adults (223 seconds) ($p = 0.05$), such that young adults completed tasks faster than older adults. There were no differences between middle-age (193 seconds) and young adults or between middle-age and older adults. We compared efficiency by think-aloud condition and found that overall, there was no difference between CTA and RTA for young and older adults. However, for middle-age adults, a one-way ANOVA showed a trend, such that those in the RTA condition (163 seconds) completed tasks faster than their CTA counterparts (235 seconds) ($p = 0.10$).

We also examined efficiency by task difficulty and found no differences in performance by think-aloud condition for the easy or hard tasks for young and older adults. However, for middle-age adults, a one-way ANOVA comparing think-aloud condition showed a significant difference in efficiency for the difficult task only, such that the middle-age adults in the RTA condition completed the task faster (271 seconds) than their CTA counterparts (576 seconds) ($p < 0.05$). Thus, there was a difference in think-aloud condition for middle-age adults for efficiency such that RTA yielded faster completion time for the difficult task but not for the easy task, and we did not find this same pattern for young or older adults.

For subjective satisfaction score, across think-aloud conditions and across all satisfaction items, a one-way ANOVA comparing age group showed no significant age-related differences. Because each statement measures satisfaction with a specific aspect of the interface, we examined each statement separately. A one-way ANOVA comparing groups showed a significant difference between middle-age and older adults on two (out of 11) aspects of the site and a significant difference between young and older adults on one item, such that older adults rated their satisfaction on the two items significantly lower than middle age and younger adults. The two aspects were “Organization of information on the site (confusing – clear)” ($p = 0.10$, middle-age vs. older adults) and “Overall experience of finding information (difficult – easy)” ($p < 0.05$, middle-age vs. older adults; $p = 0.05$, young vs. older adults). However, when we examined satisfaction by think-aloud condition, we found no differences for any of the groups. Thus, although older adults reported lower satisfaction for two items, think-aloud protocol did not affect satisfaction for any of the groups. See Table 2 for accuracy, efficiency and satisfaction ratings by age group and think-aloud condition.

	Young adults		Middle-age adults		Older adults	
	CTA	RTA	CTA	RTA	CTA	RTA
Accuracy	75%	62%	65%	50%	44%	41%
Efficiency	155 s	153 s	235 s	163 s	215 s	226 s
Satisfaction*	5.14	4.46	5.39	4.91	5.14	4.42

Table 2. Accuracy, Efficiency and Satisfaction Ratings by Age Group and Think-Aloud Condition

* Scale 1 to 9: 1 = terrible, 9 = wonderful.

Verbal Quality: During testing, we noticed that participants in the CTA condition seemed to speak more about what they were presently doing, and participants in the RTA condition stayed “on task” less often but provided more insight about their experience. We also noticed that older adults appeared to speak less often and needed more prompts by the test administrator. However, these were merely impressions; to test whether there were differences in verbal comments by age group and by think-aloud condition, we first had a colleague, who was unaware of the objectives of the study transcribe verbatim the CTA and the RTA sessions. Then, using a random number generator (Random Number, 1998) we randomly selected five of the verbatim transcriptions by age group and by think-aloud condition for task 5 and used the Linguistic Inquiry and Word Count (LIWC) software (1997) to analyze the text.

The LIWC software is a text analysis program that calculates the degree to which participants verbalize, among other things, positive or negative emotions during the session (Pennebaker & Francis, 1999). LIWC quantitatively codes words based on an internal dictionary. For example, words identified as carrying positive emotions include “yes,” “like,” and “good,” and words identified as carrying negative emotions include “no,” “dislike,” and “bad.” For these findings we do not have a measure of variation associated with each percentage, therefore we can’t reliably say whether these differences are significant or not. Future work will

take into account the variation and test for statistical significance; for now, we highlight what we noticed in the results.

First we examined the number of present and past tense utterances to ascertain that the LIWC tool would work effectively with the verbalizations. We found, as we expected, that across all groups, participants in the CTA condition spoke a higher percentage of present tense words than participants in the RTA condition. Within the CTA condition, young adults used about 5% less present tense words than the other two age groups. As well, also as expected, participants in the RTA condition spoke a higher percentage of past tense words than participants in the CTA condition. Within the RTA condition, there was a similar pattern of young adults using less present tense words than the other two age groups. See Table 3.

Next we examined words that we thought would be useful in identifying good usability: positive emotions. We found that across all age groups, participants in the CTA condition spoke a greater percentage of positive emotion words (e.g., clever, hopeful, smart) and words of assent (e.g., absolutely, awesome, cool) than participants in the RTA condition. Within the CTA condition, older adults used twice as many words of assent than both young and middle-age adults.

We also examined words that would be useful in identifying poor usability: negative emotions. We found that negative emotion words (e.g., annoy, awful, bad) and negations (e.g., aren't, can't, doesn't) occurred pretty comparably across the two conditions, though there were some age group differences. Across the two think-aloud conditions, young adults in the CTA condition used slightly more negative emotion words than their RTA counterparts, however they used slightly fewer negations in the CTA condition than in the RTA condition. The use of negations is different by think-aloud condition for the middle-age and older adults, such that for both age groups, they use negations more often in the CTA condition than in the RTA condition.

Next, we examined insight words. We found that, across all age groups, participants in the RTA condition spoke a higher percentage of insight words (e.g., complex, meaning, prove) than participants in the CTA condition. This result is consistent with what the test administrators observed during testing. Similarly, words that had to do with cognitive processes (e.g., ambiguous, hesitate, solution) occurred for all age groups more often in the RTA condition than in the CTA condition. For the RTA condition, the older adults used words that had to do with cognitive processes slightly less often than the other two age groups. The percentage of words that had to do with perceptual processes (e.g., heavy, sight, noisy) occurred fairly even across think-aloud conditions and age groups.

Next, we examined words that had to do with affective processing because this we believed could lend insight into a user's attitude or mood as they interacted with the site. The percentage of words that had to do with affective processes (e.g., caring, clever, insult) occurred slightly more often in all age groups in the CTA condition than in the RTA condition. Within the think-aloud conditions, the middle-age adults used affective language slightly more often than the other two age groups.

Finally, we examined words that had to do with work because we felt there might be differences with respect to the focus of the participant on the work element of finding an answer to their task question in the CTA and the RTA condition. The percentage of words that had to do with work (e.g., employ, exam, wage) occurred more often in the CTA condition than in the RTA condition (Table 3). This appears to reflect what the test administrators observed during the sessions: that the participants in the CTA condition seemed to stay "on-task" more consistently than their RTA counterparts.

	Young adults		Middle-age Adults		Older adults	
	CTA	RTA	CTA	RTA	CTA	RTA
Past tense	1.6	9.2	2.3	7.2	2.3	11.3
Present tense	9.9	5.8	15.1	9.6	14.6	7.4
Negations	1.4	2.5	3.1	1.8	2.7	1.9
Negative emotions	1.2	0.7	1.1	1.1	0.7	0.6
Positive emotion	2.2	1.4	2.3	1.6	2.1	1
Assent	1	0.6	1.5	0.6	3.1	0.6
Insight	3.3	5.3	3	5.4	2.3	5
Affective processes	3.3	2	3.4	2.5	2.8	1.6
Cognitive processes	19.3	22.6	16.2	23.6	17.1	19.4
Perceptual processes	4.9	3.8	4.3	3.5	4.4	4.4
Work	5.8	2.1	4.9	2.3	4.6	2.9

Table 3. Percentage of Word Type by Age and Think-aloud Condition

DISCUSSION

Our study leads to five primary conclusions. First, young and middle-age adults completed more tasks successfully (higher accuracy) than older adults. Second, young adults completed tasks faster than older adults. Third, age did not affect satisfaction. Fourth, middle-age adults who completed tasks in silence (i.e., the RTA condition) completed the most difficult task faster and with higher accuracy than middle-age adults who thought aloud while completing tasks. Finally, thinking aloud concurrently led to a higher percentage of present tense, positive, and affective utterances, whereas thinking aloud retrospectively led to a higher percentage of past tense, insight and cognitive utterances.

Our efficiency finding with middle-age adults is consistent with the literature that indicates cognitive demands influence the speed with which adults process information (Bashore, Ridderinkhof, & Molen, 1997) and that dual task interferes with performance (Hartley, 1992). We hypothesize that we did not find the identical pattern of results with the older adults because the older adults were performing at a floor level (performing very slowly), and conversely young adults were performing at a ceiling level (performing very quickly), whereas middle-age adults, who have a range of speed, demonstrated an effect of the think-aloud condition. Future research should include wider ranges of age to test the assertion that the age-related effect is incremental and occurs slowly through a lifetime.

For middle-age adults, on the hard task only, thinking aloud concurrently led to higher accuracy and slower task completion times, while thinking aloud retrospectively led to lower accuracy and faster completion times. This speed accuracy trade-off is often reported in the cognitive aging literature (e.g., Rabbitt, 1979; Salthouse, 1979), though it has not been described in prior think-aloud studies. Further work is needed on age-related differences with speed and accuracy trade-offs in CTA and RTA usability studies.

In an earlier study (Olmsted-Hawala et al., 2010) conducted in the same lab, the authors found no differences in accuracy, efficiency, or satisfaction when comparing a silent control to a speech-communication think-aloud protocol. However, in the 2010 study, the authors did not examine age-related differences. In the present study, we found that when comparing CTA to a silent condition (i.e., the RTA condition), middle-age adults, on

the difficult task only, performed differently in terms of accuracy and efficiency. This suggests that age influences usability metrics when using a think-aloud protocol in usability testing. Our findings for middle-age adults are in contrast for accuracy, and they are in line for efficiency with Van Den Haak et al. (2003) who found (without considering age) that CTA degraded accuracy and efficiency. The differences in performance by age and think-aloud protocol highlight the importance of including demographic characteristics, such as age, when reporting on usability testing.

Over the years, researchers have identified a connection with the words people use to predict their mental and physical health (Gottschalk & Gleser, 1969; Stiles, 1992). For example, a higher use of positive words predicted a person would be healthy, while the use of more negative emotional words predicted a person would be less healthy. So too we believed that the use of language would vary depending on whether the language was spoken at the moment of working on the Web site, or later in a retrospective review of the task. As the LIWC output demonstrated, for some categories of analysis there were no differences, while for other categories, such as positive emotions and words of insight, there was a difference. Depending on the goals of the usability study, a researcher might opt to use CTA when interested in getting a real sense of a user's experience with the interface. Conversely, if a researcher is interested in gaining a user's insight into what the issues are with a user interface, he/she might opt to do an RTA study.

One of the challenges when proctoring the RTA session with video playback is to ensure that the participant speaks about what they were thinking about as they were doing what is displayed in the video replay. The test administrators in this study noticed that in general, the RTA participants appeared at times to be speaking about something that occurred later in the task or of something that was apparently off the topic of the task itself. When we examined the LIWC results, the retrospective condition, regardless of age group, demonstrated that the percentage of words that had to do with cognitive processes and insight occurred more often in the RTA condition. This finding is in line with previous studies (Bowers & Snyder, 1990; Ohnemus & Biers, 1993; Page & Rahimi, 1995) that have shown that RTA participants tend to give explanatory or design-related comments. In contrast, words that had to do with participants' emotions, such as their emotional reaction to the user interface of the Web site, occurred more often in the CTA condition.

We cannot determine whether CTA or RTA is "right," but we can say that each yields different results. Overall, it is good practice, when the test administrator communicates with the participant, to use the same communication with *all* participants or the data may be invalid (at least for middle-age adults). Researchers must decide which is more important—the usability metrics or the insight we receive from participants who think aloud while they complete tasks during usability studies.

Suggested applications for professional technical communicators doing usability testing:

- Recruit participants of varying age groups for usability testing; conduct usability tests with older adults.
- Consider the pros and cons of both methods when creating the protocol and deciding on a think-aloud mode.
- Be aware of the cognitive demands and the effects that thinking aloud has on adults as they age.
- Consider using CTA for a richer verbal commentary, particularly with respect to participants' emotional reaction to the site.
- Consider using RTA when interested in verbal feedback related to participants' insight on what they felt the issues were that they were having with the application.

APPENDIX A

Task level: Easy

1. You want to learn more about Maryland, and specifically about how many people live there. How many people live in Maryland?

2. You are interested in knowing about countries the US purchases products from. What percent of U.S. imports currently come from China?

Task level: Difficult

3. You are doing a report on schooling in the U.S. What percent of the population in Florida, California and Texas completed college in 2008?

4. You are doing research for a project on poor people in the U.S. and want to know which three states had the most poor people in 2008. What are the three states?

5. You are working on a project that involves work environments in the US, and you are interested in the history of coal mining. How many coal-mining companies were in the US in 2007?

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Dr. Jennifer Romano Bergstrom has over 12 years of experience planning, conducting and managing user-centered research projects. At Fors Marsh Group, she is responsible for leading user experience (UX) research. Jen specializes in experimental design, quantitative analysis, and usability for older users. She also teaches training courses in usability, accessibility, information architecture, search engine optimization and writing for the Web. Prior to joining Fors Marsh Group, Jen completed a post doc at the US Census Bureau where she conducted numerous usability studies, many of which included examining age-related differences in Internet performance and improving the usability of Web sites and Web-based surveys for older adults. Prior to working at the Census Bureau, Jen studied cognitive aging and lifestyle factors, such as bilingualism and piano-playing that promote healthy cognition in old age.

PROJECT TRACKING AND METRICS USING SHAREPOINT

Liz Gardipee and Kathleen Ruggeri

A central compilation of data about your technical communication projects is critical to be able to track progress, manage workload, and gather metrics. This central data set allows you to accurately estimate future work, which gives you credibility and trust with your stakeholders. We explain how, by recording more than 40 pieces of metadata for every project, Rockwell Automation created a unique system in SharePoint to monitor our technical communication projects and generate a variety of metrics and business reports. Our Project List and Time Tracking Tool is used in six cities by 35 people working under three managers.

WHERE WE STARTED WITH PROJECT TRACKING

Prior to 2008, our four technical communication departments in different divisions were operating as independent groups. We had a similar overall process for ISO, we maintained similar types of documents, and we were using the same tools. But even though we reported into the same manager, each group had its own unique way of tracking projects and delivering reports.

We struggled with preparing summary reports for management; we had to manually tie different project lists together for different locations. Metrics had to be calculated by hand by each group; we could not create group-wide averages since each location tracked information slightly differently.

We were being asked to produce more and more reports for finance tracking for the multiple business units that we served, and the hours we spent combining the lists was growing and growing. We decided we needed to make a change.

OUR NEW PROJECT TRACKING

A new tool called SharePoint had just been introduced in our engineering and project management departments. We quickly realized that this tool would solve our project tracking problems.

We formed a small team to undertake the effort with these goals:

- Provide a central location for all planning and reporting data
- Allow for flexibility in reporting for business units/finance
- Enable simultaneous access to multiple users
- Ensure data consistency (pull-down choice lists, radio buttons wherever possible)
- Track work for all roles (information architect, information developer, editor)
- Use only standard SharePoint functionality, no customization

We created a SharePoint site for our overall technical communications department. We harmonized our four project tracking lists to identify the project metadata fields that would allow us to track basic information, report to our business unit stakeholders and finance, and generate key metrics. We created a Custom List and each manager preloaded it with project information from the previous two years so that we had some history to start our metric tracking.

Along the way, we identified some key tenets that we still hold true today:

- Project data is not 'polished' – we simply record facts

- Project data is used as neutral data – it is NOT used for rating people on productivity
- Project data belongs to every employee of our company – it reflects work that we do in our job function for the company

Here is what our SharePoint Project List and Time Tracking Tool looks like. It behaves much like an Excel spreadsheet.

The screenshot shows a SharePoint list titled "Project List for STC Conference". The list has columns for Title or Description, Publication Number, Contributor, Role, Status, State, Project Name, Business Unit, and Your Manager. The rows represent individual project entries. A blue arrow labeled "Columns" points to the top of the list. A blue arrow labeled "Headings" points to the first row. A blue arrow labeled "Rows" points to the second row. A blue arrow labeled "Cells" points to a specific cell in the third row, which is circled in red.

Title or Description	Publication Number	Contributor	Role	Status	State	Project Name	Business Unit	Your Manager
Solar Combination Enclosure Installation Instructions	1000-IN002A-EN-P	Thomas	Developer	Complete	Closed out	Solar Box	Sales Tools	Williams
Thomas	1000-IN002A-EN-P	Martin	Editor	Complete	Closed out	Solar Box	Sales Tools	Smith
Thomas	1000-IN002A-EN-P	Martin	Editor	Complete	Closed out	Solar Box	Sales Tools	Smith
Solar Combination Enclosure Installation Instructions	1000-IN002B-EN-P	Thomas	Developer	In progress	Awaiting input	Solar Box	Sales Tools	Williams
IEC ModCenter Launch	100-RM001A-EN-P	Martinez	Developer	Complete	Closed out	IEC ModCenter	Industrial Components	Philips
IEC ModCenter Launch	100-RM001B-EN-P	Martinez	Developer	Complete	Closed out	IEC ModCenter	Industrial Components	Philips
Intelligent Axis Controller Series Operation Manual	10530	Clark	Developer	Complete	Closed out	Anorad General	Motion Control	Williams
1203-EH1 v1.005 Firmware Release Note - New	1203EH-RN001A-EN-P	Lee	Developer	Complete	Closed out	data not recorded	Motor Control	Williams
1203-USB v1.003 Firmware Release Note - New	1203SB-RN001A-EN-P	Lee	Developer	Complete	Closed out	na - complete	Motor Control	Williams
1203-USB Converter Firmware v1.004 Release Note	1203SB-RN002A-EN-P	Lee	Developer	Complete	Closed out	1203-USB update for Warthog	Motor Control	Williams
1203-555 v3.007 Firmware Release Note	120355-RN002A-EN-P	Lee	Developer	Complete	Closed out	1203-555 Update (v3.007 firmware)	Motor Control	Williams
1321 Line Reactor/Transformer Tech Data - Update	1321-TD0013-EN-P	Lewis	Developer	Complete	Closed out	data not recorded	Motor Control	Williams

Figure 1: Custom List in SharePoint

We have several roles in our department: information architect, information developer, and editor. Each role/person has their own record for any given project to allow us to capture metrics for each role. Information Architect records show up-front planning and research time. Information Developer records track content development time and scheduling. Editor records show level of edit and edit time.

The screenshot shows a close-up of the "Project List for STC Conference" table. A red box highlights three rows for the "Solar Combination Enclosure Installation Instructions" project, showing different contributors (Thomas, Martin, Thomas) and roles (Developer, Editor, Editor). A blue arrow labeled "Multiple roles for a publication" points to this red box.

Title or Description	Publication Number	Contributor	Role	Status	State	Project Name
Solar Combination Enclosure Installation Instructions	1000-IN002A-EN-P	Thomas	Developer	Complete	Closed out	Solar Box
Thomas	1000-IN002A-EN-P	Martin	Editor	Complete	Closed out	Solar Box
Thomas	1000-IN002A-EN-P	Martin	Editor	Complete	Closed out	Solar Box
Solar Combination Enclosure Installation Instructions	1000-IN002B-EN-P	Thomas	Developer	In progress	Awaiting input	Solar Box

Figure 2: Tracking by Role

Typically the information development manager enters the new project record.

Attach File * indicates a required field

Project Number
SAP WBS number or other identifier.

Project Name *
 Specify your own value:

 For Tech Comm Internal projects, use the pick list. Otherwise, enter the exact SAP project name. For non-SAP projects, enter a meaningful project name.

Business Unit *
 Specify your own value:

 Name of business unit -or- Tech Comm Internal.

Deliverable Type *
 Specify your own value:

 Publication type or other predefined deliverable.

Publication Number

Figure 3: Edit Menu Controls Consistency in How Data is Entered

Our data entry screens use pull-downs, radio buttons, and calendars to ensure data consistency. We have input fields and calculated fields, all of which allow us to run a variety of reports. For example, to project future labor costs, we use the following calculations:

- Remaining Hours field = the Estimated Hours field minus the Actual Hours-to-date field
- Future Cost field = Remaining Hours field x labor rate (constant number)

SharePoint views allow you to display only the information that you are interested in. You'd never want to look at all of the fields at once.

User-friendly views focus only on the pieces of metadata that you want to see for given task. For example, the Translation View is filtered to show only the translation records (not the records for creating the native language version). Using this view, we can focus on the cost and schedule for the translation records.

Project List for STC Conference

Role	Project Number	Trans. Target Languages	Status	State	Funded or Unfunded	Trans. Cost Est.	Trans. PO No.	Trans. PO Amount (USD)	Actual Delivery
Translation Support	19021	PFIGS+CJK	Complete	Closed out	AOP-Funded	\$24,461	7000108857	\$22,617	10/28/2011
Translation Support	19023	PFIGS, CJK, NL, PL, RU, TK	In progress	Out for translation	AOP-Funded	\$58,706	7000108858	\$62,983	
Translation Support	19041	DE, ES, IT	In progress	Out for translation	AOP-Funded	\$304,537	7000108856	\$290,600	
Translation Support	19041	DE, ES, IT	In progress	Ongoing	AOP-Funded	\$100,289	7000108859	\$95,381	
Translation Support	19041	DE, ES, IT	In progress	Out for translation	AOP-Funded	\$119,246	7000108860	\$101,622	
Translation Support	2017.2.4	PFIGS + Simplified and Complex C	In progress	Out for translation	AOP-Funded	\$5,708	7000108856	\$5,942	
Translation Support	3482.2.4	RU	Complete	Released	AOP-Funded	\$5,096	7000108856	\$5,523	12/9/2011
Translation Support	4015.2.4	PFIGS+PRCKJCC	Assigned	Not started	Unfunded	\$110,074		\$0	
Translation Support	4167.2.4	IGS	In progress	Edit in progress	AOP-Funded	\$4,892	7000108862	\$4,590	
Translation Support	4172.2.4	PFIGS, CS, PL, RU, TR, ZH	Complete	Closed out	AOP-Funded	\$9,173	7000108856	\$11,823	10/31/2011
Translation Support	4266.2.4	PFIGS+CJK	Complete	Closed out	AOP-Funded	\$8,154	7000108863	\$7,862	12/9/2011

Figure 4: View Showing Metadata Related to Language Translations

Information Development Managers review project list records often, to gather status information, changes to scope, or project delivery changes that the information developers log. Quarterly, the managers run reports for the business units we support and their finance organizations for budget tracking.

WHAT WE CAN DO WITH THE DATA

Because of over 40 fields of metadata associated with each project list record, we have a variety of views and reports that we work with. Reports are created by exporting the data to Excel to create pivot tables and charts.

Type of Report	Description
Baseline Metrics	<p>Typical information development metrics:</p> <ul style="list-style-type: none"> • hours/publication • new versus revised • editor time versus information development time • translation processing time
Business Unit Analysis	We can see the hours/per publication by business unit and then analyze the differences between business units; this allows us to evaluate how product complexity impacts documentation total hours and duration.
Future Workload	We can take a snapshot of an individual's project list and show a graphical view of future projects; this allows us to balance projects more effectively between individuals.
Future Costs	We can calculate labor and translation costs for future projects to allow the business unit to track against budget, and to forecast for future years.

Type of Report	Description
Trends	We can analyze projects by business unit and product line to see growth areas (where we need to build expertise) as well as declining areas (that we need to move into maintenance mode).

Table 1: Types of Reports We Use

Here is a sampling of some of the reports that we can generate from our project data.

Business Unit	Deliverable Type	New Publication		Revised Publication	
		Average Hours	Labor Cost	Average Hours	Labor Cost
Controllers					
	Installation Instructions	57	\$3,965	33	\$2,279
	Selection Guide	94	\$6,486	88	\$6,069
	User Manual	245	\$16,891	105	\$7,239
Industrial Components					
	Installation Instructions	18	\$1,238		
	Selection Guide	55	\$3,767	22	\$1,539
	User Manual	75	\$5,160	32	\$2,204
Motion Control					
	Installation Instructions	48	\$3,333	28	\$1,926
	Selection Guide	261	\$17,975	332	\$22,916
	User Manual	395	\$27,221	117	\$8,082
Motor Control					
	Installation Instructions	28	\$1,908	24	\$1,634
	Selection Guide	197	\$13,593	129	\$8,887
	User Manual	114	\$7,834	56	\$3,897
Touchscreens					
	Installation Instructions	50	\$3,482	29	\$1,979
	Selection Guide			155	\$10,669
	User Manual	203	\$13,992	60	\$4,136

Figure 5: Metrics We Use for Estimating (Values are updated annually.)

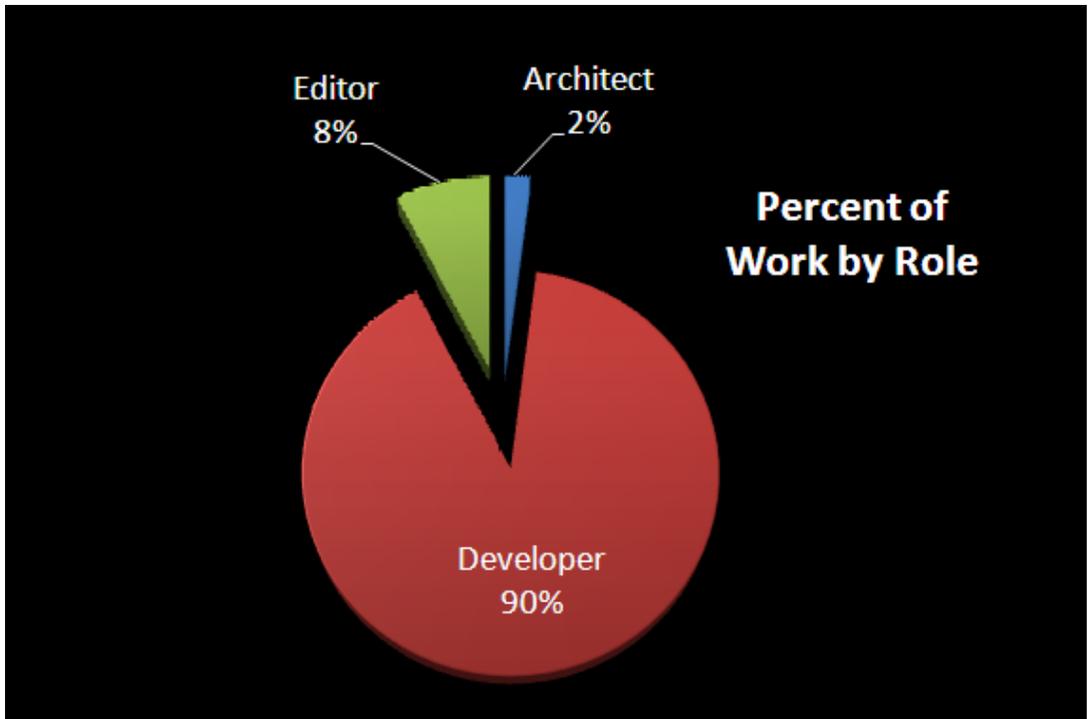


Figure 6: Editor, Information Architect and Information Developer Hours as Percent of Work



Figure 7: Graphical View to Evaluate Individual Monthly Workload

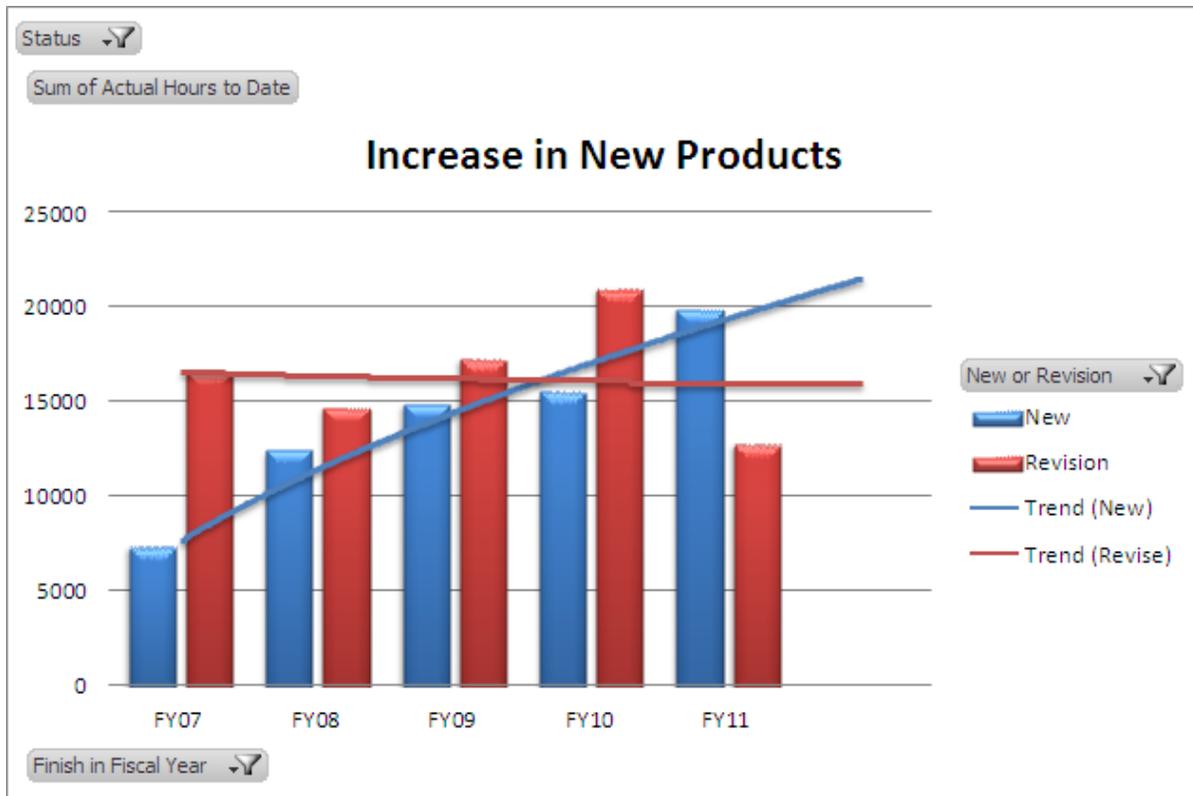


Figure 8: Evaluating Trends

WHERE WE ARE NOW

We currently are using Windows SharePoint Solution 3 (WSS3) in a company-wide SharePoint environment that is not customized. We have over 50 sites in our company, with the heaviest use in product development and customer support organizations.

We have been using our project list and time tracking tool since 2008. We have over 1300 active projects, and more than 6500 completed records (from 2006-2011). Records from 2006-2007 were loaded from spreadsheets to get our legacy data into the system.

We still struggle with data accuracy. With the volume of business units we support, the number of department personnel feeding the list, and the number of active projects, we still have difficulty in labeling so that individual deliverables for a large project are grouped properly.

It is also difficult to keep more than 40 metadata fields accurate for each record. Project dates change, scopes change, and each person has to keep all of this information current for every project they have active. To help mitigate this problem, we use custom views to show records that need to be updated. For example, if a project is on hold and the delivery date has passed, the system will identify that record as needing a new delivery date.

Even though we have these challenges, the benefit of having a single data source is invaluable. There is only one place to go to manage all planning and reporting information. Additionally, SharePoint functionality provides the flexibility for us to change the list design whenever we need to without shutting down our tracking system.

TIPS FOR CREATING YOUR OWN SHAREPOINT TRACKING

The first task to creating your own SharePoint project list is to clearly define *what* you want to get out of it.

- What does management want and need (information development management, business unit management, finance management, etc.)?
- What does your department personnel want and need?

You need to decide what you want to be able to see from the data so that you can structure it appropriately up-front. The more time you take in the beginning and the more information you build into it, the fewer items you'll have to retrofit later as reporting needs change.

You need to have department personnel involved in the creation process. We formed a small team of empowered individuals to make most decisions, but we had regular updates and feedback sessions to the entire group to help them feel part of the process.

Once it is officially launched and up and running, you need to continue the commitment. We have a project list curator to maintain the overall project list, including creating new views, modifying metadata fields as reporting needs change, and training department personnel on using the list. This curator acts as the main point of contact for reporting to the business units and finance.

RESULTS WE HAVE ACHIEVED

We run our specific metrics reports annually to evaluate our department averages and analyze trends and changes. We periodically update/change our project list fields to satisfy new reporting requests or to make enhancements for our department personnel.

Our SharePoint list has allowed us to achieve all of the goals that we set out to meet, and more. We can:

- Manage data for multiple teams in different locations
- Solve a business need for consolidated/consistent views of our information development workload
- Enable simultaneous access to multiple users
- Improve ease-of-use for project status and time entry
- Achieve data consistency for thousands of records
- Track work and compare metrics for all department roles
- Quickly generate a variety of reports
- Accurately report labor hours for budgeting and forecasting

Our project list and time tracking tool allows us to gather and report objective data about every project we complete. Our forecasts are based on hundreds of past projects and allow us to have complete confidence when estimating for our business units. Our wide variety of reports allow us to have fact-based discussions with our stakeholders to justify future resource needs. The power of the data speaks for itself.

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Liz Gardipee has over 15 years of experience in Technical Communication for Rockwell Automation, and manages the Information Developers for the Wisconsin-based operations of Rockwell Automation. Liz is the curator and administrator for our Project List and Time Tracking Tool and our department metrics expert.

Kathleen Ruggeri has more than 20 years of experience in the Technical and Marketing Communication fields for Rockwell Automation. Kathleen currently manages the Information Architects, Editors, and the Information Developers for the Ohio-based operations of Rockwell Automation.

COLLABORATION IN DECENTRALIZED CULTURE: DEVELOPING A SINGLE VOICE FOR MICROSOFT

Elizabeth Reese

As part of the trend towards more consumer-focused technologies, Microsoft is fundamentally changing how it approaches voice in the user experience of its products. Part of that work was to publish a new version of the Microsoft Manual of Style after a 7-year gap, to document changes in the industry and the transition from print-based documentation to the web. Learn how a virtual team collaborates across business groups to determine and drive corporate-wide standards, track emerging language trends, get stakeholder buy-in, publish an industry-standard resource, and finally drive change across a large company to define and implement a new customer-focused voice.

MICROSOFT BRANDING AND VOICE

Microsoft has earned a reputation for having more “engineering-focused” products that tend to forget about the end-user experience. You can find the best examples in the opaque error messages that have frustrated so many users over the years. It’s also reflected in this parody that the Microsoft Marketing team put together several years ago about Microsoft’s approach to branding: <http://www.youtube.com/watch?v=EUXnJraKM3k>.

MICROSOFT’S CULTURE

Microsoft is based around a loose federation of distinct organizations or business groups, each with its own culture, processes, and tools, which create barriers to sharing information and collaborating across organizations. At Microsoft, the biggest challenge to collaboration is simply the vast amount of information available on our intranet and the fact that the company is so big. For content publishers, there isn’t one resource available at the company where you can go to look for resources and guidance from teams working on similar projects. Finding information on our intranet is difficult because the content becomes outdated so quickly. Also, because of leaks within the company, many product teams have locked down their resources, so that they’re only available within that product team.

MICROSOFT’S STYLE RESOURCES AND HISTORY OF INFLUENCE AT THE COMPANY

At Microsoft, content publishers have 3 company-wide resources for style arbitration:

- Microsoft Editorial Board
- Microsoft Manual of Style
- Community forum (internal email distribution list where content publishers can ask questions and connect with other people around the company)

(For the purposes of this paper, I’m only going to discuss how the Microsoft Editorial Board works to drive style decisions, and then how those decisions and guidelines are documented in the Microsoft Manual of Style.)

EDITORIAL BOARD AND THE MICROSOFT MANUAL OF STYLE

The Microsoft Editorial Board is made up of a group of 10 writers and editors representing most of the major product groups at Microsoft, including Office, Windows Client, Windows Server, Visual Studio, Windows Phone, Xbox, and Microsoft Games, and representing all audiences, including IT professionals, developers, and consumers. The Board meets monthly to discuss style questions that come up on the internal email distribution list or within our own organizations. The Board is the final decision maker for all company-wide style guidelines, owning documentation of those decisions in the Microsoft Manual of Style (MMS) and communication of those updates through email.

In 1999, when I started at Microsoft as a contract editor, MMS was the definitive resource that most groups at Microsoft referenced when writing and editing technical documentation. Content publishing groups were still mostly focused on print documentation, and MMS was relevant and detailed with helpful guidelines about how to write procedures, clear definitions for technical acronyms, and guidance for writing for a global and technical audience.

But as we progressed into the 2000s, and content moved from being predominantly print-based to the web, MMS became increasingly out of step with industry trends. Content publishers who were looking to shift the voice of their products and the associated documentation had no good resources to help them define what a customer voice looked like in the new world of the web and the informality of social networking. There was also a feeling that the guidelines coming out of MMS and the Editorial Board genericized language too much, so that it lost its personality, and as a result its connection to our customers.

The stagnancy of MMS was reflected in the state of the Editorial Board at this time. In the mid-2000s, the Editorial Board had much smaller membership, representing only the big products (Office, Windows, and Visual Studio), and the members served for a longer period of time. With the lack of turn-over, the Board didn't have new voices and perspectives from smaller, more "startup" products at the company, and its network into other teams was weak.

Examples of this stagnancy played out one year in a series of "flip-flop" decisions that came out of the Editorial Board, the most notorious being the decisions to take the hyphen out of "email" and whether "web" is capitalized. During a one-year period, the Board went back and forth about the capitalization of "web," going from "Web" to "web" to "Web" and back again. During this period, the Board and MMS were perceived as slow to respond to trends that other content publishers at the company were seeing on the web and in what our competitors were doing.

What happened to the Editorial Board during this period was a perfect example of how not to collaborate within a decentralized work environment. Because the Editorial Board was so small at the time, and not reflective of the growth of the company, the lack of new voices and strong networks reduced the view the Editorial Board had of industry trends, and the Board couldn't act as the necessary catalyst for sharing ideas across the company.

CUSTOMER-FOCUSED DESIGNS

At this same time, product groups were moving towards more customer-focused designs for our software, and to reflect those new designs, content publishers were challenged with defining a new voice that would mirror those designs and create a seamless customer experience. Design decisions moved away from engineers and were made in a more collaborative environment, with designers and writers having greater influence over the user interface and flow. In addition, the Microsoft Branding team was also moving towards a more cohesive messaging that spanned across products, and was enlisting feedback from both designers and content publishers within the product groups to provide input into the Branding messaging and thinking.

Content publishers were craving a forum in which they could share some of the work they were doing, find out what other teams were moving in a similar direction, and share best practices for implementing this new voice and new way of thinking about the customer.

Luckily, the growing vacuum and lack of a single resource for content publishers was recognized quickly, and the current incarnation of the Editorial Board is a result of these changes. Specifically, having a larger group with more representation from the smaller product teams at Microsoft inserted a new perspective into the group.

After a 7-year gap, the newest version of the MMS was written with the input of numerous content publishers. The best example of this stronger collaboration is in the updated “Modes of Interaction” section in the new MMS. This section was written with the input of numerous content publishers from various teams, with the strongest influence coming from the new technology teams, including Windows Phone, Surface, Xbox, and Microsoft Games. Data was gathered from all these teams about how they referenced things such as speech commands, interacting with a touchscreen, and in the case of Xbox, how to refer to the ground-breaking interactions with Kinect. Representatives from all these groups met several times to debate the nuances of a swipe vs. a flick, how to punctuate a speech command in the UI, and whether to use a click or a tap.

MICROSOFT’S NEW VOICE

There is now a growing movement within content publishing teams to define this new voice for Microsoft products in a way that reflects the new approach to design. Content publishers want to move away from the formal techno-speak that has been the trademark of Microsoft products up to this point and create a more user-friendly voice that not only speaks to our customers, but also reflects how people talk in the real-world, and not how engineers talk to each other.

It’s also important to note that this new voice is reflected in all languages—not just US English. In addition to the collaboration that’s been happening between Branding, Design, Engineering, and Content Publishing, we have also been working closely with our localization teams. First to ensure that content publishers can write the best English content and user interface text possible, and second to help localizers communicate this voice to our translators, so that it’s reflective of the locale and the people who live there.

The most visible influence of this movement is in the new user interface for Microsoft Windows 8, which was developed based on user feedback from usability studies and other user forums.

As a company, we want to ensure that this new voice becomes the one voice representing Microsoft in its marketing campaigns, the product user interface, and in product documentation for all audiences, not just consumers. Currently, content publishers who have shipped products reflecting this new voice are collaborating to create a company-wide website where we can share resources, best practices, and guidelines, in addition to the MMS. We’re also trying to strengthen ties between content publishing groups to make it easier to share ideas and identify ambassadors with experience who can teach other teams just starting down this journey.

The ultimate goal is to have a continuous thread that runs through all Microsoft products, where no matter the audience or the type of product, we’re speaking to our customers in a language that they recognize and trust, and that also helps them make use of our products.

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Elizabeth Reese is passionate about creating software products that reflect how people talk in the real world and not how engineers talk to each other. With a small team of writers, she was instrumental in defining and implementing a new voice for Windows Phone. She brought that experience to the Microsoft Editorial Board, where she contributed to the 4th edition of the Microsoft Manual of Style—the collection of style and content guidelines used across Microsoft and by technical communicators in software and related industries. Elizabeth believes that decisions reached through collaboration are preferable to and more likely to maintain relevancy than those handed down from a single language authority or those maintained in silos. Since 2000, she has been a technical editor and editing manager at Microsoft.

HOW WRITERS CAN THRIVE IN AGILE SOFTWARE DEVELOPMENT

Gavin Austin

Many writers are trying to figure out how to meet deadlines, write quality documentation, and stay sane as their software companies switch from the traditional “waterfall” method of development to the increasingly popular Agile methodology. An industry of consultants caters to making developers and product managers successful with Agile, but there is limited—if any—information on how writers can cope in such an environment. How do we know? Because in 2006, Salesforce.com switched to Agile. Our Documentation and User Assistance team found few resources to help us work with Agile, even though our executives, managers, and Agile coaches were determined to help us succeed. From our experience, we created strategies and best practices that help us thrive (and enjoy) writing in an Agile environment.

What is Agile software development? “In the late 1990’s several methodologies began to get increasing public attention. Each had a different combination of old ideas, new ideas, and transmuted old ideas. But they all emphasized close collaboration between the programmer team and business experts; face-to-face communication (as more efficient than written documentation); frequent delivery of new deployable business value; tight, self-organizing teams; and ways to craft the code and the team such that the inevitable requirements churn was not a crisis.” From the [Agile Alliance](#).

ARE YOU REALLY AGILE?

If your company implements Agile methodologies in a haphazard manner, you may not really be Agile. For example, if only development is included in daily meetings, excluding QA engineers and technical writers, that’s not really Agile. If you have scrum team meetings and all the other trappings, but executives are free to impose changes or requirements outside of the Agile process, you aren’t really Agile. And if you aren’t really Agile, you may not find a lot of benefit. The rest of this document may help you in small ways, but it can be tough to cope with sort-of-Agile or mostly-Agile implementations.

The following are minimum criteria for being able to get full value out of an Agile environment:

- *Executive support.* It may scare executives to imagine a company full of self-organizing groups in charge of the product development process, but Agile doesn’t work unless those executives take the risk and respect rules around scrum team organization.
- *Whole teams.* Development, documentation, QA, and product management should be represented at all Agile meetings.
- *Training and coaching.* Organizations may latch on to a few elements of Agile methods, like just-in-time development or light organizational structure, but it really takes all the parts to make it work well. Your organization should invest in training and coaches to really make it work.

The good news is: you may still be able to use any of the following techniques to improve the documentation process in a not-entirely-Agile environment.

THE PROBLEMS WE FACED WHEN SWITCHING TO AGILE

The table below lists and describes the problems we encountered as we transitioned to Agile. Some team members other than writers experienced similar issues.

Problem	Description
Terminology	Agile introduced new terms that confused writers and product teams. Words such as, scrum, scrum master, story point, velocity, product backlog, and especially <i>Agile</i> , meant different things to different people. Teams used these terms incorrectly or inconsistently; they thought they knew the correct definitions.
Product specifications	Some product managers assumed Agile meant they no longer needed to write specifications for their products. Writers accustomed to reviewing specs to plan, organize, and estimate documentation requirements were surprised to discover there were no specs or information that described how products being developed should work.
Estimates	Writers needed to provide hourly, daily, or weekly estimates for their documentation tasks; however, they found it difficult to provide estimates if a product lacked a specification, prototype, or stated business requirement.
Time tracking tools	Tools used to track the accuracy of estimates generated additional work. Writers spent time learning how to use and update various time tracking applications, and writers assigned to multiple teams managed estimates in multiple tools because each team decided which tool to use.
Meetings	Writers felt that they spent more time in meetings than they spent documenting products. Agile includes a variety of meetings, such as sprint planning, sprint review, sprint retrospective, and daily “stand up” or scrum meetings, which require writers' attendance.
Multiple teams	Unlike other team members, writers worked for multiple product teams and were considered a “shared service.”
Team loyalties	Writers assigned to multiple teams found it difficult to prioritize tasks. Each team worked towards accomplishing daily, weekly, or monthly goals, so writers had to choose which team's priorities to prioritize.
Context switching	Switching between tasks, teams, priorities, or business requirements delayed writers from delivering documentation.
Time	Agile's combination of new terminology, meetings, time-tracking tools, context switching, and limited product specifications caused writers to spend more time on Agile and less time writing documentation.
Fiction	To remain on schedule with development, writers produced documentation for non-existing products based on evolving sketches, prototypes, business cases, or hearsay. After a product became available, writers tested their documentation for accuracy and revised files as necessary.

IMPLEMENTATION SOLUTIONS

From our experience, we recommend the following strategies for implementing Agile for writers. Note that Salesforce.com abruptly switched to Agile: one day our product development team used the traditional “waterfall” approach to build applications, the next day we used Agile. The immediate switch helped us adapt, evolve, and solve our problems so that we could quickly develop better products on schedule.

Strategy	Description
Encourage patience	Our executives understood that all development team members, including writers, would experience an adjustment period transitioning to Agile. No one expected a perfect transition. Managers communicated the need for patience across the organization.
Provide training	Confusion about Agile was greatly reduced after every product team member—including writers—attended a class that explained Agile. Now, every new employee in product development is required to attend Agile training.
Build templates	Writing, updating, and organizing documentation plans became easier for writers after management provided templates in Google Docs. The templates list questions that help writers think about documentation requirements for products developed in Agile, and the flexibility of Google Docs lets writers change aspects of their plans as products evolve.
Standardize tracking tools	Working in an Agile environment became easier for writers after all product development teams stopped using various time-tracking tools and agreed to use one, internally developed tool.
Pad estimates	Give your team estimates that are a little longer than what you think is necessary to complete a task. We discovered that all estimates are guess-timates, but that larger estimates were more accurate than smaller ones. Our teams tended to underestimate, so we learned to overestimate.
Provide clear definitions	Concepts such as “getting to done” became clear to writers after management provided definitions with examples on an internal wiki page and on slide decks used at sprint reviews.
Hire more writers	Switching to Agile immediately exposed the need to hire more writers to ensure quality documentation. Now, whenever developer head count increases, writer head count increases too.
Learn to adapt	It's easier to adapt to an Agile environment when writers review its benefits instead of its challenges. Like it or not, we had to change how we worked because Agile became the permanent product development methodology. We've learned to expect more changes, and to spend more time out of our cubes talking to team members.

Strategy	Description
Extend documentation deadlines	Writing in an Agile environment is less stressful when documentation deadlines are extended slightly beyond the product development deadline. Providing writers with at least an extra week allows for higher-quality documentation. However, this also opens the door to accumulating more debt. Anything more than a week seemed to increase debt.

DAILY BEST PRACTICES

We recommend that writers in an Agile environment use the following best practices daily.

Best Practice	Description
Ask questions	Ask your team to clarify anything that is unclear to you at the daily scrum meetings. Functions of a scrum meeting include answering questions for team members and resolving any issues that are preventing the team from completing tasks.
Email your team	Email any product or process suggestions to everyone on your scrum team. One of the principles of Agile is to work together as a team instead of seeking direction from management alone.
Write fiction	Learn to feel comfortable writing documentation for half-baked products, nonexistent products, and products you can't test. In Agile, you're more likely to reach deadlines by writing fiction than by waiting to write nonfiction for a finished product.
Revise fiction	Learn to revise any fictional documentation you wrote for accuracy before it ships to customers. Insert revision reminders in documents and add revision reminders to your calendar.
Skip meetings	Skip meetings that don't add value to the documentation. For example, it might not be necessary for writers to attend code review meetings between developers and quality engineers.
Schedule office hours	Schedule a few hours on your calendar each week to answer documentation related questions for your scrum team (or for scrum teams who aren't assigned a writer). Agile is a proactive environment: let developers and product managers come to you.
Organize documentation "blitzes"	Organize weekly or monthly documentation blitzes—an activity where your team works together to review and find flaws in each other's documentation. Blitzes help ensure accuracy and introduce writers to products they might not be familiar with.

Best Practice	Description
Write bottom-up as well as top-down	Learn to work in reverse if necessary. For example, a product might not require a documentation plan, but as you begin to write you notice a huge increase in the scope of the documentation. Agile emphasizes flexibility over processes; it's okay to write a plan after you start writing. Do what you think is best for you, the team, and the product.
Learn what to ignore	Take what you can from Agile and ignore the rest. Agile focuses on software development, not writing. For example, it might not be necessary for writers to attend scrum meetings daily. Some of our writers found it useful to attend scrum meetings every other day. Take advantage of the fact that Agile means self-organizing: it's okay if different teams work in slightly different ways.

TEAM BEST PRACTICES

We recommend that writers in an Agile environment use the following best practices when working with their scrum teams.

Best Practice	Description
Volunteer	Volunteer to complete tasks for your team that don't involve writing. For example, agree to test a product or to present a demo at a sprint review. Let your team know that you can do more than write documentation; build a rapport with your team.
Be wrong	Don't worry about asking the wrong questions or giving the wrong answers. Agile creates a fast-paced environment where things change quickly and not everyone has the same information at the same time.
Speak up	Ask questions, suggest solutions, and provide feedback on products and their design. One of the principles of Agile is open communication across teams, and every team member—including the writer—can add value by expressing a unique view point.
Barter	Negotiate with your team if they want you to spend more time than you have to document their product. For example, tell them you can finish the documentation if someone else volunteers to write a first-draft of reference topics or provides you with code samples by a specific date. In Agile, team members are supposed to work together to help every person complete their tasks.

Best Practice	Description
Self organize	Organize team meetings and determine how you can create or update processes that benefit everyone on your team. For example, if a product is evolving too quickly for some team members to understand how it's supposed to work, organize weekly discussions to help clarify product behavior. In Agile, teams are self organizing, and writers can create, update, or advocate for processes that benefit everyone.
Be a shared service	Provide your team with visibility into any tasks you have outside of scrum so that they can work with your limited time accordingly. For example, create a user story or task for interviewing candidates or speaking at conferences. Show your team that you are a shared service and that your time is divided between multiple assignments.
Claim the last line of defense	Let your team know that you're like an additional quality engineer—you're in a unique position to see the product holistically because you have to test the product to ensure your documentation is accurate. Communicate your value to the team as the last line of defense between shipping a product that works correctly or incorrectly.

THE BENEFITS OF WRITING IN AGILE

The writers at Salesforce.com experienced the following benefits after transitioning to an Agile environment.

Benefit	Description
Writers have more impact	Writers have more impact because they're considered an equal member of a scrum team that's working together to complete a product. Plus, writers have opportunities to voice opinions, suggestions, and concerns at teams' planning, retrospective, and daily "stand up" meetings. In Agile, writers aren't just sitting at a desk writing documentation.
Writers are more visible	Writers participate in most of the same meetings as their teammates and their daily, weekly, and monthly tasks are discussed and posted for everyone to see. In Agile, it's no longer a mystery to developers or product managers what a writer must do to create quality documentation.
Learn what to expect	Writers work with a team of various personalities, processes, and time frames in which to complete tasks. Writers quickly learn what to expect from a team and how to deliver documentation accordingly. For example, some of our writers learned that it's more efficient to document a product based on its prototype while other writers learned that they can't rely on their teams' prototypes for accuracy.

Benefit	Description
Retrospectives solve problems	Writers notice positive results from retrospective meetings. For example, a number of writers mentioned that they needed some type of product specification to estimate documentation requirements. Product managers provided writers with specifications in subsequent sprints.
Self determining	Writers like the idea of determining what it is they need to do to complete tasks instead of relying on management to point them in the right direction. In Agile, the principle of self-determination increases productivity.
Personable environment	Writers mingle with their teams everyday at “stand up” meetings; they get to know who they're working with, which makes for a more personable work environment.
Team spirit	Writers share in the collective successes and failures of their teams; they belong to a product team as well as a documentation team.
Sense of ownership	Writers sense that they have ownership and influence over a product because their feedback is considered as valuable as their teammates'.
Features are less complex	Writers notice that Agile removes unnecessary complexities from products. In Agile, products become easier to test, understand, and document.
Clearer communication	Writers claim that Agile provides clearer communication because team members meet daily and are encouraged to ask questions and voice concerns before their productivity is blocked.
Know who does what	Writers learn in planning meetings which developers and quality engineers are responsible for completing specific tasks; this helps writers know who is doing what.
Fixed deadlines	Writers like that deadlines don't change in Agile: products change to meet deadlines. Therefore, writers can plan their lives outside of work (and finally take that vacation!) without wondering if a work schedule will interfere.
Fewer surprises	Writers agree that all of the benefits listed above work together to eliminate surprises during the product development cycle. If a team is truly practicing Agile, it's rare for a writer to discover that he or she needs to write a brand new implementation guide or create a new online help system right before a product ships to customers.

SUMMARY

Writing in an Agile environment poses new difficulties for writers, but so did the typewriter and computer when they were first introduced. The computer is a tool used for efficiency; Agile is an organizational methodology used for efficiency. Before you can see the benefits of a new tool or methodology, you must learn how to use

it. With widespread support, patience, and best practices from our managers and executives, we learned how to use Agile and discovered that the benefits it provides writers outweighs the struggles we encountered when learning how to use it.

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LAUNCHING A TECH COMMUNICATION BUSINESS — BOTH SIDES NOW

Judith E. Shenouda and Ruth E. Thaler-Carter

Find out what it takes to launch a successful tech communication business—either as a one-person shop or a company. Learn about the personality needed to function as a freelancer or business owner/boss, ways to find clients and projects, approaches to finding workers and human resources, important business decisions, resources to help you manage your company or freelance business more effectively, and more from presenters with a combined total of 50+ years in business as a freelancer and business owner. Get the answers to the hard questions about running a successful business in either mode.

TWO BUSINESS MODELS

As employers and managers have to do more with less money and fewer people, the opportunities are ripe for technical communicators who yearn to escape the corporate environment and launch their own businesses, while the challenging economy and corporate cutbacks mean that more tech writers and editors want or need to strike out on their own. Doing so is not easy, though. There is much to learn about the personality traits required of a successful entrepreneur, basic elements of operating a profitable one-person or multi-person entity, and many challenges that new and seasoned enterprises face. In this session, the presenters share their experiences in doing work they love in the writing, editing, and communications arena. Thaler-Carter covers the perspective of the freelancer or solopreneur and Shenouda approaches the topic from her experience as a business owner.

SOLOPRENEUR: “I CAN WRITE ABOUT ANYTHING!”™/WRITERRUTH.COM

Thaler-Carter will discuss what it takes to function as a one-person freelance business, from a portrait of the freelance personality and the challenges of working alone to being a generalist vs. specialist, finding and keeping clients, services to offer, setting fees, getting paid, coping with isolation, tools and technology, the value of networking, resources, and more.

COMPANY: SHENOUDA ASSOCIATES INC.

Becoming a small business—and thriving as one over time—is more an art than a science. Shenouda will share what she has learned through her 25 years as owner of a small business offering tech writing and editing services. Topics include challenges, such as deciding on a business model, assembling your business team, finding and retaining clients and workers, and keeping up with (and ahead of) a changing world; and rewards, such as control over your schedule, opportunities for increased revenue, and the joy that comes from doing your work your way!

ADDITIONAL RESOURCES

American Copy Editors Society, www.copydesk.org

BPlans, <http://www.bplans.com>

Editorial Freelancers Association, www.the-efa.org

Entrepreneur magazine, <http://www.entrepreneur.com>

Poets and Writers magazine, www.poetsandwriters.com

SCORE, <http://www.score.org>

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Thaler-Carter, Ruth E. *Freelancing 101: Launching Your Editorial Business*, <http://the-efa.org/res/booklets.php>

Thaler-Carter, Ruth E. *Get Paid to Write! Getting Started as a Freelance Writer*, <http://www.writerruth.com/FreelancingBooklet.htm>

The Writer magazine, www.writermag.com

U.S. Small Business Administration, <http://www.sba.gov/category/navigation-structure/starting-managing-business>

STC Lone Writers and other SIGs

Writer's Digest magazine, www.writersdigest.com

Writer's Market directory, www.writersmarket.com

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PRESENTER BIOGRAPHY: JUDITH E. SHENOUDA

Judith E. Shenouda is the hands-on owner of a technical communication business that crafts publications for corporate clients in diverse industries. She has researched, written, and edited numerous guides, manuals, training programs, and marketing collaterals. As an educator, she has taught language arts courses, including study skills, presentation skills, composition, and literature. With a master's degree in Literacy Journalism, a major that focused on how to write simply and clearly for adult readers, she communicates with simplicity and clarity. Recognized as a Competent Communicator, Advanced Communicator Bronze, Competent Leader, and Advanced Leader Bronze from Toastmasters International, she has won speech contests at the club and area levels. A sought-after presenter at professional seminars and conferences in the U.S., Canada, and Europe, her career dream includes sharing the knowledge conveyed in the book she authored and published – *Career Success in 12 Easy Steps: A Journal* – through seminars, workshops, and keynote presentations.

PRESENTER BIOGRAPHY: RUTH E. THALER-CARTER

Ruth E. Thaler-Carter has been a successful freelance writer, editor, proofreader, desktop publisher, website writer and manager, and speaker for more than 25 years. She writes, edits and proofreads articles and other materials for international, national, regional, and local publications, nonprofit organizations, businesses, and websites; does layout and desktop publishing of newsletters, magazines, booklets, and books; and speaks on freelancing, websites, editing and proofreading, and nonprofit management. In addition to counseling colleagues on becoming freelancers through workshops and speeches to professional groups, and as author/publisher of "Get Paid to Write! Getting Started as a Freelance Writer" and author of "Freelancing 101: Launching Your Editorial Business" for the Editorial Freelancers Association (EFA), she has advised employers on finding and working with freelancers. Thaler-Carter also owns Communication Central, which hosts a conference for freelancers every fall.

LEARNING LESSONS FROM A COMPLETED COMMUNICATIONS PROJECT

Teresa S. Stover

With every technical communications project you and your team complete, the knowledge and experience of the individuals and the organization increases. To ensure that this knowledge is readily accessible to future projects, department heads and team leaders can use the lessons learned process. You conduct the lessons learned meeting and collect feedback. While participants can be apprehensive about sharing negative comments, you can employ certain techniques to ensure the lessons learned process and results are positive and productive. Afterwards, you assemble the feedback into a final lessons learned report or knowledge base for ongoing update and future reference.

INTRODUCTION

Your technical communications project has just launched, and you're attending to final details before moving on to the next project. Before you and your team are knee-deep in another project and other priorities, you need to capture what went well and what could be improved in future similar projects.

"Lessons learned" is the concept of reviewing a project in such a way that aspects that were unsuccessful can be constructively resolved and aspects that were successful can be repeated or improved upon in future projects. The lessons learned process is also known as the "project review," "post mortem," or "debrief."

The key elements to the lessons learned process include gathering feedback, conducting a positive lessons learned meeting, and capturing the lessons learned into a report or knowledge base that can be used to improve future technical communications projects.

Whether you're a technical communications department manager, project manager, team leader, or individual contributor, you can learn strategies and tips for gathering lessons learned from a recently completed project. Through lessons learned, leaders and practitioners can engage in continuous process improvement for their technical communications department or for the entire organization. These processes also go a long way toward the professional development of everyone involved.

HOW LESSONS LEARNED HELP

The more technical communications projects you carry out, the more experience and hard-won knowledge you have to draw on. As you start to plan a new similar project, whether it's an online help system, a multimedia program, or a single-source project, you can build on aspects of earlier projects that worked well. You can be more aware of risks and plan for their mitigation. You can recognize and develop a new approach for processes or tools that didn't work well before.

Imagine taking not only your own recent experiences, but also those of your team members and other department heads and team leaders throughout your organization, and capturing all their project knowledge so that everyone doing similar projects has access to it.

That's the point of conducting a lessons learned process at the end of every technical communications project. You collect information about what worked well and what didn't and you record that information in a report or a knowledge base. When you make those lessons learned available to others in the organization, you and others can refer to it when starting a new project. The level of proficiency in carrying out technical communications projects shoots higher in a shorter amount of time.

With the lessons learned process, not only are you not reinventing the wheel with each new project, you're actually improving on the wheel. Really, you're improving on previous improvements to the wheel, so that the wheel becomes more advanced more quickly.

Making continuous improvements for succeeding technical communications projects has positive implications for all the vital project ingredients: schedule, process, tools, budget, people, risk, and quality.

OBTAINING LESSONS LEARNED

Whether your technical communications project ran as smooth as glass or was awash with problems, for many team members the prospect of discussing issues about the project can raise the general anxiety level.

It helps when people understand that the lessons learned process contributes to their own professional development, the effectiveness of future projects, and the success of the entire organization.

Plus, when there's a structured process amid a culture of openness and respect, sharing lessons learned can make people feel validated, even as they acknowledge that improvements can be made. This is an ideal of course, and unfortunately many organizations instead employ blame and retribution which can stifle the frankness you need for a useful lessons learned process.

However, you can adapt techniques to make such feedback positive and nonthreatening for all involved.

COLLECTING DATA THROUGHOUT THE PROJECT

While lessons learned are most often obtained in the context of a final project review meeting, you don't have to wait until the end. In fact, it's best if you can collect them throughout the life of the project. Here are some methods for collecting such feedback:

- Periodic team meetings. With every issue or success brought up in meetings throughout the project, you can identify and record a lesson learned.
- Status reports. In addition to reporting on accomplishments and upcoming tasks during the project, have team members report on roadblocks, successes, and lessons learned.
- Issues tracking. Having a process for tracking issues helps you resolve those issues more effectively. This system also provides you with a built-in means of examining problems and their solutions.
- Your observation. As the department head or team leader, keep your eyes and ears open for successes and failures that have long-term impact for your technical communications projects.

PREPARING FOR THE LESSONS LEARNED MEETING

Methodical preparation makes for a fruitful project review meeting (or series of meetings, as appropriate). Thoughtfully choose the meeting location and time. Establish a solid agenda and invite the team members. Determine whether you are going to facilitate or whether you want another facilitator, perhaps a neutral person not associated with the project. By all means, enlist the services of a scribe who's different from the facilitator. This could be another team member or someone unrelated to the project.

Also prepare the topics or questions you want to cover in the meeting. Make sure they're open-ended enough to draw out conversation. Here are some examples:

- What was the most satisfying or fulfilling aspect of the project?
- What was the most difficult problem you encountered during the project, and how did you solve it?
- How might we improve on the X process or tool for future projects?
- Would you be willing to submit the work we produced to an STC competition? Explain your answer.
- What did you think about the participation of our subject matter experts?
- Can you share a technique, process, or tool use that improved results or prevented problems?

- What was the most frustrating part of the project? What would you recommend for avoiding this frustration in the future?

Consider reviewing different aspects of the project systematically. For example, you might discuss project planning phases before discussing the research and drafting phases. An alternative is to examine the project through different lenses. For example, discuss aspects of the schedule and the amount of time you had for the project, then discuss how the budget affected the project, then discuss the project scope, and so on. Subdivide the discussion in a way that makes sense for your project and that will encourage the best results.

While you're preparing for the meeting, help your team members also prepare. The agenda itself helps, with the broad considerations of what went well and what could be improved, or with the subdivided topics you might include. You can take it a step further, though, with a simple questionnaire to be completed in advance. From your own comprehensive list of questions to be used for the meeting, choose three to seven questions — just enough to fit on a single page and to get team members thinking about the project along these lines.

CONDUCTING THE LESSONS LEARNED MEETING

Conduct the meeting in a way that suits the culture and geography of your team. Ideally, the entire team gathers in a single comfortable meeting room. If it's a very large team, or a technical communications project with very different components, you might hold separate lessons learned meetings to review these different components. If the team is geographically distributed, find a way to include all team members. You might use videoconferencing or have everyone travel to a central location.

Follow standard best practices for conducting any effective meeting:

- Set a clear agenda including the meeting goal, expected outcome, topics, and time limits.
- Start on time. Don't wait for latecomers. Respect the time of those who are present.
- At the beginning, emphasize the goal and outcome you expect of the lessons learned meeting.
- Outline the structure you'll be following for the meeting.
- Review the meeting's ground rules. These are likely to include having one speaker at a time, staying focused on the topic at hand, allowing everyone to contribute, and maintaining the designated time limit per topic, as applicable.
- End on time. If you find you need another session, schedule it at that time.

REDUCING POST MORTEM ANXIETY

Do all you can to make the lessons learned meeting less threatening. Standard meeting ground rules are the foundation to a good lessons learned meeting. But because of the nature of the debrief, in which observations about less-than-ideal situations are discussed and potential is ripe for finger-pointing and defensiveness, additional ground rules are indicated. Consider the following:

- Keep it positive.
- Be respectful.
- Be constructive.
- Use "I" statements.
- Practice active listening.
- Let the speaker finish.
- Offer solutions and recommendations.

Adapt these to your team, and consider posting them on the wall of the conference room.

If a lessons learned meeting goes haywire, your team can walk away feeling demoralized or abused. Be sure to end the meeting on a positive note. You want participants to leave feeling upbeat rather than beat up.

Ensure that the final question asks for feedback on something very positive and successful. Close with a summary of the great work the team produced and point to the work's positive results for the organization or

some other larger context. If it's appropriate, speak to the success of the teaming and the new skills developed. If team members are scattering to different projects, figure out how the team can stay in touch.

Consider doing something festive at the end of the lessons learned session, even if you are already planning a separate project launch celebration. Bring out a fun dessert or take everyone out for pizza. Put together a slide presentation that highlights the lighter moments of the project or that illustrates the far-reaching positive impact the project will have on the organization or its customers.

If you fear your meeting will result in team members either sitting back with their lips tightly sealed or engaging in shouting matches, you still have some alternatives:

- Meet with team members one on one or in smaller groups where there is more trust.
- Allow the lessons learned questionnaires to be submitted in writing, rather than in a meeting.

Allow the lessons learned questionnaires to be submitted anonymously. Be aware, though, that anonymous comments often still telegraph the identities of the team members involved.

- Conduct the lessons learned meeting among peers, without managers present.
- Don't include names, titles or other identifiers in the lessons learned report or knowledge base; instead, focus the feedback on solutions and recommendations.

DOCUMENTING LESSONS LEARNED

Having completed the tough work of drawing out the candid feedback from your team members, review the information you have and determine the best way to organize and present it to its audience.

Your skills as a technical communications professional will serve you especially well in this case, as you (and others on your team) are adept at information architecture. You can synthesize, categorize, and communicate the random notes of your lessons learned better than most.

PROCESSING THE MASS OF INFORMATION

After the lessons learned meeting(s), you probably have pages of notes or a flurry of flip chart sheets taped around your office for you to digest and organize. The temptation is often to get this over with as quickly as possible and force the information into some predetermined categories.

However, you'll get a more usable result if you take a closer look at the information to more clearly synthesize it. You'll find that insights and organizational categories will suggest themselves.

If it's a smaller project, you can keep things simple, with a report that includes the following headings:

- Project Overview
- The Lessons Learned Process
- Successes and Strengths of the Project
- Challenges and Weaknesses of the Project
- Recommendations and Solutions

A more complex technical communications project, however, might require that you organize by project phases or modules or other subdivisions that naturally arise from the nature of the project itself. Within those headings, you can add the subheadings of strengths, challenges, and recommendations.

Consider that the best format for capturing your project's lessons learned might not be a report, but instead a knowledge base of some kind. It can be a spreadsheet or a database, perhaps with links to supporting documents as necessary. A knowledge base is particularly useful if you collect lessons learned throughout the life of the project — a good practice, actually, for technical communications projects of any size.

RECORDING THE KEY TAKE-AWAYS

When documenting project strengths, emphasize what can and should be repeated in future similar projects. Highlight any recommendations your team suggested as to how those strengths might be improved upon. This lays a great foundation for someone else's successful project in the future. Keep in mind that this "someone else" might actually be you.

When recording project challenges, indicate specifics of what didn't work. Avoid placing blame or getting personal; that's counterproductive. Remember that this will be a shared document, and it's definitely not an employee performance review. Focus on how the problem can be solved or avoided in future projects. Maintain a professional and straightforward attitude focused on continuous improvement.

Note that sometimes you don't always know why a problem was a problem. You and your team can guess, but avoid drawing conclusions that are nothing more than conjecture. For big problems that need solutions before the next project starts, the best recommendation might be to do a root cause analysis on the problem. Once the true cause of the problem is found, the fitting solution can be developed.

Use keywords in your lessons learned report or knowledge base to make your information and advice easy for others to find.

DISTRIBUTING LESSONS LEARNED

The lessons learned report or knowledge base should naturally become part of the technical communications project archives. Certainly the report should be shared with your team members and with your management.

However, to see richer dividends from the effort you and your team took to collect this information, it's best to share it more liberally. Consider sharing it with anyone else in the organization you believe can benefit from your team's hard-won experience. However, be aware of organizational politics when deciding who should have access to your report.

Consider creating different versions of lessons learned for different audiences. Team members might get the link to the entire lessons learned knowledge base, for example, or just information pertaining to the piece they worked on. Management might be content with an executive summary.

USING PAST LESSONS LEARNED

While they should be an integral part of the project archives, lessons learned should never be collected, written, and then shelved — only to gather dust and be forgotten. Lessons learned are a gold mine of information to your organization; a rich resource to be used as new projects are started.

The process for starting new project must include consulting the available lessons learned, either from projects you've led or that others have led.

As you hear of technical communication projects that others are starting, tell your colleagues about existing lessons learned from other projects. The more everyone can share each other's knowledge and leverage each other's experience, the stronger and more successful your technical communications projects will be.

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Ms. Stover has a BA degree in English Literature from UC Santa Cruz and a Certificate in Technical Writing from San Jose State. Teresa is an STC Senior Member, having been affiliated with the Puget Sound (Washington), Mid-Valley (Oregon), and Willamette (Oregon) chapters. She’s been a member of the Consulting & Independent Contracting SIG since 1990. Learn more at www.stoverwriting.com.

ADAPT, INNOVATE, EXPAND — HOW TO STAY RELEVANT

Greg Parikh

As our world continues to face strong economic headwinds, corporations are forced to look for ways to shed expenses. A regular target for cost cutting, support organizations are constantly being reviewed for potential savings. Unfairly perceived as solely a cost center, more support jobs are moving overseas or being scaled back. Those outside of the support organization very often incorrectly perceive that these organizations have very little to do with revenue generation. These job roles are most often categorized at the bottom of the corporate food chain, and sometimes even seen as a necessary evil or expense. Technical publication groups have been plagued by this perception and even lack of respect. It is for this reason that it is imperative for these support based organizations, to look for ways to change the perception of their role, and to become a relevant part of a corporation's success.

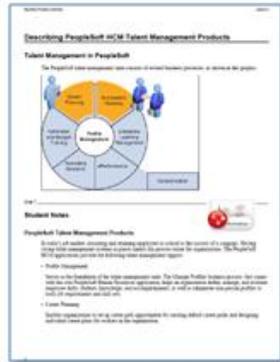
ADDING “TENTACLES” TO YOUR TECH PUB ORGANIZATION

Technical communications groups have historically focused on product documentation. While still important, such groups must create other services and deliverables to remain relevant in today's changing landscape. It is easy for a company to point to technical publications groups as a target for downsizing and budget cuts unless they're seen as indispensable to the profitability of the company. Leaders of these groups must do the following to become perceived as relevant to the corporation's success.

- Thinking of your organization as an "information" organization, not a technical publications organization.
- Expand the boundaries of your groups reach, outside of your comfort zone, grow “tentacles”. Embed your organization within crucial areas of your company's development cycle.
- Go beyond the development of traditional tech pub deliverables and design and deliver new non-traditional products.
- Using current and forecasted trends, and customer input, to create innovative technical information solutions.
- Increase the span of contact your organization has with customers (internal and external) and partners.
- Leveraging modern technologies to assist with increasing your group's internal profile.
- Gain insight into maintaining ongoing mechanisms to continually position your group best within the organization.

The following diagrams illustrate how we expanded from our traditional scope of deliverables, to an expansive list of value adding products. By examining and re-engineering many of our old practices, we were able to add all these new deliverables without increasing our staff.

Before



Training Materials



Product Documentation & Install/Upgrade Guides

Our scope of work prior to our expansion of deliverables

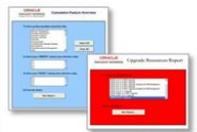
After



Customer Information Portal



PeopleSoft Portal (Internal)



Cumulative Feature Overview & Upgrade Resource Report Tools



Install and Upgrade Hosted Site



My Oracle Support Home Pages



Hosted On Demand Documentation



Training Materials



Integration Repository Tool



Fit Gap Tool (Implementation Tool for Customer/Partner)



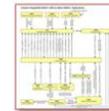
Live new hire training in India and China



Product Documentation & Install/Upgrade Guides



Twitter, YouTube, Facebook, & Blogs



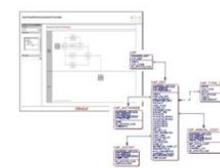
Enterprise Integration Point Maps



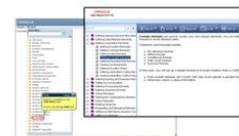
Mobile Documentation



Embedded help



Interactive Business Process Maps



PSFT User Productivity Kit Content

Our scope of work after our expansion of deliverables

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AUTHOR BIOGRAPHY

Greg Parikh is currently the Senior Director of the Oracle PeopleSoft Information Development Department. His department with a staff of 60+ is responsible for all of the primary information sources for the PeopleSoft software technology and applications including documentation, embedded help, online help, end user help solutions, curriculum/training, visual recorded presentations, blog site management, and more. His teams are located in the United States, India, and China. Greg is a regular conference presenter, and has been asked to present his views on relevancy to many tech pub groups across the globe.

BODY WORK — REBUILDING DOCUMENTATION CAR WRECKS

Karen Murri

When handed a documentation car wreck, can you make it run? Our subject matter experts (SMEs) might hand us drafts that look like 20 car pile-ups. Our job is to take that raw material and turn it into something useful—policy, procedure, reference, web page. Rebuilding documentation car wrecks relies more on attitude than on a particular process or method. Be willing to take a document apart and put it back together again, applying technical communication’s writing methods, standards, and styles.

INTRODUCTION

When I first began to think of this subject as a possible presentation, the car wreck metaphor jumped into my brain and stuck. I’m sure you’ve seen some of these wrecks in your work:



“Everything I know in one document.”



“I’m writing instructions for a mobile app.”



“This is my precious baby, don’t touch it.”



“How did this get here; and how do I get it out?”

The metaphor works on several levels. A good car has coherent structure and an attractive appearance that match its purpose and audience. And a good car runs well, without sputtering or stalling.

METHOD OR MADNESS

In preparing my presentation for the conference, my biggest challenge was to articulate a method or process mostly characterized by long periods of staring at a computer monitor. I first realized that I might have this particular ability—rebuilding documentation, not staring at computer monitors—when I got promoted into a training job. This was my first professional job, and technical writing as a career hadn't occurred to me yet. I had to do *something* with an old course—150+ acetate overhead slides and no facilitator's guide—just so I could present it effectively. I was pleased to discover a real talent and passion for writing and for fixing up broken-down old junk heaps.

I tried to frame a method or process to present, but after months of poking around in my brain, I realized that it's not so much a process or method as it is an attitude.

The attitude (which might be a form of madness) is characterized by a willingness (for me it's a drive) to take a document apart and put it back together better than it was. The attitude applies to both the document as a whole and its constituent parts: sections, paragraphs, and sentences.

With that attitude in place, the rebuilding work ties closely to technical communication's basic methods, standards, and styles—first to interpret the text in the original draft and then to apply solid writing techniques to rebuild the document. In fact, some of what I cover here might seem too basic, but it connects closely to the rebuilding effort.

I recently saw the following joke online:

There are two types of people in the world: those who can extrapolate from incomplete data.

If you don't get the joke or if it took you a few minutes to figure out why it applies here, this paper might not help you much.

An important part of a rebuild effort is interpretation, and that often involves extrapolation, if not outright mind-reading. Sometimes, you can stare at a sentence or paragraph for hours without being quite sure what it's trying to say—vagueness and ambiguity are common in drafts by non-writers. Most of the time, however, interpretation is pretty easy. Julie Sedivy on Language Log (<http://languageblog ldc.upenn.edu>) said:

“In the normal course of parsing an ambiguous string of words, the mind weighs the evidence for each reading and settles on the winner swiftly and without fuss. Your conscious self is rarely aware of the deliberations of your internal parser.”

Rebuilding goes beyond simple editing; it interprets the language used, sometimes fills in blanks—either from personal knowledge and extrapolation or by questioning the subject matter expert (SME)—and then finds a clearer and cleaner way to present the same information.

BEFORE STARTING

Before you start work on that documentation car wreck, you need tools and you need to get your garage organized and prepared.

UNDERSTAND HOW LANGUAGE WORKS

For this type of work, it helps to have a solid understanding of how people put words together: formal and informal, standard and non-standard.

Have you ever read a big published style guide all the way through (like the Chicago Manual of Style or Microsoft Manual of Style)? How about technical writing guides (like Alfred's Handbook of Technical Writing)?

Do you read books or blogs about writing and language? And, just to separate out the real word nerds like me—do you *enjoy* reading style guides?

The more exposure you have to both the common and uncommon wisdom about writing and language, the better equipped you'll be to catch the meaning in badly written content and to know how to fix it. The nice thing about style guides is they give examples of both the "right" and "wrong" way to write something. I use quotes because one guide's "right" might be another guide's "wrong." That's useful to know, too.

Educate yourself about words, language, and usage. Also, keep your mind open to how people express meaning in different situations. There are many different types of tools.

My writing philosophy is that a good writer uses all the tools available and uses them to good effect. Strict style rules help with consistency, but I'll throw a rule out the window if it gets in the way of clear writing.

THE SME AS THE DRAFT WRITER

There's a good chance that the writer of the original draft is also the subject matter expert (SME) and probably a non-writer, that is: someone for whom writing is not a primary skill. This is the person you have to work with if you have any questions; it's their car.

Who are your SMEs, these non-writers? What work do they do? What kind of education do they have? To be fair, most of these people are pretty well-educated and usually have at least an undergraduate degree if not a graduate degree. You have to do a lot of writing to get through that much education. But writing for the sake of a grade (think: page or word counts) is different than writing to clearly communicate difficult technical concepts. Good technical communication requires a different knowledge and skill set, and it requires practice.

Always be sensitive to the SME's effort in producing the draft. When non-writers write, they write from their knowledge and expertise, but not with skill in writing. They really just put words on paper in whatever way seems right to them. Nonetheless, they probably put a lot of time and energy and heart into the work.

If you can, set the expectation in advance that you'll do all the heavy lifting. After all, you have the engine hoist and all the right tools. They can just get the gist of it on paper and save their time and energy for the review process. At the same time, establish their ownership of the content. The SME is the final judge of whether the content is complete and accurate.

Be the writing consultant and help your SMEs understand what well-written documentation can do for them. Work with them as an equal; your skill as a writer matching their knowledge as an expert. I recommend having a few reasons handy for why to rebuild the document (other than that the documentation is barely readable). I often blame the need to rebuild on the standards for procedures or on my company's style guide and branding policy. Or perhaps use a stock phrase like, "This is awesome for technical users like you, but the end users have different needs." or, "My job is to translate this technical information into something that non-technical people can understand and use."

MISTAKES NON-WRITERS MAKE

Most non-writers write the way they speak, which might be clear when spoken, but doesn't always hang together so well when written. This type of writing tends to be full of professional jargon and shorthand and doesn't show much thought for organization or presentation.

Other non-writers write in an overly formal and stilted style, trying to match some vaguely understood ideal of professionalism and objectivity.

Both styles lead to sputtering and backfiring—wordiness, convoluted sentences, misused words, and abused grammar.

Non-writers aren't always really good at choosing the words they really need. They often pick abstract or general terms when more concrete or specific terms would be more accurate and more helpful. They can also

be inconsistent, using one term in one place and another term somewhere else or using one term in two or three different ways.

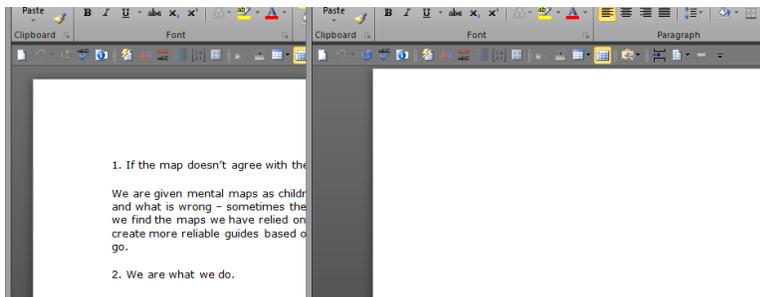
Be prepared to sort out the writer's style from the meaning hidden in the text.

CLEAN SLATE

Now it's time to pull the car wreck into the garage.

Start with a clean piece of paper, so to speak, in whatever tool feels most useful to you. I use Microsoft Word for most of my writing, even though it usually ends up in an HTML editor and content management system. Word has a lot more editing tools and a lot more shortcuts I can use. If you are working in Word, starting with a clean document also gets rid of potential corruptions that can build up in old documents.

Set the new side-by-side with the original. You can either write from scratch, or copy and paste and then edit. I do both, depending on whether the chunk I'm working on needs a full rewrite or just a bit of editing.



THE WHOLE . . .

When you're ready to start, read it through once, if possible. If it's too long to read through, then read the first couple of pages and scan through the headings, stopping now and then to read a bit.

Gist. Look for the gist of the document; what it covers and to what detail. Get a feel for the draft-writer's style and how they approached the information.

Audience and purpose. Non-writers aren't always very clear about whom they are writing for or what they need the document to do. If you already know the audience and purpose, determine if the draft fits or what it'll take to make it fit. If you're not yet sure of the audience and purpose, look for it in the draft or ask your SME.

Formatting strategies. Never underestimate the power of formatting to help you communicate. You might have just one standard presentation model, but you have to know how the information in the draft fits into it. If you have more than one model available, you can choose which model fits best.

As you look at the original, think about ways that you can display the information effectively. Would this paragraph work better as a list? Can I put this information in a table? Can I illustrate this concept more clearly with a graphic? As much as you can, let the content drive the format.

Organization strategies. Remember what I said about being willing to take a document apart and put it back together differently? This is where you start planning for how to organize the content. If you think the content makes more sense arranged differently, then by all means rearrange. If you see some obvious sections, you can put some headings in place and pop the content in where it fits.

Look for repetition and redundancy and start to plan an organizational structure that avoids it. For example, a coworker of mine recently worked on a document that started out as five procedures in 27 pages. The five procedures were almost the same, with just a couple of differences to handle different situations. When it was done, he had one two-page procedure with a couple of if-then tables.

CONTEXT

Context influences interpretation, both your interpretation of the draft and the end user's interpretation of the final document. In fact, context is so important that I'd advise you not to start until you are certain you understand it. Would you put a VW bug's engine in a drag racer?

Merriam Webster (M-W.com) defines context as:

- The parts of a discourse that surround a word or passage and can throw light on its meaning
- The interrelated conditions in which something exists or occurs : environment, setting

Both of these meanings are important. The first, obviously, because we're writers. The second, because it's hard to understand a subject without knowing the context in which that subject exists.

Imagine the following text as a headline on the front page of a newspaper. What would you expect the article to be about?

“Occupy protesters offered lesson in free speech”

Now, imagine instead that the headline is on an opinion page. How does that change what you expect the article to say? How might your interpretation change based on your political leanings? And, could you parse this at all if you'd never heard of the Occupy Wall Street movement?

Think carefully about the context, both while interpreting and while writing. Make sure the context is well-established and clear, for the document as a whole and for its constituent parts.

. . . AND THE PARTS

A useful car conforms to some basic standards—the engine goes here, the driver's seat goes there. To rebuild a document, use the methods, standards, and styles of technical communications and apply them to the new draft, drawing on the information available in the original text. We must sometimes fill in the blanks with knowledge we already have, or with intuition or extrapolation (contingent on the SME's approval, of course). In addition, we sharpen the content's focus by removing vagueness and ambiguity. Here are some strategies to help interpret the original and to guide the rebuild.

BYOP (BRING YOUR OWN PUNCTUATION)

Sadly, we're all becoming too familiar with the need to bring our own punctuation. The following Facebook status is from a relative who shall remain nameless:

“My day off is done back to work well not really a day off still had to do work.
Well thats life went to marys orchestra concerts she is getting better they all
make me proud to be their dad brian is doing good so is sam. I just wish they
would slow down on growing”

It's not too hard to interpret, just by adding some punctuation.

“My day off is done, back to work. Well, not really a day off, still had to do
work. Well, that's life. Went to Mary's orchestra concerts. She is getting
better. They all make me proud to be their dad. Brian is doing good, so is
Sam. I just wish they would slow down on growing.”

In a more technical setting, sometimes we have to experiment a bit with the punctuation to find the right meaning.

“If so, inception to date contributions net of any withdrawals needs to be
received.”

Without fixing anything else, just adding a couple of hyphens to tie together a compound adjective and a couple of commas to set apart a clause, this becomes understandable . . . almost.

“If so, inception-to-date contributions, net of any withdrawals, needs to be received.”

In some cases, you might need to try a few different ways of punctuating a sentence or a paragraph (that's where staring at your monitor comes in) before you land on a meaning that makes sense in the context.

TIMING MARKERS

When a timing belt breaks, your car stops running and you can expect some expensive engine repairs. In writing, timing markers are words like *before*, *after*, and *when*; words that mention dates or days; or words that describe times. Timing markers help determine how a document, paragraph, or sentence should be organized.

It's easy to show how they help organize paragraphs and sentences.

In this example, we see that something needs to occur on the trade date; and, as an afterthought, it needs to happen in the morning. We can also see that we're comparing something current to something from the previous day. There are two timing pairs, but they're separated.

“The current accrual should be balanced the trade date of the liquidation with the accrual as of the previous day. This will need to be provided in the AM of trade date.”

When I rewrote it, I made sure the pairs tied to each other:

On the morning of the liquidation's trade date, team B balances the current accrual with the accrual for the previous date and provides that information to team A.

Timing markers can also help with the whole document's organization. It's common for me to get to the end of a procedure draft and see a sentence that says “before you start . . .” Most technical communication is linear, timing-wise, so think about how the information's order might be affected by timing and look for timing markers to get the right sections in the right place.

CONDITIONALS

Conditional phrases usually start with the words *if*, *for*, or *to*. Non-writers can get pretty tripped up when they try to capture variations on a theme, often creating redundancy or forcing the reader to jump around to connect the condition with the action.

To understand and interpret tangled documentation, pay attention to which conditions connect to which actions. You can use different highlighter colors or draw some arrows to visualize the connections. I often copy the bits into a table or list, crossing out the sections I've used as I go. From there, I can see any patterns, holes, or repetition. For example, I might see that the SME presented four conditions, but only one of those conditions led to a different action. Or, I might see that the SME presented four conditions but only three actions.

Account managers (AM) use this reference to understand the options that clients have for completing IRS Form 5330. The standard is that we **do not** complete the form.

For Late Remittances

Form 5330 is due 7 months after the end of the tax year that includes the prohibited transaction.

If a late remittance in the current year, IRS Form 5330 should not be completed until the year end. Upon the first late remittance, the AM should discuss with the RM who is going to complete IRS Form 5330, **if** we previously completed it in the past for the client.

If a late remittance in the previous year, IRS Form 5330 should be completed by the form's due date, or as soon as possible thereafter. Because a new prohibited transaction occurs on the first day of each tax year, multiple Forms 5330 might be needed.

If OurCompany completes the form, BCD&X may be engaged (RM responsibility). **if** a BCD&X consultant is currently engaged with the plan, talk to the consultant and to Jack Doe about a fee estimate. **if** a BCD&X consultant is not engaged, contact Jack Doe. As this is a fee, the RM should discuss the cost. A general cost estimate is \$500. This may vary depending on the number of late remittances.

if BCD&X completes the request, the AM must track all of the late remittances for the plan throughout the year. This includes payroll dates, participants impacted, amounts, the actual calculation completed by tcg, and so on. bcd&x provides a template data request for you to complete.

For Excess Contribution Refunds

The AM and RM is informed that the plan has excess refunds after the 2.5 month deadline. The cover letter to the client regarding the testing results states that IRS Form 5330 is required. Form 5330 for excess contribution refunds is due 15 months after the close of the plan year when the contributions occurred.

If OurCompany completes the form, BCD&X may be engaged (RM responsibility). **if** a BCD&X consultant is currently engaged with the plan, talk to the consultant and to Jack Doe about a fee estimate. **if** a BCD&X consultant is not engaged, contact Jack Doe. As this is a fee, the RM should discuss the cost. A general cost estimate is \$500. This may vary depending on the number of late remittances.

if BCD&X completes the request, BCD&X provides a template data request for you to complete.

After you sort out what condition goes with which solution, use formatting strategies to rebuild in a way that makes those relationships clear. You can use tables, bulleted lists and sub-lists, and flow diagrams (to name a few) to make the connections visually apparent. In my current job, we use a lot of tables.

5330 Form Completion

If OurCompany completes the form, BCD&X may be engaged (RM responsibility).

If	Then
BCD&X consultant is currently engaged with the plan	Contact the consultant and the relationship manager about a fee estimate.
BCD&X consultant is not currently engaged with the plan	Contact the relationship manager.

There is a fee for this service, so the RM should discuss the cost with the client. Generally, the cost is \$500, but it can vary depending on the number of late remittances.

Late Remittances

Form 5330 is due 7 months after the end of the tax year that includes the prohibited transaction.

If	Then
Late remittance in the current year	Complete IRS Form 5330 after the year end. Upon the first late remittance, if we previously completed it for the client, the AM should discuss with the RM who will complete IRS Form 5330.
Late remittance in the previous year	Complete IRS Form 5330 by the form's due date, or as soon as possible thereafter. Because a new prohibited transaction occurs on the first day of each tax year, multiple Forms 5330 might be needed.

If the BCD&X completes the request, the AM must track all of the late remittances for the plan throughout the year. This includes payroll dates, participants impacted, amounts, the actual calculation completed by TCG, and so on. BCD&X provides a template data request for you to complete.

Excess Contribution Refunds

The AM and RM is informed that the plan has excess refunds not corrected within the 2.5 month deadline. The cover letter to the client regarding the testing results states that IRS Form 5330 is required.

Form 5330 for excess contribution refunds is due 15 months after the close of the plan year when the contributions occurred.

If BPS&M completes the request, BCD&X provides a template data request for you to complete.

ACTION

I can't avoid talking about active voice, but I can drive past it as quickly as possible. There's more to passive voice than the presence of a *to-be* verb and there's more to active voice than the absence of a *to-be* verb. Many people misunderstand or misuse these terms. Geoffrey Pullum on the Language Log blog (<http://languageblog.ldc.upenn.edu>) has a large collection of blog posts that call media writers to task for misidentifying passive voice. A lot of non-writers associate objectivity and professionalism with passive voice, which leads to confusing and wordy writing. But remember, sometimes passive voice really is the clearest way to convey the correct meaning.

Rather than belaboring the active voice dictum, I focus on the idea that having clear actors and strong action can remove a lot of the vagueness and ambiguity from a document.

CLEAR ACTORS

I've noticed that a lot of work in the business world just gets done, with no one or nothing actually doing it. A car usually needs a driver. When you interpret an original draft, look for the actor or make some educated guesses. The strong actor might be the user; the implied "you" in second-person imperative. Or it can be groups, systems, or inanimate objects. For example, the original might say that "a letter is sent" but I always ask: who or what sent the letter; which system or team or person?

The following sentence is missing an actor:

It was discovered that five (5) of the roof top unit fans were running at airflows well above their design airflow.

The "discoverer" might have been Joe the maintenance guy or a pigeon. We don't know. Because I knew the context—reporting on the results of a building systems analysis project—I could extrapolate. It probably was the HVAC engineer on the project team but I chose to place the whole project team in the strong actor role. Notice that I also replaced the relatively weak verb phrase "were running" with the stronger verb "operate".

The project team discovered that five rooftop fans operate above their designed airflow.

STRONG ACTION

Using active voice is important, but even active voice constructions can lack real action or be excessively convoluted. Consider the following examples:

The gas mileage must be in compliance with federal law.

Glenda was hesitant to make a commitment.

TCS made the determination to modify the actuator.

George made the identification of the strange bird as a hoopoe.

All of these sentences are written in active voice, yet they are wordier than needed and they lack action. The problem is nouniness, an issue I first learned about in a grammar book by C. Edward Good. Nouniness is the practice of using derivative nouns with weak verbs (such as be, have, and make) instead of using the strong verb directly.

You can identify derivative nouns by their suffixes:

Suffix	Verb	Derivative Noun
-tion	Circumvent	Circumvention
-sion	Compel	Compulsion
-ment	State	Statement
-ence	Depend	Dependence
-ance	Comply	Compliance
-ency	Tend	Tendency
-ancy	Hesitate	Hesitancy
-ity	Identify	Identity

Nouny writing doesn't state something, it makes a statement. It doesn't conclude anything, it reaches a conclusion. "Nouny writers have a preference for nouns. But good writers prefer verbs." (Good, 2002)

If you see a perfectly good verb buried in a noun, use it and let it stand on its own.

The gas mileage must comply with federal law.

Glenda hesitated to commit.

TCS modified the actuator.

George identified the bird as a hoopoe.

NOISE (AKA DEADWOOD)

If you use three or four words when one is enough, that's just noise and your car needs a muffler. The more common term used among writers is deadwood. Many phrases commonly used in engineering and business writing are deadwood. You can easily find good lists of deadwood online. Here are just a few examples:

A majority of = most

Due to the fact that = because

At such a time as = when

In close proximity to = near

In excess of = more than

Another type of deadwood comes straight from the department of redundancy department:

Basic essentials = basics (or essentials)

Rate of speed = rate (or speed)

Green colored = green

Cleaning out deadwood is probably the easiest way to tune up clunky writing—just delete some extraneous or redundant words and replace them with the more direct word.

These funds are available ~~in the form of~~ [as] rebates for energy efficiency improvements.

There are other kinds of deadwood you should watch for. Business clichés have no place in technical communication. (Does anyone still think *inside* the box?) And if you're writing for a non-technical audience, watch out for jargon.

SUMMARY

When you tackle a documentation car wreck, be willing to take the wreck apart and put it back together better than it was. Use context to help you interpret the original text and bring more clarity to the rebuild. Make sure you put the right engine in the right body. Get your hands greasy to apply technical communication's writing methods, standards, and styles, first to interpret and then to rebuild the car wreck. Tune up the engine by paying attention to punctuation, timing markers, conditionals, action, and deadwood.

ADDITIONAL RESOURCES

Alfred, Brusaw, and Oliu. Handbook of Technical Writing, Seventh Edition (St. Martins Press, New York, NY) 2003.

Bly and Blake. The Elements of Technical Writing (Macmillan, New York, NY) 1993.

The Capital Community College Foundation's Guide to Grammar and Writing
(<http://www.ccc.commnet.edu/grammar/>)

Janice Redish. Letting Go of the Words: Writing Web Content that Works (Interactive Technologies). (San Francisco, CA, Morgan Kaufman Publishers) 2007.

Matt Young. The Technical Writer's Handbook: Writing With Style and Clarity (Mill Valley, CA, University Science Books) 1989

Ronnie Lipton. The Practical Guide to Information Design (Hoboken, NJ, John Wiley & Sons, Inc) 2007

Richard A. Swanson. Analysis for Improving Performance: Tools for Diagnosing Organizations and Documenting Workplace Expertise (San Francisco, CA, Berret-Koehler Publishers) 1996

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Good, C. Edward. A Grammar Book for You and I. . . Oops, Me! (Herndon, Virginia, Capital Books, Inc.) 2002.

Julie Sedivy and Geoffrey Pullum, blogging on Language Log (<http://languagelog.ldc.upenn.edu/nll/>)

Thanks also to coworkers and clients who inadvertently provided examples.

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Karen Murri has more than 12 years experience as a technical communicator and instructional designer. She currently works for Wells Fargo, supporting the Institutional Retirement group by working with SMEs to write procedures and references, usually from very rough drafts. In a previous life, she completed documentation and instructional design projects for General Mills, Starbucks, 3M, and many others and developed and presented a report-writing workshop for engineers. She loves writing, working with words, and solving the odd word puzzles that her clients drop on her.

PATTERN RECOGNITION FOR TECHNICAL COMMUNICATORS

Kai Weber

Pattern recognition is an essential mental strategy for acquiring and disseminating knowledge, though we are usually not aware that we do it. By understanding what pattern recognition is and how it works, technical communicators can employ it to efficiently acquire information, structure deliverables and help their users to use effective documentation efficiently.

“To understand is to perceive patterns.” – Isaiah Berlin, analytic philosopher (Berlin, 129).

WHAT IS PATTERN RECOGNITION?

Pattern recognition is a basic part of human perception and an early stage in the process of understanding. Humans apply pattern recognition, usually without thinking about it, to make sense of the stuff that surrounds us (Jain 698f.). We do it when we see a chart, when we read a news article or documentation, when we hear about a new tool. In each of these events, we sort information into identifiable bits and compare it them to each other and to knowledge we already have to identify patterns. Then we formalize these patterns into rules and use these rules to interpret subsequent information and make decisions. By recognizing patterns, we sort and order the world as we encounter it.

Consider this example:

Aardvark, J.R. (1980). Ants, and how to eat them. *Journal of Orycteropodidae Studies*, **80**, 11-17.

Barker, R. (1982). *Rum babas, and what to do if you've got them*. Reading: Goodnight From Him.

Haley, W. (1955). *Rock Around The Clock*. New York: Decca.

Izzard, E. (1998). Cake or Death? *Gateaunomics*, **10**, 195-196.

Lemur, R.-T. (2010). *Strepsirrhinoplasty*. Antananarivo: Raft Press.

Leonard, E. (1996). *Out of Sight*. New York: Harper.

Shorty, G. (in press). *Okay, so they got me*. Los Angeles: Cadillac.

You can probably recognize this as a bibliography, a list of references, because you've seen other like it before. But even without knowing the particular standard or rule set that it follows, you will recognize some patterns in it. Based on comparison of different items on the list, you can detect that “Gateaunomics” is a name of a journal, just like “Journal of Orycteropodidae Studies” is. Based on recognizing one author, you can identify which parts are authors' names. You can also identify formalisms such as punctuation and parentheses which structure the entries. From these patterns, you can probably formulate many of the applied rules and add new entries with some confidence.

WHY SHOULD TECHNICAL COMMUNICATORS CARE?

Technical communicators, along with many other knowledge workers, do a lot of pattern recognition as part of their work anyway. We *detect* and formalize patterns when we gather information, when we are reading specifications or designs or when we are interviewing subject-matter experts. We also *create* and order patterns for our users when we write topics and structure them into deliverables (Atherton 28). One of the most noble achievements in our documentation is to make patterns easy and obvious to recognize for users to lighten their cognitive load when they have a question or problem that led them to our documentation in the first place.

Since we *are* in the business of pattern recognition, we might as well do it smartly: If we are aware of what's happening, if we understand that unconscious process, we can add motivation and intent to this process to make sense of tasks, products, and functions more efficiently. And we can structure better what we need to convey to users. We can improve our own efficiency and the effectiveness of our deliverables.

THE PATTERN RECOGNITION EXPERIENCE

So how do we recognize patterns in everyday life? Pattern recognition occurs unconsciously when we encounter more or less similar items in proximity, in space or in time (Zimbardo 281f.). Consider a couple of examples: Suppose you walk through the country and encounter cows and horses in the space of a pasture. Looking closely, you can distinguish two different kinds of animals by their horns, hooves and tails, even if the cows are different in size and color, and so are the horses. You might also detect that the cows all graze heading the same way, while the horses don't. Or suppose you walk through the city and encounter people, animals and cars, all running in the opposite direction in increasing numbers within a short time. You detect a pattern hopefully makes you wonder if you should continue on your way. To recognize a pattern among items, it helps if the items are close to one another.

If items are not close in time or space, a shared context can make up for it and help you to recognize patterns (Zimbardo 297ff.). Suppose you are studying to broaden your vocabulary. There are two main strategies to use newly learned words with confidence, after you have recognized their patterns of usage and deduced appropriate rules. Kids go one route and often try out a new word or phrase in a short time in all kinds of social situations – and gauge from the reactions when it is incomprehensible, inappropriate or obscene. Adults often go the other way and stick with the social or professional context where they first encountered the word, even if it means spreading out its use over time.

In technical communications, the shared context helps us, because the product to which our documentation is attached provides such context. This is, simply speaking, why we can now get away with words such as “window” and “mouse” in a computer context, because even infrequent users no longer expect a glass pane or a grey rodent. But you will help your users if you offer them patterns in close time and space, too. For example, once you have introduced an abbreviation or an example in a topic or section, use that item again and consistently in the same topic or section, so you give your users a pattern to recognize and work with.

HOW DOES PATTERN RECOGNITION WORK?

Pattern recognition happens as the third stage of a bottom-up process of human perception, after sensation and perceptual organization (Zimbardo 262, 294). First, we receive a sensation from the outside world, for example, we see white, tan, brown and black masses on a floor of green. Second, we organize the sensation perceptually: We take apart the image to distinguish standing or slowly moving animals from each other and from the pasture. (The brain can form “object representations that are invariant with respect to the dramatic fluctuations occurring on the [eye's] retina”, suggests Olshausen, 4716.) Pattern recognition is the third stage: We analyze the animals to identify similarities and differences by which to sort, order and label them. Thus we distinguish cows from horses. That is only half the story, however.

The bottom-up process doesn't explain why we use details such as horns, hooves and tails to distinguish cows from horses, but ignore features such as color or number of legs. Why don't we group all brown animals together as one kind? It also leaves open another question: If we make sense of items in relations of proximity and similarity, why can we immediately and confidently recognize a single cow that we have never seen before? Or a single chair, to take a more variable, man-made item?

There is a second, inverse process associated with pattern recognition, a top-down process (Zimbardo 294): We know what a chair is and roughly what one looks like, either from an abstract concept that has been explained to us or from all the chairs we've encountered before. From this previous knowledge, we have generalized a set of features which we expect a chair to have, such as four legs (plus/minus one), a mandatory seat, a recommended backrest (else it's a “stool”) and optional armrests. Then we contextualize this feature set to connect it with expected environments and use cases: Chairs occur most often in or near

human-made buildings and rarely in the wild. Most of them come in a size that is suitable for humans to perch their buttocks on. Armed with this feature set and context, we are ready to apply the image of a chair successfully, even if we encounter a single one we've never seen before. We can still refer to it and use it confidently without instruction or example.

The bottom-up and top-down processes work differently and in different conditions (Zimbardo 294f.): The bottom-up process needs no prior knowledge as it moves from items to concepts. It relies on the relations between several, similar items from which rules are deduced. As a process, it is slow, but usually correct, at least within the context in which the pattern was encountered. By contrast, the top-down process uses prior knowledge to move from concepts to unknown items. It relies on the context in which an item is encountered, instead of empirical data. It is usually a fast process, but it can go wrong, when the applied context fails. An item that easily qualifies as refuse or flotsam when encountered outside may bewilder us in a museum of modern art and make us wonder: "Is this art or trash?"

The bottom-up and top-down processes complement each other in the brain (Graboi 805ff.). Specifically, the brain employs top-down processes to the extent that competition for attention is "left unresolved after bottom-up grouping processes have occurred" (McMains 596). If our perception is guided by a specific task, the top-down process intervenes and minimizes attention competition and even drives spatial attention in the preceding stage of the perceptual organization of sensations (Peters 1). In other words, what we look at depends on what we aim to do, even before we know what we look at. Whether we prefer one process over the other is a question of language proficiency and possibly culture (Kember 349). (For examples of top-down and bottom-up processing in language acquisition, see Ellis and Frederiksen. For the cultural contingency of perceptual processes, see Norenzayan.)

PATTERN RECOGNITION IN TECHNICAL COMMUNICATIONS

There are three opportunities in technical communications when we can benefit from applying pattern recognition consciously: To make sense of unknown subject matter when we research and assimilate knowledge. To chunk topics and find reuse opportunities when we structure and organize knowledge. And to help our users when we present and deliver topics.

MAKING SENSE OF SUBJECT MATTER

Pattern recognition's bottom-up process can help you to make sense of new subject matter in an organized fashion. Suppose you inherit unstructured, incomplete and possibly outdated documentation or only a bunch of requirements and specifications. Your best sources are a couple of subject-matter experts (SMEs) who vaguely remember bits and pieces. You can copy the bottom-up process and start by gathering all the existing documentation and whatever information the SMEs can offer. Collect, don't censure at this first stage.

In a second stage, chop up the information into manageable chunks of tasks, procedures and concepts. It may actually help you to print it all out and cut it up. The physical chunks of information make it easy to spread out everything before you. Then shuffle around the pieces and group the ones that seem to have something in common – until patterns emerge. Maybe you have two similar processes to set up something, but each is incomplete and misses a different step. Line them up next to one another, and they might complement each other. Try to deduce plausible patterns and rules, but remember to keep on testing them as you proceed, so you don't settle for an early pattern that may be faulty or incomplete.

CHUNKING AND REUSING TOPICS

When you know the tasks and the intended functions and features of your product, you have a well-established context for your documentation. In this case, you can apply the top-down process à la pattern recognition to divide documentation, existing and yet to be written, into topics such as procedures and concepts. Give your users topics a consistent topic structure that wears its building plan on its sleeve.

Teasing out the differences and similarities among your topics which describe tasks, concepts or functions can also help you determine which topics you can reuse and which need to remain separate because they are marked by essential differences.

HELPING USERS

To help your readers use your documentation efficiently and to grasp individual topics quickly, structure the actual contents of topics consistently. You needn't resort to pattern recognition to apply this principle which is also known as "parallelism". The idea is that similar things should be presented in similar ways to make it easier for users to recognize and process them by lightening the cognitive load.

In topic headings, apply a consistent scheme. Consider using noun phrases for concept topics, gerunds for process topics, and imperatives for procedure topics. For example:

1. The Espresso 2000 coffee maker
2. Italian coffee drinks
3. Setting up the Espresso 2000
4. Preparing coffee drinks
 - a. Make espresso
 - b. Make cappuccino

The remarkable thing about parallelism is that it usually works, even without explanation. Many users may detect the underlying rules, but they won't be aware of it until you ask them.

Inside topics, apply recurring, flexible patterns and give each topic type a similar sequence of elements. In procedures, move from introduction to the prerequisites on to the actual procedure, the expected results and the exception handling. In lists, phrase similar instructions or conditions similarly.

For your navigation aids, cater to the top-down and bottom-up processes. A table of contents is a top-down aid, so offer a coherent, consistent structure and assume and honor trust in the system and the context. Search and indexes are bottom-up aids, so ensure users can deduce useful rules from the items and their relations: Support not only exact matches, but also related terms. Ensure that search result entries enable users to decide which one to select. When you provide only headings as search results, headings should be self-explanatory and not rely on parent or sibling headings to make sense.

CAVEAT EMPTOR

Applying pattern recognition processes consciously can be helpful and inspiring to us as technical communicator and to our users. But there are a couple of limitations we must keep in mind. The first limitation is what Michael Shermer calls "'patternicity', or the tendency to find meaningful patterns in meaningless noise." Patternicity also includes seeing saints in clouds or omelets, but in the case of technical communications, it is simpler: For example, it would be quite plausible that two similar procedures share the same prerequisites or exception handling routines – but for some more or less logical reason, they don't. Patternicity happens because humans are addicted to meaning and are wired to tweak their perception accordingly.

The second limitation is that pattern recognition fails if the required prerequisites are not given. Remember that bottom-up processing requires sufficient sample size, so you can deduce appropriate relationships and rules between all items. Top-down processing requires an appropriate context or task in which it applies.

CONCLUSION

While insights and application of pattern recognition will not revolutionize technical communications, the underlying psychological principles and processes can help us understand why task-orientation, topic-based authoring and parallelism work and how we can create effective documentation efficiently.

ACKNOWLEDGEMENTS AND SOURCES

I'm deeply indebted to Dr. Chris Atherton, cognitive neuroscientist extraordinaire, who encouraged me to follow a hunch and explore the pattern that technical communicators do something similar in their work as the brain during perception. This article and the accompanying presentation are based on a joint presentation we did at TCUK in Oxford, UK, in October 2011.

The basic principles of pattern recognition in their context of human perception can be found in many psychology textbooks. I've mainly relied on Zimbardo (chapter 8), but Revlin (chapter 4) and Matlin (chapter 2) are also recommended.

Pattern recognition research falls into two camps: The psychology of human pattern recognition on the one hand and the engineering of automatic pattern recognition on the other hand. Jain is a good, concise introduction to both camps and points out parallels and differences.

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FIVE+ WAYS TO ADD INTERACTIVITY TO ONLINE HELP

Nicoletta A. Bleiel

Content is King, but adding a measured dose interactivity to your online Help will increase readability and usability, as well as make it more compelling. This paper discusses a number of simple ways to add interactivity to your Help in a single-sourcing workflow.

INTRODUCTION

Online Help systems for software user assistance can be improved with interactivity, and adding social media options can also serve other company goals. There are more options for interactivity when creating browser-based Help systems, but it is possible to incorporate some features into HTML Help systems as well.

Help systems are learning modules that share all the characteristics of websites — they have content, a table of contents, search, and navigation. It should be noted that the research on both ELearning and the web encourages interactivity.

CONSIDERING INTERACTIVITY

When deciding what interactivity would be most useful in your Help system, keep in mind the following:

- Will the user understand and expect the relevant action that occurs?
- If content is hidden, will the user know how to access it?
- Does the additional user input actually improve the overall experience?

(From: “Bringing Interactivity To Your Website With Web Standards”

<http://coding.smashingmagazine.com/2011/02/03/bringing-interactivity-to-your-website-with-web-standards/>)

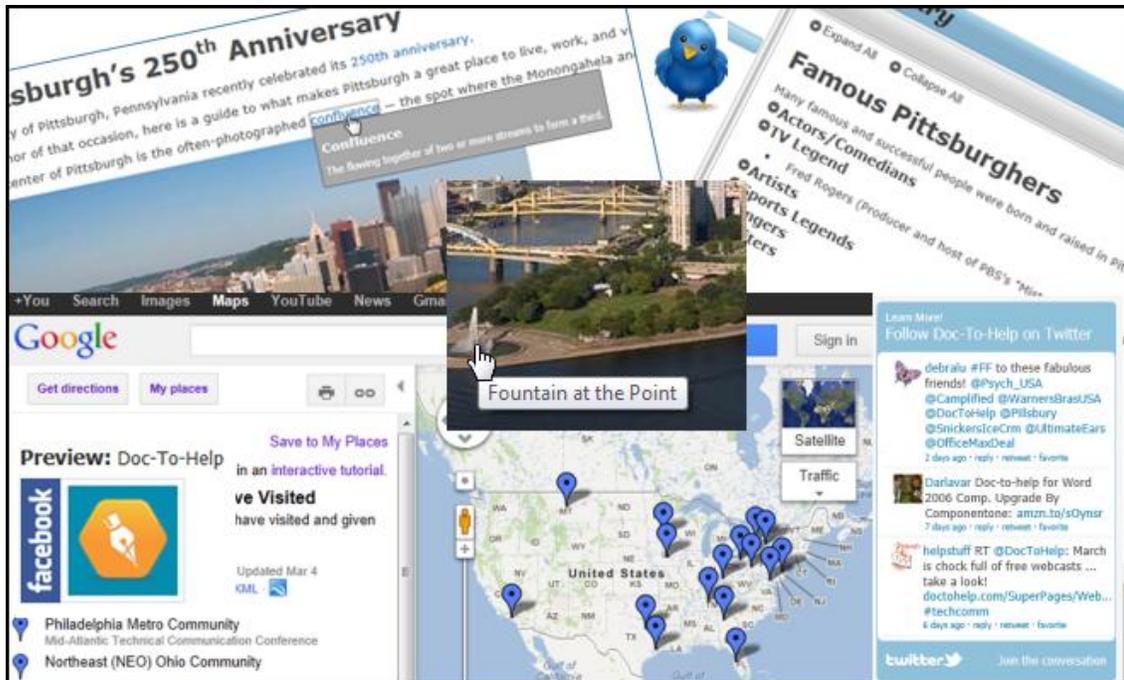
Also consider other goals, such as improving the SEO of your Help system, increasing your company’s Facebook likes and Twitter followers, and incorporating useful social media elements into your Help.

INTERACTIVITY OPTIONS

There are many options for adding interactivity, including the ones below. The ease of implementation will depend upon the Help Authoring Tool or authoring environment you are using.

- Expanding/Collapsing Text can be used to layer information by category. In print outputs, the content remains in list form; no additional adjustment is necessary.
- Image Maps are interactive graphics that link to additional information. Using conditions, they can be easily modified for print output.
- Glossary Popups are popup links that display definitions. They are a great option for documentation that contains a great deal of company or industry-specific terminology and/or acronyms.
- Google Maps with custom locations can easily be created and embedded, and can provide useful content that is interactive.
- Twitter has several types of buttons that can be used to increase the visibility of your Help, or encourage customers to follow your company on Twitter. “Share” buttons make it easy for customers to tweet the URL of the Help page; “Follow” buttons provide interactivity that ties social media to the Help system.

- Twitter Search Widgets can be used to display what is being said about your company (and/or selected subjects) within your Help system.
- Videos appeal to visual learners and require users to interact with the system if not set to autoplay (since users generally prefer to click “play” themselves, it is best to avoid that setting).
- Adding Facebook Badges to Help can increase visits to your company’s Facebook page, and encourage customers to interact with each other.
- Including email buttons in your Help to contact tech support or the doc team add interactivity and (more importantly) make it easier for customers to contact your company. Consider including the URL of the Help topic in the body of the email to speed accuracy and response time.



A few options for interactivity

OUTCOMES AND CONSIDERATIONS

Well-implemented interactivity makes information more readable, exposes information layers, encourages discovery, and provides feedback mechanisms. Social media options can provide additional useful information, build a customer community, and increase Twitter followers and Facebook likes.

Adding interactivity should be balanced with good usability practices. Don't overdo the click count, add unnecessary (or too much) interactivity, or alter established standards.

Before implementing interactivity, consider the following: accessibility, translation, localization, and your customer's access to the internet.

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- Google Maps: <http://maps.google.com/>
- Twitter Search Widgets: http://twitter.com/about/resources/widgets/widget_search
- Twitter Buttons: <https://twitter.com/about/resources/buttons>
- Facebook Badges: <http://www.facebook.com/badges/>

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THE EVOLVING ROLE OF THE TECHNICAL EDITOR

Michelle Corbin, Mary Jo David, Carol Lamarche, Patricia G. Moell, Jenifer Servais, and Andrea Wenger

The past decade has seen dramatic changes in technical communication. Organizations no longer deliver traditional print media alone. They also provide online media, interactive multimedia, and collaborative social media. In response to these changes, the role of the technical editor has also evolved. Regardless of how the communication is delivered, technical editors must continue to step into the quality assurance role. Their participation helps ensure that the highest quality information is communicated to the consumers.

Web 2.0 and Agile procedures have altered expectations as well as the processes for content creation. Technical editors must engage in new forms of collaboration and master new skills. Yet quality assurance, advocacy, and education remain at the heart of the editorial role.

Content creation and management have displaced the isolated tasks of writing and editing. To continue as viable project participants, editors may need to offer skills that might earlier have fallen to other roles—such as providing quality content (writer-editor), chunking (instructional designer), and applying search engine optimization techniques (webmaster).

GOOD-ENOUGH DOCUMENTATION

Organizations are pushing to get to market earlier and deliver on demand. Traditional workflows and timelines are no longer tenable. Perfection is neither expected nor wanted. Better than a perfect document is one that is good enough, delivered with time savings. Editors need to collaborate in new ways within their teams. They must cooperatively define what is good enough and develop tools such as style guides to ensure that acceptable levels can be met. Moreover, editors should get involved earlier in the creation process—even during the outlining and drafting stages. Through this earlier involvement, editors can support other roles and help develop the terminology, tone, and scope.

The profession has shifted from definitive stages of writing, editing, and publishing. Document development is now a more fluid, iterative process of writing, publishing, and then editing. This shift requires a more flexible approach to project management. It means gauging public expectations while evaluating and operating with new conventions.

Despite these changes, editors need to advocate for adequate service to stakeholders. More than ever, editors must educate their internal customers about the need for appropriate editing and quality assurance in an age of wider and more instantaneous collaboration.

TECHNICAL EDITING AS QUALITY ASSURANCE

Technical editors provide quality assurance for the documentation that the organization produces. Quality assurance in documentation involves meeting standards for the customer, the organization, and the product itself.

Organizations cannot afford to ignore the quality of their documentation. Quality can affect their bottom line in several ways:

- The quality of the documentation reflects upon the quality of the product.
- Well-written documentation makes the product easier to use, which helps reduce the number of technical support calls and thus the number of technical support analysts needed.

- Documentation that is well edited using global English guidelines reduces the cost of translation and allows for better machine translation.
- Properly copyrighted and recorded documentation protects against lawsuits.
- Improper use of product names can weaken trademarks and product branding.
- Documentation that does not meet standards for accessibility could mean lost sales for government contracts.
- Technically inaccurate documentation could lead to customer losses and lawsuits.
- Poorly produced documentation with typos and with organizational and grammatical errors can adversely affect an organization's brand and its reputation for quality.

As advocates for the customer, technical editors ensure the clarity, comprehensibility, accuracy, appropriateness, and usability of the text. As advocates for the organization, technical editors ensure that all legal standards are met, that the content is easily translatable, and that the documentation reflects well on the organization. As advocates for the product, technical editors ensure that the documentation contributes to its overall usability and purpose.

LESS IS MORE

The new millennium is now more than a decade old. During the intervening years, the “less is more” trend has become firmly established. In this online information age, technical editors are often tasked with reducing word count. Not only do extra words cost dollars—they also cost *readers*. Whether the content is for print or for the web, editors must recognize that newer audiences have been weaned in the digital age—the age of email, texting, Google search, and social media.

A study commissioned by Time Inc. found, “Consumers in their 20s (‘digital natives’) switch media venues about 27 times per nonworking hour—the equivalent of more than 13 times during a standard half-hour TV show.”¹ Technical editors should assume that this audience will also be easily distracted when on the job using online help, printed job aids, manuals, and web copy. Editors must strive not just for accuracy and clarity, but also brevity. In addition, they need to make certain that writers have incorporated effective use of typography, heading levels, bulleted lists, images, page placement, and more, to ensure that critical information is not overlooked.

KEEPING UP WITH THE CHANGING PACE OF BUSINESS

In today's global work environment, technical information is often created by one or more subject matter experts who are not professional writers and who might speak English as a second, third, or fourth language. Technical editors provide an essential role in synthesizing this information by adding clarity, value, and usability, and by presenting a united voice. They apply consistent style, terminology, and word usage, in addition to evaluating the content and making recommendations about legal considerations, accessibility, and industry standards. The value of technical editors is evident in the difference between information that is clearly written, easy to understand, and simple to use, and information that has a mix of broken English that leaves the user confused or frustrated.

Technical editors also play a valuable role in handling information acquired through corporate and internal mergers and acquisitions. They update and edit the acquired information with one voice, from the perspective of the new owning organization, to fit the needs of its expanded audience. They incorporate any resulting name changes and apply the styles, standards, and requirements of the new organization, erasing any potential confusion about what the product or service is called and who owns it.

Technical editors are now more flexible in the types of information they handle. For example, traditionally, technical editors focused on user documentation, interfaces, and help. Today, they are adapting their skills to

¹ Steinberg, Brian. “Study: Young Consumers Switch Media 27 Times An Hour: Survey of 'Digital Natives' Indicates Brands Must Step Up Creative Game to Hold Their Attention.” Advertising Age. Crain Communications. 9 April 2012. adage.com/article/news/study-young-consumers-switch-media-27-times-hour/234008/

a variety of audiences and information types, including marketing and education materials. Their projects might now include editing presentations, training guides, video scripts, white papers, social media postings, and content for mobile devices.

TOTAL INFORMATION EXPERIENCE

Technical editors can no longer be content with their expertise in textual elements. They must engage with the total information experience. When editing text in a graphical user interface, technical editors must also edit the choice of user interface controls and the placement of elements on a screen. When editing a screencast demo posted on YouTube, technical editors must also edit the demonstration of the user interface, and the syncing of the audio or text bubbles to the interactions on the screen. Technical editors need to advocate their new role as information architects (instead of taking on technical writer assignments). They must embrace becoming technical communicators overall and not just editors of text.

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PLAIN LANGUAGE FOR TECHNICAL COMMUNICATORS

Bruce Poropat

This presentation describes the history of the plain language movement and recent legislation that requires that government agencies produce new content in plain language. The legislation also requires that they convert some existing content into plain language. The presentation defines plain language, and includes samples of before and after plain language conversion (PLC). Governments and other entities in many countries have initiated plain language policies. This presentation focuses on events in the United States and the opportunities that plain language presents to technical writers.

Socrates complained about dense, confusing writing, in the 5th century, BC, and he was likely not the first. During the 20th century, concern for understandability in public documents coalesced into plain language movements within governments, industries, and other institutions. Today, the U.S. federal government and many state governments mandate plain language in place of the turgid prose common in bureaucracies and law. Many bureaucrats and lawyers recognized the problem and have helped reform writing in their professions. Industries—particularly insurance, finance, and healthcare—have also moved towards clearer prose.

Plain language and technical communication share a nearly identical skill set. The plain language prose style is identical to that of most modern technical writing: active voice, present tense, second person, short sentences. This isn't coincidence. Both disciplines require that the practitioner produce documents—from informational posters to lengthy manuals—that transmit information as efficiently as possible. Yet, organizations that must implement plain language often hire writers who come from other backgrounds—such as journalism or English literature—that don't necessarily share that alignment. This results in documents that implement plain language less effectively. Agencies and organizations that face plain language requirements represent a great opportunity to professional technical communicators.

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SPEECH INTELLIGIBILITY: ITS PURPOSE AND SCOPE IN TECHNICAL COMMUNICATION

Halcyon M. Lawrence

The author would like to acknowledge and thank Dr. Matt Bauer for his help in the inception of this paper.

This paper provides an introduction to speech intelligibility and makes the argument that technical communicators are in a position to provide guidance in the design of audio interactions in technological environments. To this end, I define speech intelligibility, examine factors affecting speech intelligibility and describe how it is measured. I describe a number of areas that technical communicators must be familiar with to make a contribution to speech intelligibility research, and finally, I examine the role that technical communicators can play in designing and evaluating speech for a technological environment.

BACKGROUND

The pervasiveness of technology-mediated environments and devices is familiar to any reader. Examples include websites, software applications, and mobile interactive devices such as smartphones. Special consideration to these environments and devices has long been given by researchers in technical communication. For example, a review of the literature in some technical communication journals indicate research which examines technology-mediated environments and the environment's impact on: audience coherence (Mackiewicz and Lam, 2009); the credibility of the message (Hutto, 2008), the recall of the message (Lee, Tedder and Xie, 2006); the processing of the message (Rice and Ridgeway 2009); the effectiveness of the medium (Dragga 1992; Kramer and Bernhardt 1996); and the retrievability of the message (Blair and Carlson 2008).

Research by technical communicators has also been conducted on the impact of graphic elements on reasoning (Roy 2006); on learning (van de meij 2002); on presentations (Caricato 2000; Markel 2009) and instruction (de Souza et al. 2008). There has also been work on interface design for the visually impaired (Ray et al. 1998; Juvina et al. 2006).

Researchers have paid particular attention to textual and other visual elements and have offered specific guidance on their design. For example, work by Brumberger (2004) and Mackiewicz (2007) suggests that typefaces communicate personality and information designers should carefully consider typefaces as a rhetorical tool, which can play a role in shaping readers' interaction with a document. Another example is Bartell's research (2006) which suggests that the frequent use of headings significantly improves readers' comprehension of material in online text compared to that of printed matter. While not meant to be exhaustive, these examples are drawn to highlight the types of advice that technical communicators offer in the design considerations of technology-mediated interfaces.

Besides textual and graphic elements, technology-mediated environments increasingly exhibit a third element, namely spoken language. These environments include automatic subway- and bus-stop identification systems, public address and warning systems, audio-based security systems to prevent automated access to sensitive information, order confirmation systems in fast food drive-thru situations, menu navigation systems in smartphones, voting machines, ATMs, toys, and fare machines for municipal transportation services (Freitas and Kouroupetroglou (2008) offer an extensive list of speech-enabled devices).

The element of spoken language provides benefits over text and other visual elements as it is omnidirectional, attention-grabbing and is able to convey information even when the listener is not paying attention (Rivenez et al 2004; Noyes et al. 2006). For the visually-impaired, the element of spoken language is not only beneficial, but fundamental. In the US, there are two initiatives which underscore the importance of accessibility of technology for persons with disabilities. The first is the 1998 amendment to section 508 of the rehabilitation act of 1973 which requires that federal agencies' electronic and information technology be

accessible to people with disabilities. The second initiative is the accessibility guidelines developed by the World Wide Web Consortium (W3C), which is an international community that develops web standards. Although both these directives highlight some requirements of audio design, there are no specific recommendations which regulate the quality of the sound produced in technology products.

PROBLEM STATEMENT

As far as can be ascertained, researchers in technical communication have not commented on the design of spoken language in technology-mediated environments and devices. The lack of guidance on the design of spoken language is unfortunate, as numerous costly examples abound, for example, in 2000, makers of the popular children's teletubby toy faced the threat of a lawsuit from parents who complained that the toy said the words "a gun, a gun, run away". The manufacturers maintained that toy actually said: "again, again, run away" (Dotinga 2000).

As yet, technical communicators may not be providing guidance on speech intelligibility and the design of speech devices because of their limited training in this area - of course this is purely speculative. Still, technical communicators are in an ideal position to study and make recommendations about the design of spoken language in technological environments because of their roles as content specialists with associated expertise in information design, user-centered design and usability testing. I believe that these skills combined with the knowledge of speech intelligibility, will allow technical communicators to make valuable contributions to the design of spoken language in speech devices.

To this end, this paper is an overview of speech intelligibility. In the following sections, I will define speech intelligibility and describe how it is measured, examine factors affecting speech intelligibility, identify what technical communicators need to know to assess the intelligibility of speech. Finally, I will examine the role of technical communicators in designing and evaluating speech for technological environments.

WHAT IS SPEECH INTELLIGIBILITY?

Speech intelligibility can be simply defined as the degree to which speech can be understood. Schiavetti (1992) defines it as a "match between the intention of the speaker and the response of the listener to the speech passed through the transmission system" (p. 13). As a result, researchers tend to speak about speech intelligibility along a continuum rather than in absolute terms.

The concept of speech intelligibility has its origins in the 1920s and comes from telephony literature which was concerned with the quality of voice transmission systems. Early literature therefore focused on the channel-related characteristics of speech intelligibility (Weismer and Martin 1992). Channel-related analyses are typically the focus of work done in speech synthesis and text-to-speech technology, but this approach to the study of speech intelligibility only paints part of the picture. Recently, speech intelligibility research has focused on the impact of speaker, listener, and signal-related factors.

WHAT FACTORS AFFECT SPEECH INTELLIGIBILITY?

Speaker-related factors

Physiological factors like sex or a hearing impairment can affect the speech intelligibility of speakers. For example, Bradlow et al. (1996) and Ferguson (2004) found female talkers to be more intelligible as a group than male talkers, while Musselman (1990) found that most children with hearing losses of 105dB and above were unable to develop any intelligible speech.

Socio-cultural factors also affect the production of intelligible speech. For example, Bent and Bradlow (2002) found that for native English listeners, the native English talker was most intelligible; however, for the non-native listener, speech from a relatively high proficiency non-native speaker from the same background was as intelligible as that from a native speaker. Further, Munroe and Derwing (1995) found that the strength of one's accent is correlated with both comprehensibility and intelligibility.

Researchers have also investigated how different speaking styles affect intelligibility. For example, extensive work has been done on the intelligibility of clear speech - a speaking style that is adopted when speakers become aware that there is a perception difficulty on the part of the listener, perhaps because of a language barrier, background noise or a hearing impairment. While clear speech is proven to be more intelligible than conversational speech, Krause and Braida (2002) have shown that speakers can be trained to produce highly intelligible conversational speech and Ferguson (2004) found that the size of the clear speech benefit was unrelated to talker age or experience when interacting with hearing impaired listeners. Finally, speaking style is also affected by the speaker's audience. For example, Liu et al. (2003) found a correlation between the clarity of mothers' speech measured by vowel space expansion, and infants' ability to make phonetic distinctions.

Listener-related factors

Like speaker-related factors, listener-related factors also include physiological, socio-cultural factors, and the cognition of the listener. With regards to listener-related factors, work by Ellis et al. (1999) suggests that a listener's sex provides a bias in the assessment of the intelligibility of speech.

Age and hearing impairments also affect the perception of speech signals. For example, de Souza and Turner (1994) found that groups of young and elderly listeners with hearing impairments both scored lower on speech recognition tasks, compared to their normal-hearing counterparts; as speech moved closer to babble, listeners had problems with speech recognition tasks. Nativeness of speech of the listener also affects the perception of speech. Bradlow and Bent (2002) found that while native listeners derived a substantial intelligibility benefit from clear speech, non-native listeners experienced only a small clear speech benefit.

Signal-related factors

There are a number of signal-related factors which affect the intelligibility of speech. If speech is processed in any way, then the signal or audio stream can be impacted by processing devices such as amplifiers and filters, and transmitter devices (any electronic device which produces sound waves) found in cell phones, hearing aids and public address system, for example. Ambient conditions also affect the speech signal; for example noise, reverberation or room acoustics all impact the intelligibility of speech. Many measures have been developed to assess or predict the intelligibility of speech which has been processed or occurs in ambient conditions. The signal-to-noise ratio (S/N) for example tells us the level of a desired signal to the level of background noise; A ratio higher than 1:1 indicates more signal than noise. Generally, speech intelligibility is degraded in noisy conditions, and even more so for non-native listeners; for example, van Wijngaarden et al. (2002) found that Dutch speakers listening to German and English speech required a 1-7dB better speech-to-noise ratio to obtain 50% sentence intelligibility than native listeners.

HOW IS SPEECH INTELLIGIBILITY EVALUATED?

Speech intelligibility has typically been evaluated using perceptual and fine-grained acoustic analysis methods. On the one hand, perceptual approaches are subjective measures which rely on raters (expert or non-expert) to judge the perceived intelligibility of an utterance. These tests ask the listener to make judgments about the talker's or utterance's intelligibility and then rate the talker or utterance as being more or less intelligible. For example in a speech-in-noise study – how intelligible speech is in ambient conditions - Caporalii and da Silva (2007) presented a series of sentences with varying levels of background noise and asked participants to rate the sentences they heard on the basis of the perceived intelligibility. Subjective methods such as these have given rise to a number of standardized scales which have been developed for the measurement of speech intelligibility. Some of these scales include the Dau measure, the glimpse proportion, the Speech Intelligibility Index (SII) and the Perceptual Evaluation of Speech Quality (PESQ).

On the other hand, fine-grained acoustic analysis is an objective approach to investigating the intelligibility of speech. There are distinct articulatory changes in the vocal organs (jaw, tongue and lips) which affect the intelligibility of speech and these articulatory movements can be matched by specific acoustic correlates; therefore, a number of acoustic correlates can be used to measure the intelligibility of speech. These include

speaking rate, mean fundamental frequency (F0), (perceived as pitch), fundamental frequency (F0) range, (perceived as intonation), mean speaking intensity (perceived as loudness) and vowel space or articulation. Bradlow et al. (1996) for example, investigated the intelligibility of normal speech and found a tendency for F0 scores to correlate positively with speech intelligibility scores, and Hazan and Markham (2004) found that talkers who are naturally more intelligible tend to produce expanded vowel spaces compared to less intelligible talkers.

Kent et al (1994) identified over 19 subjective and objective procedures which could be used to assess the intelligibility of subjects and utterances: these include phonetic contrast analysis, phonological process analysis, word identification tests, phonetic indices derived from continuous speech scoring, scaling of continuous speech, and traditional word-level analysis of continuous speech to name a few. There is much debate on the effectiveness of these procedures which goes beyond the scope of this paper, but Schiavetti (1992) provides a comprehensive review of the issues regarding the use of these methods of evaluating speech intelligibility.

WHAT DO TECHNICAL COMMUNICATORS NEED TO KNOW?

When usability specialists provide feedback on the design of an interface, they are equipped with a knowledgebase which allows them to make both subjective and objective judgments about the effectiveness of that interface. Such tools include knowledge of website design, user behaviors, usability methods, web development languages and the like. Similarly, there are some key theoretical and methodological components which make up the knowledgebase for anyone making assessments about the intelligibility of speech. At some level, many of the areas discussed below may already be known to technical communicators who may have some knowledge of linguistics; however, what may be new is how these skills allow us to make judgments about the intelligibility of speech and how it can inform speech interface design. As technical communicators we need to know: 1) how speech is produced and why it varies; 2) basic acoustic/phonetic measures and what they mean; 3) familiarity with the International Phonetic Alphabet; 4) knowledge of the phonological and syntactic rules of the language; 5) familiarity with speech analysis software and; 6) experimental research methods. Both a summary and a discussion of these concepts are given below.

What we need to know	Why we need to know it	Additional Readings	Online Resources
How speech is produced and why speech varies	Problems of speech intelligibility can often be traced to issues of speech production and speech variation.	Ladefoged (1996); Chambers et al. (2002)	
Basic phonetic/acoustic measures and what they mean	Phonetic/acoustic measures allow us to do fine-grained objective analysis of the speech signal.	Ladefoged (1996); Stevens (1998) Harrington & Cassidy (1999).	
Familiarity with the International Phonetic Alphabet (IPA)	The IPA provides us with an alphabet that represents the sounds of languages, not just the English Language.	Ladefoged (2006) Handbook of the International phonetic Association: A guide to the use of the International Phonetic Alphabet.	Online English/IPA Converter: http://project-modelino.com/english-phonetic-transcription-converter.php?site_language=english

What we need to know	Why we need to know it	Additional Readings	Online Resources
Phonological and syntactical rules of a language	Phonological and syntactical rules tell us what to expect when sounds and words are combined. When these rules are violated, the intelligibility of speech can be compromised.	Language files: Materials for an Introduction to language and linguistics. 8th Ed. Department of Linguistics. The Ohio State University.	
Literacy with speech analysis software	Speech analysis software allows us to extract acoustic measurements for objective analysis.		http://www.praat.com http://www.adobe.com/products/audition.html http://www.speech.kth.se/wavesurfer/
Knowledge of experimental research methods	Experimental methods allow us to test claims about causal relationships and to isolate variables in a scientific and rigorous manner.	Lam and Bauer (2009); Charney (1996); MacNealy (1992); Graham (2006)	Open source statistical package http://www.gnu.org/software/pspp/

Table 1: Summary of Speech Intelligibility Knowledgebase & Resources

HOW SPEECH IS PRODUCED AND WHY IT VARIES

How speech is produced

We can describe speech by how sound is produced. Very simply, we make audible sounds by pushing air out of the lungs. As air moves from the lungs and up the trachea or windpipe and into the larynx, the air passes through our vocal folds. If the vocal folds are apart, the air has a relatively free passage into the pharynx and the mouth. If there is only a narrow passage between the vocal folds, the air sets the vocal folds vibrating. The sounds we produce while the vocal folds are vibrating are said to be voiced, while the sounds produced while the vocal folds are apart are said to be voiceless. Once the air reaches our vocal tract, it is the articulators (tongue, teeth and lips) which further give sounds their uniqueness. With words like *thigh* and *thy* for example, the only difference in these words is voicing of the first consonant.

We can also describe speech based on what we hear. At a basic level, the acoustic quality of segments of speech sounds may differ on three dimensions: pitch, loudness, and quality (Ladefoged 1996). The quality of a sound helps us to further distinguish between phonemes (sounds), for example, the vowel sounds in *bad* and *bud* are considered to differ in quality.

Why speech varies

The production of speech varies for a number of reasons. Physiological, socio-cultural differences and emotional states influence speech production, for example, pitch is affected by physiological differences such as sex and height. Research shows that differences in the height between men and women – a factor that affects the length of the vocal folds (or chords) – in turn affects the pitch of the speaker (Johnson, 2006). Speech also varies because of socio-cultural differences. Schilling-Estes (2002) suggests that variation

between speakers involves change into and out of language varieties, which include dialects (features associated with different groups or speakers from a particular region), registers (features associated with particular situations of use, e.g., formal vs. informal speech), and genres (highly ritualized, routinized varieties, such as legalese).

Additionally, speech varies because of the emotional state of the speaker. Even without the benefit of acoustic analysis, research shows that it only requires sixty milliseconds of speech production for an emotion to be recognized by a listener (Murray and Arnott 1994).

Variations can also occur across segments of speech, measured by stress, intonation, speaking rate, and degree of preciseness of articulation. At the sentence and discourse level, speech may vary as a function of linguistic content based on factors such as word choices, context, and sentence construction.

BASIC PHONETIC/ACOUSTIC MEASURES AND WHAT THEY MEAN

The articulatory movements associated with speech production which were described in the previous section can be matched by specific acoustic correlates or measures. Here are a few basic acoustic measures that we can use to analyze the intelligibility of speech: 1) speaking rate, 2) mean fundamental frequency, 3) fundamental frequency range, 4) mean speaking intensity, and 5) vowel space.

Speaking Rate

Speaking rate is the speed at which speech is produced. It is usually measured by words per minute (WPM) or mean sentence duration. It has been shown that one can produce fast, yet intelligible speech (Bradlow et al 1996; Krause and Braida 1995). However, for dysarthric speakers, - persons who have difficulty with articulation - it has been shown that reduced rates of speech lead to better intelligibility scores (Hammen, Yorkston and Minifie 1994).

Mean Fundamental Frequency

Mean fundamental frequency (F0) is a measure of vocal fold vibration. Humans experience fundamental frequency as pitch, though pitch and fundamental frequency are not isomorphic (not similar in form). On the one hand, studies by Bond and Moore (1994) and Bradlow et al. (1994) have shown that there is no correlation between mean fundamental frequency and intelligibility of talkers; on the other hand, Picheny et al. (1986) found that clear speech held a slight bias towards higher fundamental frequencies vis-à-vis conversational speech.

Fundamental Frequency Range

Fundamental frequency range indicates the mean range of vocal fold vibrations in an utterance. Humans experience variations in fundamental frequency over the course of an utterance as intonation. The correlation between intelligibility and fundamental frequency range is yet to be shown. Bradlow et al. (1994) found that there was a significantly higher fundamental frequency range for female speakers than male speakers. Other studies (Tielen 1992) have shown female speakers to be more intelligible than male speakers, but these speakers did not display wider fundamental frequency ranges. It is therefore possible that wider fundamental frequency range is only one of the speech characteristics that contribute to the generally higher intelligibility of female speech relative to male speech (Bradlow et al 1994).

Mean Speaking Intensity

Mean speaking intensity is a measure of loudness. Humans experience sound pressure levels as degrees of loudness, though as with pitch and fundamental frequency, loudness and intensity are not isomorphic. Speech intensity is determined by both articulatory control of the lower (laryngeal) and upper vocal tract (tongue, jaw lips etc.), and airflow, which is controlled over the diaphragm and rib (or intercostal) muscles. Persons with dysarthria have been shown to produce more intelligible speech by increasing intensity (Tjaden and Wilding 2004), but for normal speakers, Barreto and Ortiz (2012) found no correlation between intensity and intelligibility.

Vowel Space

Vowel space is a measure of the degree to which different vowels are produced distinctly. Vowel space tells us about a speaker's articulation; a larger vowel space means that vowels are produced with greater acoustic distinctiveness. For example, Burnham et al. (2002) found that mothers have a larger vowel space when talking to babies as opposed to adults; this creates an effect of hyperarticulation which "helps [babies] divide up the speech stream into comprehensible units" (Baron, 1989). A smaller vowel space means that vowels are pronounced with lesser acoustic distinctiveness. Formants are particular frequencies which allow us to determine a speaker's vowel space. These formants are associated with the basic frequencies of air in the vocal tract and these frequency components distinguish speech sounds. The first two formant frequencies (F1 and F2) are sufficient to disambiguate a vowel. These two formants determine the quality of a vowel in terms of the high/low and front/back dimension. These dimensions over-simplistically refer to the position of the tongue in the formation of vowel sounds (see figure 1). For example, the 1st formant (F1) has a higher frequency for low vowels (such as [a] as in *hard*) compared to high vowels (such as [i] as in *heed*); additionally, the 2nd formant (F2) has a higher frequency for front vowels (such as [i] as in *heed*), compared to back vowels (such as [u] as in *who*). Torretta et al. (1995) found that overall intelligibility is reduced in talkers with reduced vowel spaces.

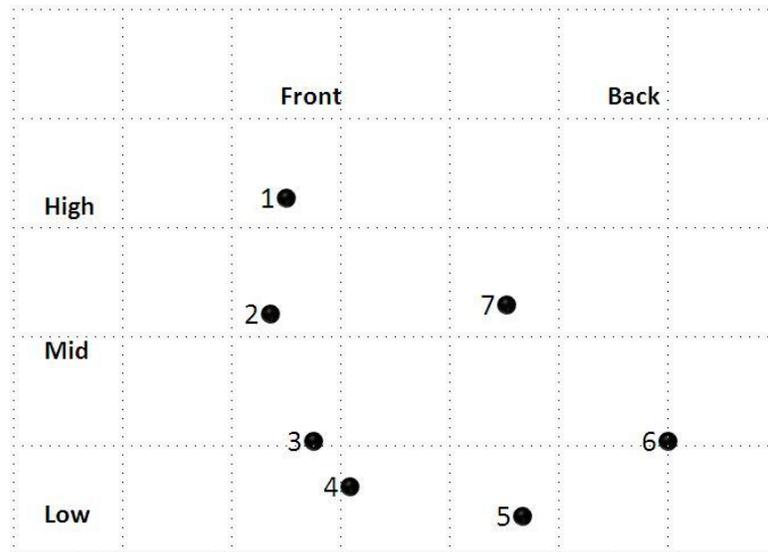


Figure 1: The relative positions of the highest points of the tongue in the vowels in 1 heed, 2 hid, 3 head, 4 had, 5 father, 6 good, 7 food.

Source: Ladefoged, P. (2006). *A course in phonetics*. 5th Ed.

Why do findings vary?

What has probably occurred to you is that many of the findings presented in this section vary widely with regards to the measures vis-à-vis speech intelligibility. One explanation for the variety of findings may be in the methodological diversity of these studies. For example, researchers have documented various ways in which they elicited speech samples (Smiljanic and Bradlow 2005; Wassink et al, 2006; Harnsberger et al. 2008); studies have varied widely on the population size, ranging from one to forty-one speakers and two to sixty listeners (Ferguson and Kewley-Port 2002; Ferguson 2004; Payton et al. 1994; Schum 1996). Intelligibility studies have conducted tests in varying conditions which included quiet conditions, reverberation, wide-band noise, multi talker babble and various signal-to-noise ratios. (Krause 2001; Ferguson and Kewley-Port 2002; Bradlow and Bent 2002). Researchers have tested various materials like meaningful sentences

(Bradlow and Bent 2002; Ferguson and Kewley-Port 2002; Bradlow et al. 2003 and Bradlow and Alexander, 2007); nonsense sentences (Krause 2001; Krause and Braida, 2002, Smiljanic and Bradlow 2005); syllables and vowels (Ferguson and Kewley-Port 2002; Gagne et al. 2001), and some older studies have looked at words (Gagne et al 1994; Uchanski et al. 1996). It is important to keep these methodological differences in mind as we think about applying these findings to speech interface design.

FAMILIARITY WITH INTERNATIONAL PHONETIC ALPHABET

Quite often the spelling of a word does not represent the speech sounds that we hear, and in particular, the English system of spelling is not a good phonetic alphabet for a number of reasons: 1) sometimes the same sound is spelled using different letters, such as the [i] sound in *sea, see, scene*; 2) sometimes the same letters can stand for different sounds, such as the letter “s” in *sign* and *pleasure* or the letters “ch” in *charter* and *character*; 3) sometimes a single sound is spelled by a combination of letters, as in *lock, that, book, shop*; and sometimes a single letter represents more than one sound, as in *exit* or *use*; and 4) sometimes letters stand for no sound at all as in *know, doubt, island* or *moose*. To address these challenges, the International Phonetic Alphabet (IPA) was created by linguists who recognized the need to have all the recognizable speech sounds in language represented in a standardized alphabet system. For example, the IPA has 107 letters compared to the 24 letters of the English alphabet.

Acero (1995) outlines a number of contributions that phoneticians can make to a speech technology team. Some of the contributions include: development of a system’s phonemic alphabet, developing a dictionary for a system, mapping between the dictionary and the phonemic alphabet and creating phonetically balanced sentences. All of these tasks require a sound knowledge and application of the IPA.

PHONOLOGICAL AND SYNTACTIC RULES OF A LANGUAGE

The phonetic rules of a language tell us how sounds are combined to form words and sentences. Knowledge of these phonological rules allows a speaker to translate sounds into speech. An example of a process which occurs in English is the weakening of sounds. For example, it is commonplace to hear the weakening of the [r] when it appears in the final-consonant position, like *writer* or *rider*, and in some varieties of British English the sound is deleted altogether. Processes such as deletion, weakening, insertion and others must be taken into account in the judgment of the intelligibility of speech sounds.

Syntactic rules of a language provide insight into how a language is structured. In effect, they are the architecture of a language and violating these rules can often lead to ambiguity in the speech perception process. For example, consider the sentence “we painted the wall with cracks”, while grammatically correct, it provides readers with perception problems because of syntactic ambiguity.

Familiarity with both phonological and syntactic rules of a language allow technical communicators to make contributions to the design of a number of types of speech interfaces which can include isolated word recognizers (IWRs), which require the users to speak words in isolation so that word boundaries can be detected (e.g. computer-aided language learning software), connected speech recognizers (CSRs), which attempt to recognize every word in the input string (e.g. airline reservation systems), and speech understanding systems (SUSs) which attempt to process natural language for the understanding of the intent of the speech rather than the individual spoken words.

FAMILIARITY WITH SPEECH ANALYSIS SOFTWARE

There are software packages available which allow you to extract basic acoustic measures. The acoustic measures discussed in the previous section can be extracted using PRAAT or other speech analysis packages. Table 1 above provides a list of some speech analysis software available online.

FAMILIARITY WITH SCIENTIFIC RESEARCH METHODS

Scientific research methods uncover a different story about phenomena than humanistic research methods, and while it is not typically a skill we may possess as technical communicators, experimental research has its place in technical communication research (Charney 1996; MacNealy 1992; Graham 2006). Experimental research design has been lauded by Lam and Bauer (2009) as making two important contributions to communication research: first, experimental designs allow researchers to test claims about causal relationships and second, it allows for the isolation of variables in a scientific and rigorous manner. Experimental design is a key methodological approach for existing speech intelligibility studies.

CONCLUSION

There is no shortage of research being conducted on speech intelligibility, so why suggest a role for technical communicators in what seems to be such a saturated research area? Here are a couple of things to consider:

1. More and more, technical communicators are working in companies where speech technology products are being developed. Phoneticians are often hired for the initial work on the development of these systems, but technical communicators often oversee the testing and rollout of these products.
2. Technical communicators are trained to see the big picture because of their multi-disciplinary skills, not least of which is a deep understanding of how users adapt and interact with new technologies and how to uncover user thinking and behavior with technologies.
3. Research in speech intelligibility could benefit from both scientific and humanistic research. One characteristic of scientific methods is that to understand a problem completely, questions are often very specific, for example: are unpredictable sentences intelligible in noisy environments? As a result, scientific research runs the risk of creating a number of disparate findings about a subject matter. The technical communicator can make sense of these disparate pieces by helping to design a system which applies and tests these findings in a real world context.
4. Technical communicators are information designers and familiar with principles that can be applied across a variety of media. While technical communicators have typically been instrumental in the design of text/visual information as illustrated in the introduction, principles of information design can be applied to speech interface design. For example, based on the information presented in this paper, we can see how principles such as providing structure and clarity and facilitating user perception and processing (Pettersson 2010) all have analogous application in speech interface design.

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TRANSLATION TECHNOLOGY: MT, TM, AND TRANSLATION REUSE

Lisa Pietrangeli

This presentation will explore the differences between Machine Translation (MT), Translation Memory (TM), and Tech Comm industry tools that effectively support Translation Reuse. We'll discuss how these tools work, how translation companies use them, how translators use them, and how they impact the quality, cost, and timing of your translation projects. Through case studies and examples, you will also learn how to assess which types of content reuse and development tools will best support your translation efforts.

Most organizations who are translating content are working with a Language Services Provider (LSP) or with a team of professional translators – externally or in house. Do you know which tools your translation provider is working with to help make your translations consistent, optimize translation reuse, and ensure that you are receiving the highest quality possible? Perhaps not. Or, if you do, perhaps you aren't sure what your options are or how translators work with them.

Often, technical writing teams are put in charge of handling localization efforts including working with external resources (Project Managers and/or translators) to coordinate the localization project. In other words, the responsibility falls into someone's lap who may or may not have been anticipating such a task. Whether your organization consistently works with a reliable LSP or tends to work with a variety of resources, it's important to know how to get the most out of your translation budget and ensure that you are getting the quality and consistency that your company relies on to achieve global success.

My presentation on this topic will include an in-depth look at the following topics.

TOOLS OF THE TRADE

Much like the tech comm industry, the translation industry is hugely driven by technology, yet is dependent on individual professionals. Although many tools exist that allow translators to work faster, access previously translated content for consistency, and work with a variety of resources and applications, the industry as a whole still relies on human translators to ensure overall quality. Of course, the technology is moving more and more toward eliminating the need for as much human involvement - and for good reason. Translation takes a long time. It's expensive. And one person can only do so much in one day. So, with better tools, individual translators can work faster and provide more consistent translations from project to project.

But, these tools come with a price – both literally and figuratively.

MACHINE TRANSLATION (MT)

Machine Translation (MT), statistical, semantic, or otherwise, can sometimes be a good starting point for translation. However, for most specialized industries, running content through MT is not going to output a final product. For accuracy of information, grammar, and overall tone and structure, post-editing by a professional translator is still necessary. Properly addressing localization is also critical and requires special attention depending on the specific target audience.

How much or how little post-editing is required depends largely on the tool being used and what type of content is incorporated in it. Some important things to know before choosing an MT solution are: How specialized is the content within the MT? By what criteria is the best translation determined? What is the source of the content? All of these factors will influence what effort for finalization is required once your content passes through MT.

TRANSLATION MEMORY (TM)

Translation Memory (TM) functions as a storage unit of previously translated content which your LSP maintains for use on future projects. TM stores translations on a per segment (often segment = sentence) level. TM relies on matching source content used in previous projects to source content used in new projects. For example, if your company sends a manual to your LSP for translation, the LSP will run a compare operation of your new manual's content against your company's TM in order to determine which segments have a match and therefore a corresponding translation, and which segments do not show a match in the TM. Pricing will vary depending on if a matching translation requires review only or if a new segment requires translation from scratch. There are also varying degrees of "fuzzy matches" which are typically charged on a per word basis depending on how close the match is to the original.

So you can see, the cost and timing required to complete your translation relies heavily on the consistency of your writing. Are you incorporating best practices in content reuse? Are you working in a topic-based authoring environment? Do you use a content management system? Do you have a knowledge base which includes glossaries, terminology lists, and other standards of writing and style? If not, you are likely paying a lot more for translation from project to project – both in money and time. What's more, your content will be less consistent. It's important to include translation in your organization's content development strategy and process. True reuse includes content reuse as well as translation reuse. TM is not true translation reuse in that it still requires review from a translator and, therefore, there is a cost associated with it.

TRANSLATION REUSE

Translation reuse on the component level is where organizations can optimize reuse and drastically reduce the time and cost required to translate content. This begins with writing methods and authoring applications and escalates to full content management systems that are designed to support translation reuse as well as [source] content reuse. You want to be able to confidently reuse a chunk (snippet, topic, chapter, section, etc.) of content that has already been translated, reviewed, and approved from project to project. Working with a process and tools that support this effort will yield significant ROI and improve overall quality and consistency of your company's translated content.

TRADE SECRETS

You know that pretty, perfectly formatted, accurate, graphically precise document you sent out for translation? Translators don't translate those. Meaning, when they receive the content for translation, in most cases, your document has been transformed into some other format which isolates the text that needs to be translated. All formatting, design elements, graphics, and any other contextual references have been removed. Likely the translator has been provided with a PDF of your original masterpiece but they typically do not work in your same environment.

If you are a writer working in an XML authoring environment, the translators are working with your content after it has been transformed to a TM-friendly format. If you work in MS Word or unstructured FrameMaker, likely your document has also been converted to the TM's proprietary format so that the translator can take advantage of previously translation content, although some can work with Word directly.

The reason this is important to note is that efforts made during content development to ensure consistency in word choice, styles, terminology, etc. will greatly improve the results you can expect during translation, regardless of the type of technology applied to your projects. Translators need to know what you know in order to provide an accurate, contextually appropriate rendition of your source document in their target languages. Creating a knowledge base of information that accompanies your documents and which can be incorporated into the technology that the translators use are critical elements for success.

FROM A PROCESS PERSPECTIVE

As we all know, localization often happens after content has been written, reviewed, edited, and approved. This often leaves little time to properly prepare content for translation if preparation wasn't anticipated along the way. So, it's important to author with translation in mind.

Not only do writers' choices impact how translators can work with content but they also greatly impact the cost and timing of localization. Optimizing translation reuse relies heavily on a writer's consistency during authoring. What's more, internationalizing templates and design elements can greatly reduce the time and cost to format localized documents. Writers can single-handedly save their company thousands of dollars in translation costs by making good choices. Add the right tool(s) to support the effort and your organization will truly see the benefits of real translation reuse.

SELECTING A LANGUAGE SERVICES PROVIDER

Translation is not a commodity. Although translation tends to be priced on a per word basis, resist the urge to compare per word pricing outside of the context of the services that an LSP provides. Quality, consistency, and accuracy are critical to your organization's success on the international market. Higher or lower per word rates are not measures of translation quality.

So, how do you know that the translation vendor's process and technology support your organization's goals and content? These are some criteria that the LSP you select should have:

- Knowledge about all types of tools that are available in order to apply the most appropriate to your translation requirements. They should be open with you about how those tools are applied to your translations as well as all steps and costs associated with the process.
- Extensive experience working with your organization's subject matter and content type. Translators should specialize in your company's specific field (life sciences/healthcare, manufacturing, software, etc.) and also in the format that your content will be used in (online help, training manuals, installation and maintenance manuals, website content, software UA, etc.).
- A proven translator qualification process. Whether certified in a specific standard (ISO, EN 15308, DIN, etc.) or utilizing other processes and methods to ensure quality, talk with the LSP to learn how they ensure translation quality and the qualifications of their translation network.
- Translation providers should be equipped to suggest and train teams to use good content development methods, tools, and preparatory measures to make the translation process smoother and easier. LSPs may provide this type of consulting or have a network of consultants who can. Writing with localization in mind is critical to higher quality translations and to saving time and money.
- Knowledge about how best to optimize both content and translation reuse, even if it means that your organization is paying less for translations from project to project. Why should they do this? Because, most organizations have more translation needs than their budget can cover. Any good LSP should want their clients to be able to do more with the same translation budget.

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Lisa Pietrangeli is a Managing Partner and Director of Client Solutions at ThirtySix Software. At ThirtySix, Lisa specializes in working with clients to develop customized content development strategies. Lisa brings over 11 years of experience to ThirtySix Software, having worked extensively with companies around the world, helping them to streamline their content development and localization processes.

Before joining ThirtySix Software, Lisa was Director of Global Client Solutions at Language Intelligence, where she worked with clients to develop internationalization strategies for all stages of the content development process, from authoring through to translation. Her extensive experience at Language Intelligence covers everything from project management, resource selection and management, to business development, localization consulting and managing the localization PM staff. Her experience, combined with her analytical skills, make Lisa an ideal partner with whom to evaluate content development processes and tailor solutions for organizations of all types and sizes.

In addition to her unique professional experiences, Lisa holds degrees in Art History, Spanish, Italian, and American Sign Language. Lisa has also spent time living and studying in Italy.

CONTENT STRATEGY: GOOGLE ANALYTICS & WRITING FOR THE WEB

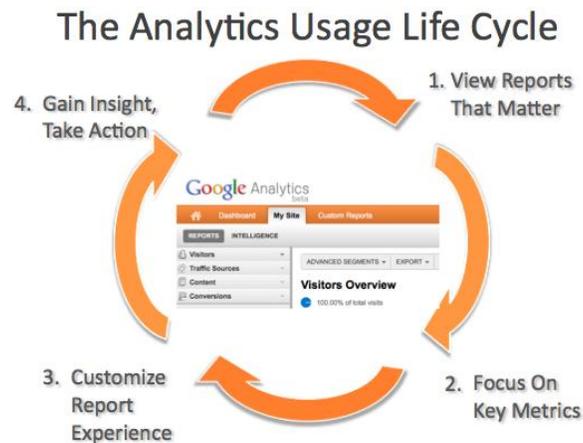
Patricia Boswell

Google Analytics (www.google.com/analytics) is a great tool to help you learn about usage patterns to your online documentation. This paper introduces some new and different Google Analytics techniques for writers, along with other kinds of content strategies to help clarify the “Analytics story” for your docs. It also discusses SEO writing techniques to improve search results and click-throughs for your online help.

INTRODUCTION

Last year I introduced Google Analytics, which works by means of a small snippet of JavaScript code included in your online content and activated when a visitor views a page on your website. The resulting Analytics reports describe where your visitors come from, how they reach your site, which pages they visit most and for how long, and more.

If you write content for online help systems, it’s good to understand those reports in Analytics that provide insight into the publishing world. To begin with, simply installing Analytics and viewing it for your content is a great first start. Remember this simple “life cycle” approach:



At the end of the day, you want your efforts with Analytics to provide you with important insights. For that reason, it’s best to use Google Analytics as part of a holistic content strategy so that you have a clear “Analytics story” about your unique documentation set. This paper discusses a simple content strategy that can help put Analytics usage into proper perspective. It also describes some common sense writing techniques that just happen to improve the SEO footprint for online help.

YOUR CONTENT STRATEGY

Before I jump into some of the new features available in Analytics, it’s important first to step back and consider your overall approach to content analysis.

SPELL OUT YOUR GOALS

As a writer, you realize that an initial step in good documentation is to know the goal and basic description of the documents you write. Did you also realize that this can also serve as a first step in defining your content analysis strategy?

Often your approach as a writer is to first define the various categories of content that you know are required for a project, such as a table of contents, a quick start guide, and how-tos. In most cases, you also know the general scope of the document, and the category itself speaks for the goal of the document. But what if you had to spell out the goal and provide a high-level description as part of your doc plan? What would you say about each one?

Let's illustrate with one obvious type of help content that we all have to create: a **Table of Contents**. Would you write the goal for this page as: *By the time you read this document, you will be able to...*? Naturally not, because you don't expect your reader to read the entire doc, but rather to scan and quickly get to another doc they need. You might, however, consider that this part of your documentation set is a crucial one. In fact, most documentation sets have a table of contents.

Right there, you've indicated three key quantitative goals for that type of content: time, usage level, and connection to other documents. Certainly you can't know your readers' intent when they read the TOC, but you do know your intent when you create it, and that's a fine place to start.

With just this simple statement, you are on your way to an Analytics strategy, because you have started with an expectation that a) the table of contents should be used by a large part of your audience, b) your readers shouldn't have to spend a relatively long time on that page to find what they want, and c) your readers will click from your table of contents to another page on your site. These expectations translate into explicit goals that you can measure in Analytics.

Let's contrast this example with a sample goal/description for a how-to guide: This document instructs the reader how to share a Google document in 5 steps. Sharing Google docs is a fundamental feature of the tool.

Applying the same analysis as with the table of contents, you can surmise that since the feature is pretty important, it should be a popular document relative to others. Also, since the instructions are only 5 steps, the time required to read it will likely be longer than "scanning" a table of contents, but shorter than reading a more in-depth article. You might anticipate that readers will "flip" between the steps and the actual task. Finally, since the document addresses a specific task, you might expect that the reader will end their time on your docs with completion of the task. Since the how-to guide is quite different than a table of contents, it's naturally going to have a different set of goals, and with it a different metrics/usage pattern.

Having explicit goals and descriptions for each of your key doc types can help you approach Analytics from a more empowered perspective.

BE AS QUALITATIVE AS YOU CAN

In an ideal world, we'd Vulcan mind-meld with our readers and write and organize the content that is best suited to the major of our readers' needs and workflows. Since that's not going to happen (nor does it look like the holodeck is coming any time soon), you need to be on the lookout for any qualitative information that you can use to help supplement the quantitative metrics you get from Analytics.

For example, suppose you write a short how-to for a critical product feature, and you see very low pageviews for that document compared to similar how-tos. Sometimes just asking a co-worker or reaching out to a single customer can reveal something important, such as that the how-to didn't appear in the table of contents, or that the new UI redesign made the feature intuitive to use, so they never needed to read the document. In this case, your understanding of the low pageviews is augmented by qualitative information. From there you can address the situation further, such as adding the document back to the table of contents and monitoring the pageviews to ensure they go up to expected levels.

Of course, it's also important for you to survey your users, and if possible attend focus groups or usability studies so you can learn how your readers interact with the product. Even reading user experience reports or talking with product representatives about customers' needs and workflow can provide you with qualitative information that will help you understand patterns you see in Analytics. Surveys and usability results are a topic unto themselves, but truly something that should be part of your overall content analysis approach. Fit in qualitative assessment however you can, even if informally.

FOCUS ON TRENDS AND PATTERNS

The last important part of good content analysis is to focus on trends and patterns, not on exact numbers or on single "report peeks" or spot checks. For the first part of your Analytics usage, take notes about general trends for each of your documentation types, or tinker with the dashboard to create views of metrics that you find most interesting, or export weekly reports for a few weeks to see what happens. Any one of these activities is a great way to begin looking for behavior trends in your online documentation.

From there, you will start to glean a pattern or a kind of "footprint" that will be specific to your content and product. It's important to first observe and become familiar with trends to your site before you react, and realize that these trends are specific to your users needs and to the type of content you provide. For example, if you are writing scientific articles for the bio-pharmaceutical industry, you might see high bounce rates for a lot of your pages, because the readers are also doing lab work at the same time they refer to the articles, so their session times out. By contrast, a high-bounce rate in a certain section of your docs might indicate that the topic is useful only to a small subset of users (for example, using a mobile browser for Google docs).

ANALYTICS FOR WRITERS

If you've already used the Audience, Traffic Sources and Content reports, and you're familiar with the basic Analytics metrics, there is still more to learn. This section covers a few additional techniques and new Analytics features that are great for publishers.

AUDIENCE DEMOGRAPHICS & BEHAVIOR

The Audience overview report can help you get an overarching trend for user activity to your site. It's not designed to tell you details about which pages on your site are the most popular, but it's perfect for seeing aggregated activity metrics for your entire site, such as the average duration of a visit, pages/visit and overall pageviews.

It's also important to realize that this report is the only one that'll give you the actual number of unique visitors to your site—all the other reports focus on *visits*. To help clarify, a single visitor can have multiple visits (or sessions) on your site. For this reason, you will always see more visits to your site than you will visitors.

One feature only available in the Audience overview report is the Hourly graph. To use this effectively, set the date range to a few days or a week (depending on your level of traffic) and hover your mouse over the graph to see the time of day when traffic spikes to your website. Now pair that with a new feature: a second metric on the graph. You can compare visits with unique visitors on the graph to see if some days show more repeat visits than others.

I also want to repeat my plug for the Engagement report. It's really great because you can see where the most pageviews for your site fall along an axis of visit duration. So for example you can learn that 50% of pageviews to your site are driven by 27% of visits, and these visits last between 3 and 10 minutes (data from an actual Google Help Center). So with this you know that even your most engaged users—the ones who view the most pages—spend at most 10 minutes per visit.

TECHNOLOGY

The standard Browser & OS report in Analytics is still helpful for knowing when to use the new Flash-based system for your users, but the mobile reports also help you get a bead on how much readership to your docs comes from mobile and tablet browsers. This is invaluable when considering formatting enhancements and content length for very different display environments. If you want to get a detailed breakdown of mobile visitors to a specific page or pages, choose Operating System as a secondary dimension in the Content Pages report.

VISITOR FLOW

Visitors Flow is one of the most exciting new features in Analytics for content producers. It shows traffic as it flows into your site and disperses through various pages. It's a great way to understand where you readers land and which pages are typical sequences in their path.

Start this report by choosing a type of traffic at the top of the report. You can analyze the flow for All Visits, just returning visits, visits from search and more. For example, while the majority of visits start on the home page of your site, you can see if returning visits have a different starting page distribution from new visits. From there, you can break down the visit flow by various geographic designations, operating system, traffic source, and other dimensions. To get more meaningful information for your content, you can set match criteria on the dimensions. For instance, choose source as a dimension, and then set it to match only sources that come from organic searches. Once you dial in your flow criteria, you can mouse over the connector lines to get the number of visits between pages based on the selected dimension.

SOCIAL

If you have set up your site or pages with a Facebook Like or share, or a Google + button, you can use Analytics to get high level feedback on your pages, and see which pages are being shared amongst your readers. Google + is automatically tracked in Analytics, so if you've set up the Google + button on your site, information to your Analytics account is automatically supplied. To make sure that Facebook actions are tracked, you can work with your web developer to set up social analytics tracking. There's a great guide available on the Analytics developer website.

Even if you don't have any social buttons on your pages, you can still use social media to promote and share your content, and see how it plays out in the Social reports under the Traffic Sources section. These reports show the percentage of visits to your site from various social channels like Blogger, Google Groups, Stack overflow, Facebook, WordPress and more. If you want to see which channels contribute to specific pages, look at the Social Visitors Flow reports. Or look at the Social Pages report to see which pages are shared the most and through which network.

WRITING FOR ONLINE HELP

The Online Help team at Google has used Google Webmaster tools, Analytics, and other analysis techniques to come up with a set of recommendations for content writers to follow. The instructions make common sense to anyone with significant technical writing experience, but it's interesting to see a list of recommendations created from analyzing user search patterns and click-through rates based on writing criteria.

You can apply these techniques regardless of whether you have set up SEO for your site using Webmaster Tools, but doing so does help.

CLEAR, CONCISE TITLES

This might seem obvious, but the following tips will help you create titles that work best in search engine results and have been shown to improve visitors' click-through to the actual article.

Test your titles. Use the built-in Google site search features to see how your titles look in search results. To do this, just type *site:your-help-center-url* in the Google search box. If you publish to multiple languages, you can restrict the search criteria to only display English if your URL parameters show the language code. For example, this search shows all the Help Center articles for Webmaster Help in English only:
site:support.google.com/analytics/ + "?hl=en"

See what your users query. To do this, you can use the queries reports in Webmaster Tools, or you can use the Organic search reports in Analytics. These are the keywords you should favor in your titles, if possible. For example, if you use "off-line" and users mostly query with "offline," it's better to use that style in your titles.

Use all 60 characters. Search engines will show a maximum of 60 characters in the title, but you also want to have meaningfully descriptive titles. For example *Use My Location to get directions – Maps Help* is good, but *My Location – Maps Help* is not descriptive enough.

Use unique titles for each page. For example, if you have essentially the same content, with minor alterations based on type of devices, it's better to delineate this in the title. Example: *Reply all to messages on Nexus S* is better than *Reply all to messages*.

THE FIRST 200 CHARACTERS MATTER

The Google search crawler uses the first 200 characters of your article as the Meta content, so this part is particularly important to increase click through and findability of your content on the web. Because of this, it can help to have the first part of your article be as descriptive of the overall content as possible. In addition, because not all users search with the exact same terms, use words in the body that are synonyms to works in the title. For example, you might use *Reset password* for your title and use *Change password* in the body.

DESCRIPTIVE ANCHOR TEXT

It's better to follow conventional technical writing practices when referring to other parts of your documentation with a link. This happens to not only make it clearer for your users reading your articles, but results in better anchor text optimization in search engine results.

For example, instead of writing something like, *You can read more about installing Windows 7 by [clicking here](#)*, where [here](#) links to an article on installation Windows 7, it is better to write *You can read more about installing Windows 7 in the [Getting Started with Windows 7](#) article*, where you provide the specific title of the article in your linked text. Doing this ensures the crawler designates the link in the page as about the actual article rather than about "clicking here."

ALT TAGS FOR SCREENSHOTS

Adding alt-tags to your screenshots not only helps the search engine pick up the image, it also aids image search, which can also drive traffic to your online content. Alt tags also make it possible for disabled users to grasp the content of the image via screen readers. If you use a typical authoring tool like Flare, be sure to supply alternative text when prompted to.

CONCLUSION

To become a power user of Analytics, don't start with Analytics! Instead, start first with a content strategy build from your own content expertise, pair it up with SEO writing techniques, and add in a good measure of qualitative assessment. From there you can assess your expectations and goals and continually refine your content strategy to better target your readers' needs.

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ENABLING PROGRESSIVE INFORMATION DISCLOSURE WITH THE “STAGES OF USE” MODEL

Andrea L. Ames

Progressive disclosure is an interaction design technique that reveals more complex interactions only when users need them. Applying this technique to information design enables information architects, designers, and developers to provide just the information that users need, just when and where they need it. The tricks, however, are (1) writing content for an underlying product (or solution or process or service) that is well designed, (2) knowing enough about users to know what you can hide and what needs to remain visible, and (3) knowing what information to provide and how to deliver it in each successive layer of disclosed content to accommodate users' changes from novice through expert during the use of the product. Understanding the general Stages of Use model and how to apply that model to select information for progressive disclosure can help you with the second and third “tricks.” Getting a well-designed product is the holy grail of user experience design and, while critical to the success of progressive information disclosure, is not addressed in this paper.

PROGRESSIVE DISCLOSURE IN INTERACTION DESIGN

Progressive disclosure (PD) is not a new idea; it's an interaction design technique that's been around for a decade or longer. You can find online references to it from at least as early as 2000 [1], possibly earlier, if you're very diligent. Many technical communicators were using the technique, as demonstrated in Figure 1 [2], to design good, task-oriented, online help in the 1990s—even if we weren't calling it “progressive disclosure”—and I was teaching it to my information architecture students (along with the concept of “stages of use”) at that time, as well. My earliest remembrance, however, is studying that same concept of incrementally revealing more and more information, although I was also not calling it “progressive disclosure,” during my Master's degree studies in the late 1980s, which would give the concept an age of at least 25 years.

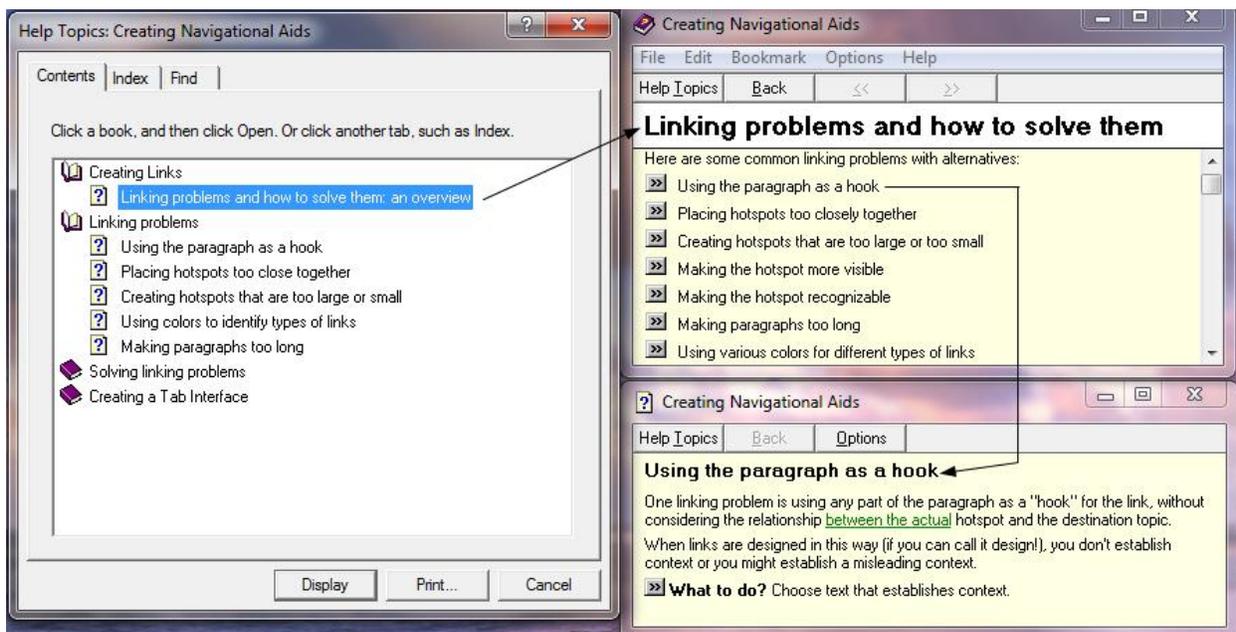


Figure 1: Ye Olde Time “progressive disclosure” in online help, circa 1996—incrementally revealing more information in a task-oriented, online help system

When you apply the technique to interaction design, you show users only a few of the most important and standard options at any given time in the user interface (UI) [3]. You make available a larger set of more specialized options only if a user specifically requests them through a UI gesture. This enables most users to proceed with standard tasks without being concerned about the added complexity of the specialized options. Given that PD advocates “hiding” complexity, well-designed interaction strikes a careful balance between PD and visibility, a usability principle stating that “the usability of a system is improved when its status and methods of use are clearly visible” [4]. The prerequisite to well-designed progressive disclosure, of course, is that the designer knows enough about the user to know which options are “standard” and which are “specialized,” as well as what is okay to “hide.”

Figures 2-4 demonstrate progressive disclosure in the Microsoft® PowerPoint® user interface. The **Fill Color** tool is a good example of PD. If the appropriate color is displayed in the toolbar icon, the user need only click the tool to apply the color to the selected object; this could be considered the first “level” of progressive disclosure for this tool. If she wishes to choose another color, she can click the arrow for “level 2”: A drop-down menu of colors that are a standard part of the current template’s palette and recently used colors (Figure 2). If the standard or recently used colors do not provide what she needs, she can click **More Fill Colors...** for “level 3”: A PowerPoint-wide palette of standard colors beyond her template (Figure 3). If that is still not enough choices, she can click the Custom tab for “level 4”: The custom color picker, a control that will allow her to select any color that is possible using her computer (Figure 4).

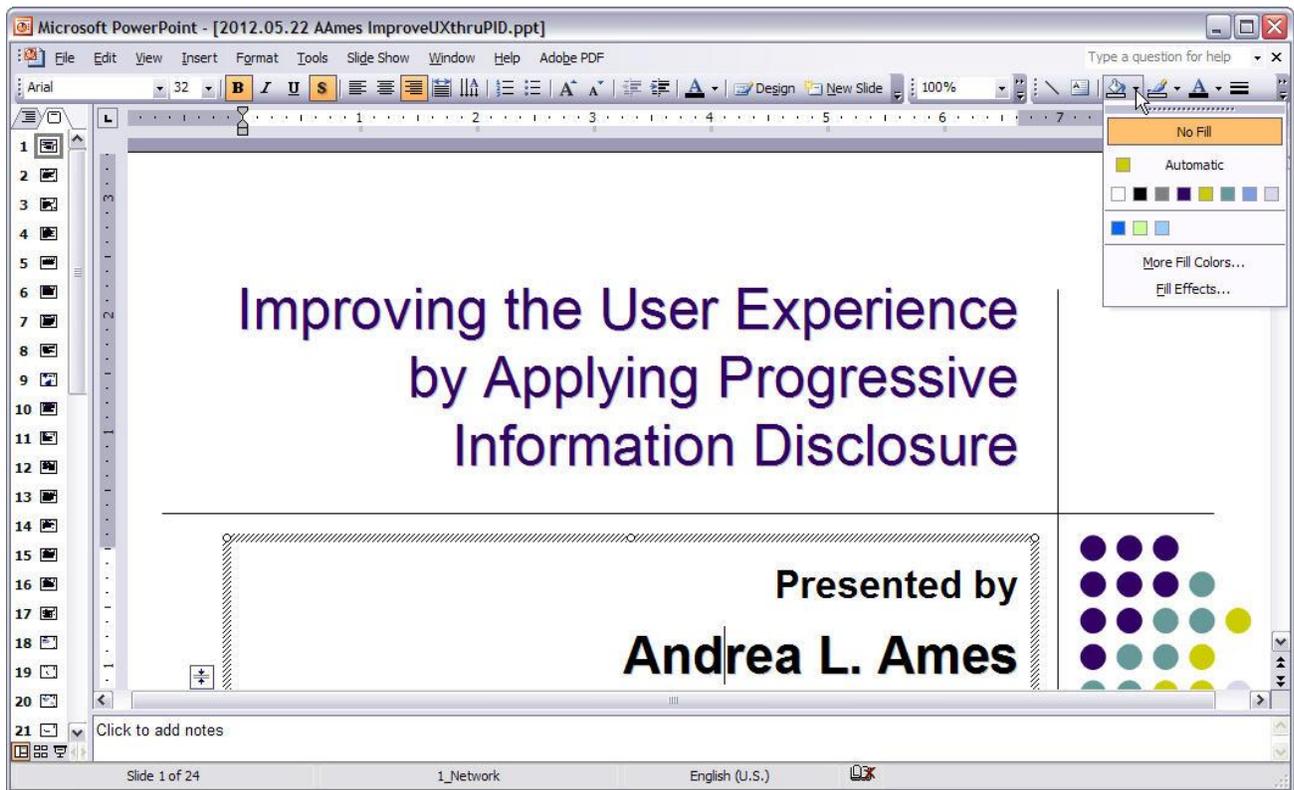


Figure 2: The PowerPoint Fill Color tool displaying standard colors from the current template’s palette and recently used colors.

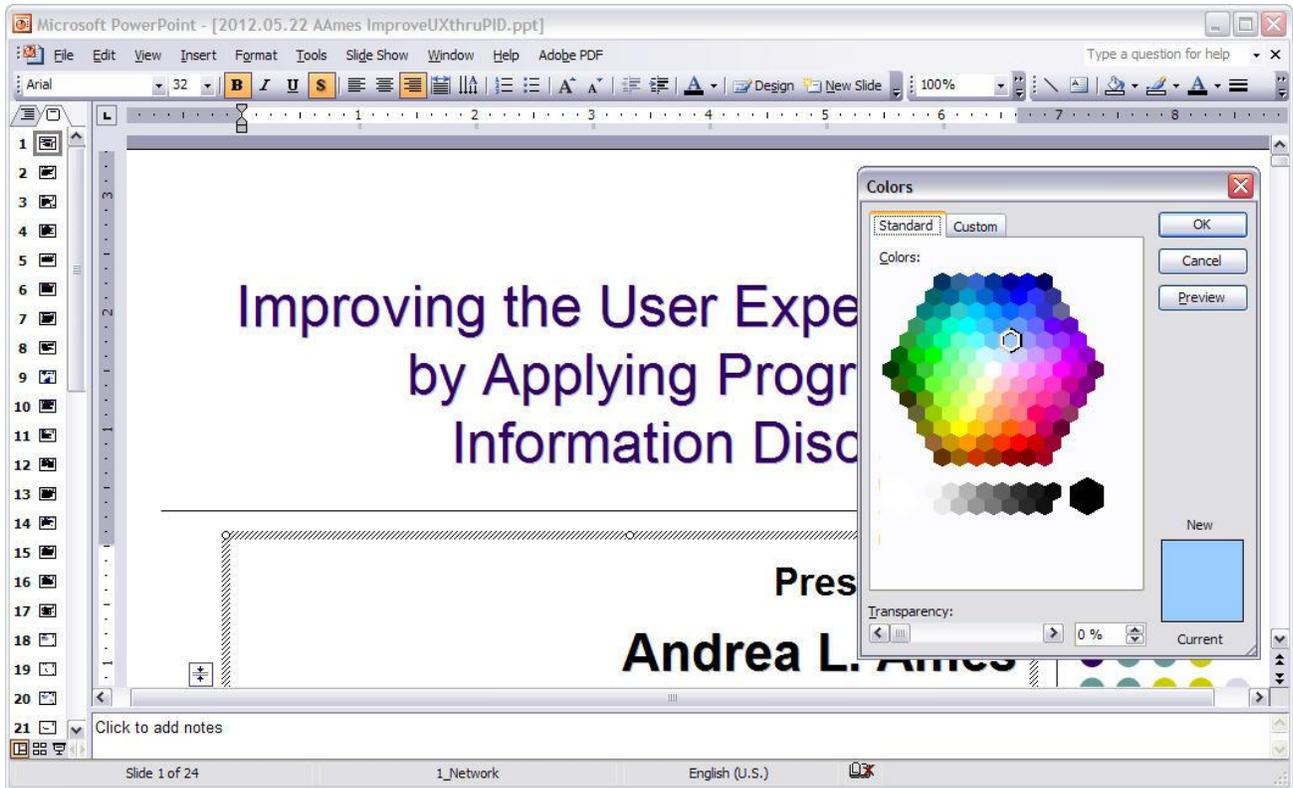


Figure 3: The Fill Color tool displaying all of the Powerpoint standard colors.

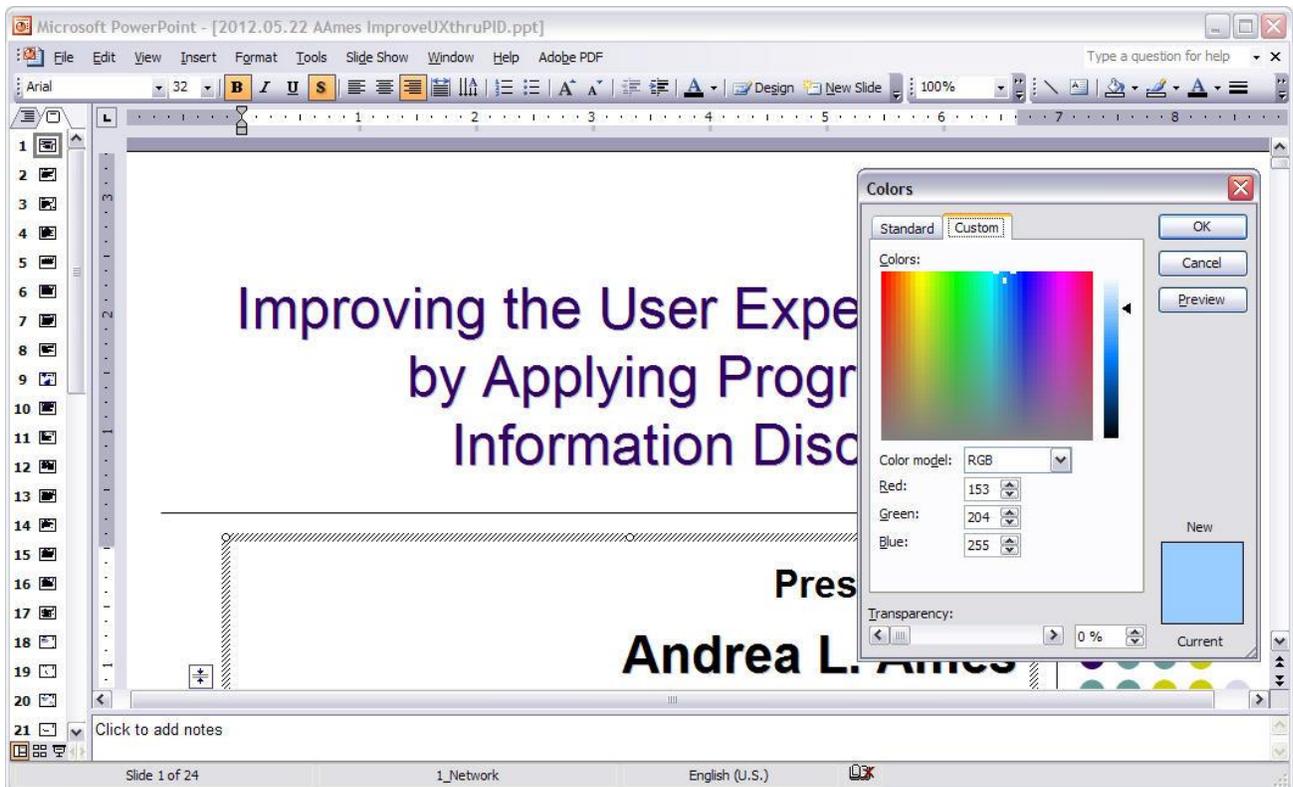


Figure 4: The PowerPoint Fill Color tool displaying the customer color picker.

PROGRESSIVE INFORMATION DISCLOSURE

Progressive *information* disclosure applies the interaction design technique to the design of the information experience, and it enables you (the author or architect) to provide the right information in the right place at the right time. Applying PD to information reveals information in an ordered manner, providing only the details that are necessary at a given time and in a specific context. As my former IBM information architecture colleague, Jennifer Fell, once said, “It should be a guided journey, not a scavenger hunt!” Each layer builds on the previous one in a flow that does not repeat information from one level or layer to another but progressively discloses more information to provide additional assistance, supporting content, etc., when it is truly necessary—not just to provide information for the sake of providing information.

Some might argue that technical communicators do not create information “just for the sake of providing information.” Perhaps not with that conscious intention, however, it does happen. Often this is the result of “consistency”—consistency that creates unnecessary text and doesn’t help users, for example, creating hover help content for every UI control or creating a help topic for every UI screen, regardless of whether that hover content or those help topics are all necessary. Figure 5 illustrates unnecessary help—redacted to maintain the product’s anonymity—likely written because “everything needs help.” In this case, I deem the help “unnecessary,” because it adds bulk without providing any additional, useful, helpful assistance for the user—not only through unnecessary text, but also in the unnecessary screen capture within the help topic that duplicates the screen from which I launched the help.

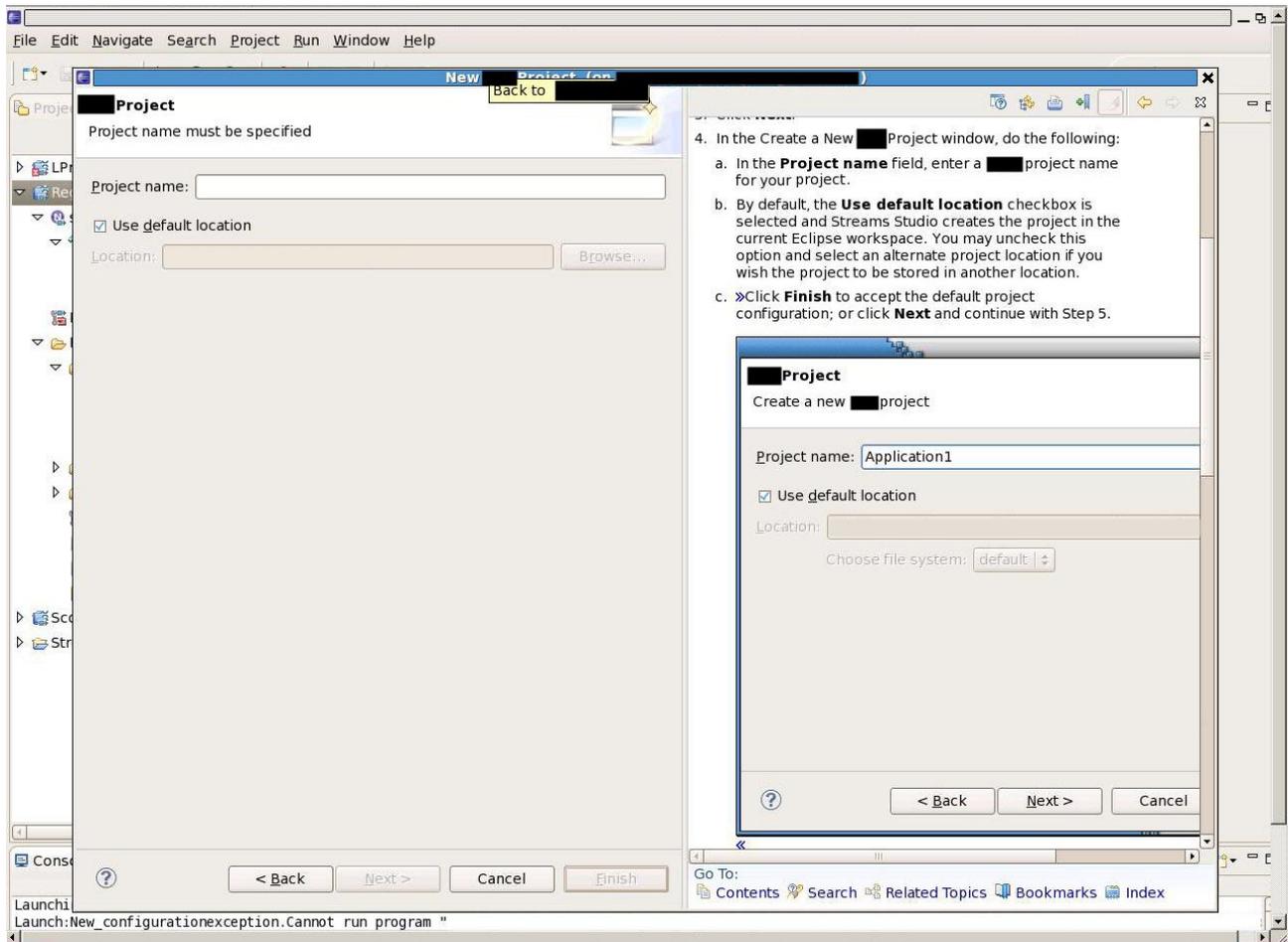


Figure 5: Unnecessary help.

Figure 5 shows a very simple example of this “information for information’s sake” development approach, but it is often prevalent throughout a set of information in large and small ways. Repeating the label text in a

hover, for example, or concatenating the hover content of all of the controls into a help topic are some examples of what I call “Type your name in the **Name** field” help.

If you are like me, you are likely asking “Why?” Why do we, a highly intelligent industry of technical communicators, create this unnecessary, redundant, and unhelpful content? My hypothesis is that it is because, for a variety of reasons, we don’t know enough about our users, and when we *do* know something, we discover that we don’t have one user, or a user who is stagnant throughout their use of the product. Our users are moving targets, which makes it very hard to design assistance to support them throughout their use of the product, as they learn more and become more proficient.

STAGES OF USE

As with PD in interaction, you (the author, designer, architect) apply progressive information disclosure to reduce complexity in user assistance by revealing only the essential information for the task that the user is performing or the question for which the user is seeking an answer. And, as with PD in interaction, you must also have a deep understanding of your users—and knowledge of the ways in which humans process information, in general—to successfully apply progressive information disclosure, to balance PD with visibility in the assistance, and to successfully accommodate your users as they learn and become more proficient with your product. This knowledge and understanding of users and human cognition is often a stumbling block for writers, and a general model of users—the “Stages of Use” model—and how they use products can help.

The Stages of Use model describes behaviors of users as they learn about and perform tasks with a new tool [5]. The model posits that users move through stages from the first stage of novice through to the last stage of expert. Hackos and Stevens describe the stages in *Standards for Online Communication* [6]:

1. Novices—Users learning to perform a skill or use a product for the first time; everyone is a novice at some point in the use of a product or performance of a skill.
2. Advanced Beginners—Users who have successfully performed the task or used the product and continue to perform the task or use the product successfully; most users remain at this stage, learning new tasks and successfully performing old ones, but never gaining a broader understanding of the product or task domain.
3. Competent Performers—Users who progress beyond advanced beginners to solve problems and perform more complex tasks; only a small percentage of users progress to this stage.
4. Proficient Performers—Users who progress beyond competent performer, who have successfully solved problems and performed complex tasks with the product, and who have successfully formed a deeper conceptual model of the product or task domain; an even smaller percentage of users progress to this stage.
5. Expert Performers—Users who progress beyond proficient performers and leverage their deep conceptual models to become primary sources of knowledge and information for others; typically no more than one to five percent of users become expert performers.

If we consider this general model, we can create a more specific model to help us to think about and design information according to the principles of progressive discussion. (In the interests of full disclosure, the model in the next section was developed based on my personal experience and is validated only in the context of some specific projects on which I’ve worked, but has not been completely validated in a general way. The method is also my own approach to model-making; a similar model could be accomplished in other ways.)

STAGES OF USE AND LEVELS OF INFORMATION TO SUPPORT PROGRESSIVE DISCLOSURE

To develop my model, I first plotted the stages of use along an “information level” continuum based on the percentage of users that progress to each stage and the amount of time they might spend in each stage. My continuum looks something like Figure 6.

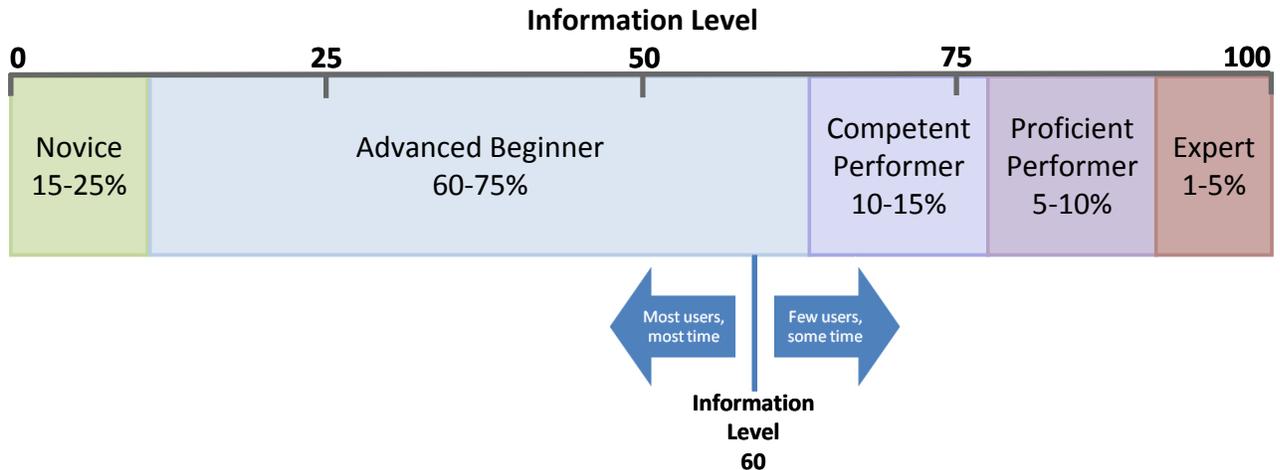


Figure 6: A “stages of use” continuum.

The information levels provide a basic definition of content and an indication of what assumptions I can make about the user. You will obviously have to define these for your users, but in my most generalized continuum, I define them in this way:

- 0** = Embedded assistance, including error messages with recovery instructions
 - Getting-started content, perhaps tutorials, focused on instructions for key, getting-started tasks
 - Task-oriented content with supporting background and details
 - Simple examples and samples
 - (Unfamiliar with terminology, paradigms, etc., so all must be explained)
- 25-50** = Embedded assistance, including error messages with recovery instructions
 - Task-oriented content with supporting background and details
 - Samples and examples that build on simpler ones
 - Pointers to community content, such as knowledge bases and user forums
 - (Familiar with terminology, paradigms, etc., covered in getting-started content)
- 75** = Embedded assistance, including error messages with recovery instructions
 - Task-oriented content for more complex tasks
 - Deep conceptual information
 - Troubleshooting content
 - Examples and samples illustrating how to solve complex problems
 - Pointers to community content, such as knowledge bases and user forums
 - (Familiar with terminology, paradigms, concepts, etc., so unnecessary to explain, refer instead)
- 100** = Deep conceptual information
 - Examples and samples illustrating how to solve complex problems
 - Pointers to community content, such as knowledge bases and user forums
 - Advanced troubleshooting content
 - Task-oriented content for more complex tasks
 - Embedded assistance, including error messages with recovery instructions
 - (Familiar with terminology, paradigms, concepts, etc., so unnecessary to explain, refer instead)

The types of information are listed in priority order. Notice that the order changes as the users progress through the stages. As users progress, they want and need different kinds of information more immediately.

In this continuum, at level 60, I’m assuming that my user is:

- An Advanced Beginner, according to the Stages of Use model
- Is on the “high” end of the Advanced Beginner range
- Has tried tasks on his own and succeeded
- Is looking for primarily for instructional information and wants it fast
- Familiar with the tool’s terminology
- Possibly starting to form a mental model of the tool’s overall paradigm or conceptual approach
- Is not yet comfortable with troubleshooting problems on his own, but might be starting to seek out experts to help him more quickly navigate new tasks

Note that I’m using this particular continuum to describe only the user’s relationship with and knowledge of the tool. Stages of use apply to multiple user dimensions, for example:

- Domain knowledge
- General computer use
- Your tool, as above
- Tools like your tool

A user who is an advanced beginner in your tool, and tools like your tool, might be an expert in the domain and the use of computers in general. The same user might be a proficient performer with some parts of your tool’s UI and a novice in others, or he might be an expert in some parts of a task flow and a novice in others. A general model is not going to address every permutation; however, it will give you a place to start. Your job, as designer and author, is to consider the many dimensions of your users before arbitrarily applying a single “stage of use” label to them and in the next part of the model, consider the appropriate information for the point in time for which you are designing, for example, does the user need tool information, domain information, or both?

LEVELS OF INFORMATION MAPPED TO USE MODEL

To complete my general “stages of use to support PD” model, I map the levels of information from the continuum in Figure 6 against a use model [7] that describes how my users will use the product and information to successfully achieve their goals. In the example in Figure 7, I’ve mapped information levels to a generic set of online information, such as a task-oriented help system or an online library, which is one dimension of my use model.

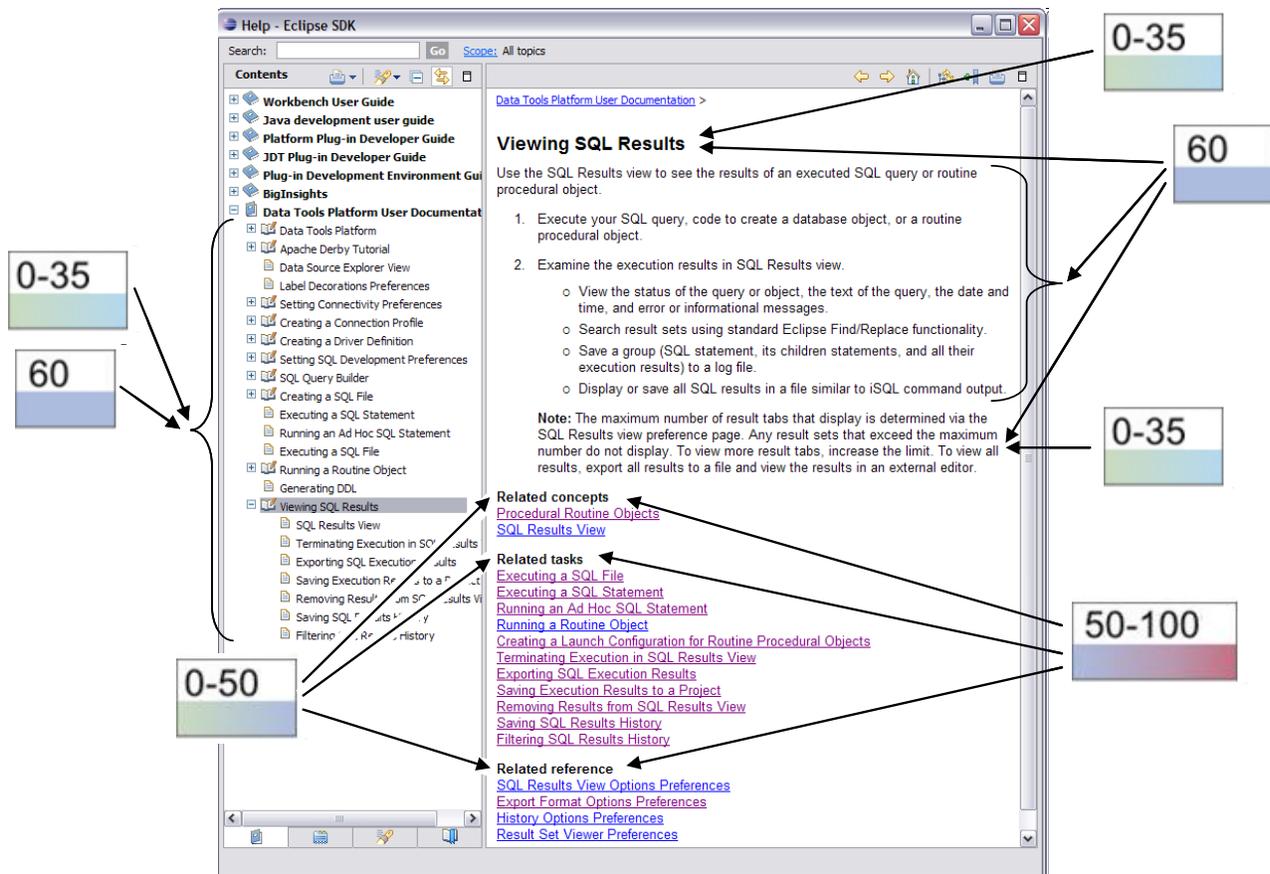


Figure 7: A model for online information. The text, of course, is irrelevant; using actual help text allowed me to be more specific in the information level mappings (for example, the Note).

The mapping shows that my topic titles, which display in the Contents and at the topic of the help topics, and the main text of the topic are written to information level 60, my “late-stage” Advanced Beginner, but must also support levels 0-35, my Novices and early Advanced Beginners. Why? Several reasons:

- Each topic’s content and title is core content in this help system. This is the content that the majority of my help users will see, and I’ve already defined “the majority” as late-stage Advanced Beginners needing information at level 60.
- Contents and search are the core navigation mechanisms for this help.

I also map my information levels to a generic product user interface, another dimension of my use model, as shown in Figure 8.

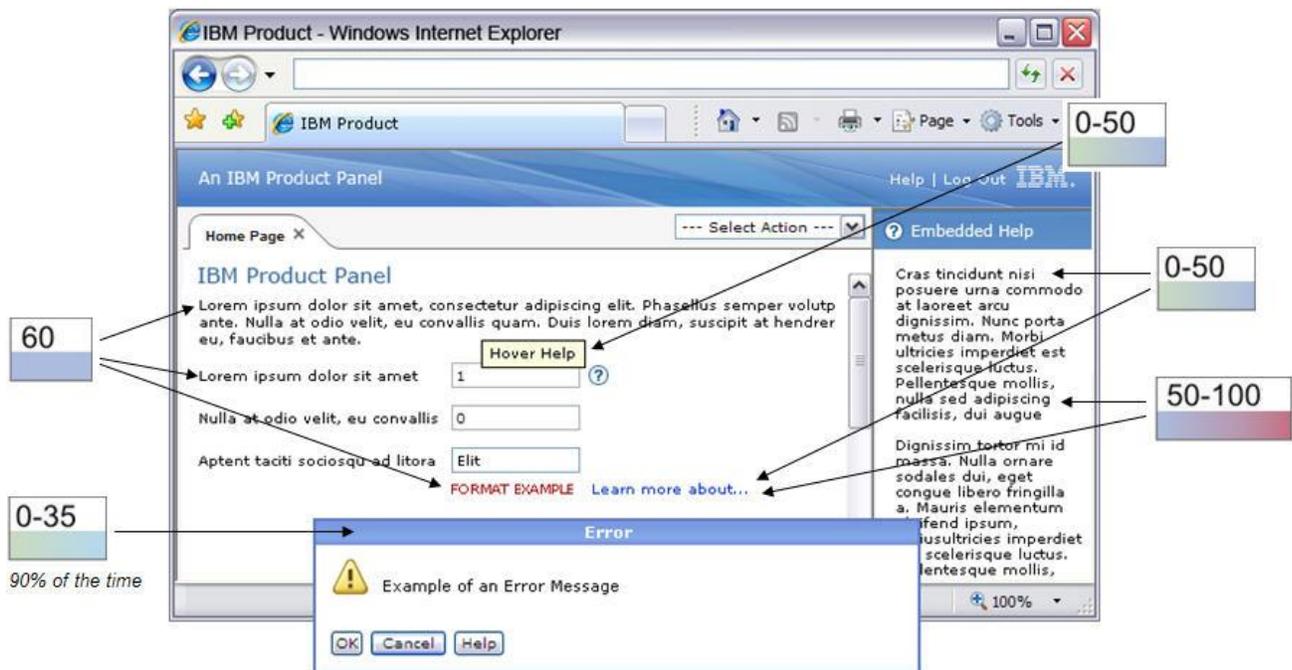


Figure 8: A model for embedded assistance, based on the continuum.

This is a still general model and won't address every combination of any particular user group's domain and tool knowledge. You might find that you need more than one to describe various types of user groups. For example, some products might be considered "occasional tools" and others might be considered to be tools that users spend most of every work day using to do their core jobs. In the former case, the model in Figures 7 and 8 probably work just fine. In the latter case, you might want to adjust the information levels to accommodate a user group that, percentage-wise, is more likely to have more users get to the stages beyond Advanced Beginner.

APPLYING THE MODEL

To apply the model to my information architecture, design, and development task, I start with the "required" content at information level 60, and develop the additional layers of optional information that will support the users needing different or additional levels of content. For example, if I was developing content for a tool using the embedded assistance model in Figure 8, I might follow a thought process similar to this one:

1. Starting *in* the task, and thus the user interface, what information is *required*?
Labels. Write those first, accommodating the advanced beginner with "level 60" content.
2. What additional information needs does my user have, and how can I satisfy those through persistent text in the UI?
Inline text, which is the next "line of defense" in my effort to keep the user in the task and out of the traditional documentation. If any of the needed additional info is short enough and seems to be appropriate for that type of content, I'll again accommodate the advanced beginner with "level 60" content.
3. What additional information needs does my user have, for example, to use the controls, and how can I satisfy those without taking my user too far away from the task at hand?
Hover help provides control-specific content that need not be persistent like labels and inline text but helps those users who need more instruction. It is most likely that I will need to accommodate a less experienced user with "level 0-50" information, as users who are new to the tool are more likely to need content specific to the use of a control.

4. What additional information needs does my user have, for example, to use the combination of controls on the screen or the UI panel in its entirety, and how can I satisfy those without taking my user too far away from the task at hand?

Contextual help topics provide cross-control, panel-wide, and even cross-panel content that cannot be embedded closer to the task because it is more voluminous or covers more context—such as two or more controls, the entire panel, or two or more UI panels—to be provided within the UI text. From a level perspective, contextual help can vary widely—it can be used for background (level 0-50) or extended examples (level 50-100), for a concept that will help me understand the model of the product (level 50-100) or reference content that explains each of the items in the list of choices that I am currently evaluating (level 0-50). I might need to accommodate a range of users, or I can use some known factors to narrow the focus for my help topic, including:

- The current context and how much information I have been able to impart through labels, inline text, and hovers thus far—if the content that I need to deliver is still very UI focused, I will likely present it at “level 50-100.”
- The length and complexity of the additional information that I feel is necessary to deliver—if it’s long and complex, I might consider providing a useful summary of it in the contextual help and moving the rest to an online library of concepts, reference information, and domain-oriented user tasks, focusing it more on “level 50-100.”

5. What additional information does my user need to understand the information that I am revealing from within the UI? In this case, I acknowledge that I cannot provide this without taking the user away from—or possibly covering up a part of—her task.

An online information library provides an easy to access (by virtue of online publishing) collection of domain information, extended concepts, reference information, etc., that might be necessary for a user to completely understand the task, product paradigm, etc. By the nature of the content and the users within the Stages of Use model, Competent Performers, Proficient Performers, and Expert Performers are most likely to want this info—“level 50-100”—but it can be used to lead to more basic getting-started content, tutorials, etc., that a novice might not have noticed in the online library prior to starting up the tool.

Throughout this conversation with myself (or with my team), I’m also considering all of the various points along the task path where my user might make a mistake. My goal during this part of the design process is to first prevent the user from making errors by ensuring that the words in the UI text (labels, inline text, hovers, etc.) diverts him from the error-prone path. If I can’t completely prevent an error, I design the content for the error message in the same way that I do for the main user interface, according to the thought process above, but with a different task in mind: How does my user recover from this error? In most cases, users who make errors are novices or very early in the advanced beginner stage, thus the content is written to accommodate those stages of use. Although written for novices to understand, all users might make errors, thus error recovery information must be provided for all.

WHEN WORLDS COLLIDE...

A caveat to the application of this model, especially as it applies to assistance embedded within the user interface: As mentioned in the abstract, it all falls apart if the underlying task flow through the tool or the tool’s user interface is poorly designed. You can’t develop the right information in the UI without the right design foundation.

This need positions progressive disclosure at the eye of the perfect storm of user experience architecture and design and information architecture, design, and development. Our goal is to tame the chaos and winds of that storm, a bit, to enable synergy and avoid collisions. A common user model, including Deryfus’ Stages of Use, can provide one tool in the common ground of methods and techniques on which user and information experience architectures meet.

ADDITIONAL RESOURCES

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Andrea L. Ames, M.S., is a Senior Technical Staff Member and Information Experience Strategist and Architect in the Information Management division of the IBM Software Group. In this role, she is responsible for driving broad, division-wide and cross-division initiatives to improve the total information experience, and she is the Total Information Experience (TIE) lead and the information development strategist and architect for the Big Data product portfolio. She also provides information strategy and architecture workshops and consulting to IBM customers through IBM Global Business Services. She is the founder of the IBM Information Architecture Council, and she provides ongoing input on IBM Corporate Information Development leadership and strategy initiatives.

Prior to IBM, Andrea was an information strategy, architecture, and usability consultant, helping large and small businesses to engineer their product development processes to design and create information in ways that:

- Provide information where and when the user needs it via assistance embedded in the product user interface
- Enhance product usability
- Decrease user learning curve
- Accelerate and increase user productivity
- Increase product adoption and customer loyalty
- Support business and marketing goals
- Most efficiently use small numbers of information developers

Andrea has nearly 30 years of experience in technical communication, a Master of Science degree in Science and Technical Communication from Drexel University in Philadelphia, PA, and a Bachelor of Arts degree in English from Temple University in Philadelphia, PA. She is a Fellow and Past President (2004-2005) of the Society for Technical Communication (STC), a Distinguished Engineer of the Association for Computing Machinery (ACM)—the first technical communicator to achieve this distinction—and a Senior Member of the Institute of Electronics and Electrical Engineers (IEEE). She is also a member of the Society of Women Engineers (SWE), the American Society for Information Science and Technology (ASIS&T), the Information Architecture Institute (IAI), the Usability Professionals Association (UPA), and the Association of Teachers of Technical Writing (ATTW).

Andrea designed, coordinates, and teaches information architecture and human factors courses in the UCSC Extension Silicon Valley (University of CA, Santa Cruz) certificate program in Technical Writing and Communication. She has published two award-winning technical books and more than 50 papers and articles, and speaks regularly at conferences and professional organization meetings around the world.

GOODBYE, ARIAL AND VERDANA. HELLO, WEB FONTS!

Michael R. Opsteegh

Web fonts are an emerging technology that is transforming the way we view the web by breaking our reliance on locally-installed fonts. Although the @font-face syntax was first introduced in CSS 2.0 in 1998, lack of format standardization, poor rendering, and strict font licensing prohibited widespread implementation of web fonts—until recently. Web fonts give you, as a content creator or web designer, more flexibility in typographical decisions and more control over how your content appears on a variety of platforms. A variety of font-hosting services have cropped up in the last few years, some offered by such industry giants as Adobe and Google, that enable web designers, from novice to veteran, to break free from the tired, old “web-safe” fonts. If you don’t feel comfortable relying on a service, you can even host your own fonts.

It is said that 95% of web design is typography, which means that the majority of web design has been limited to a handful of typefaces—until web fonts came along. By definition, web fonts are font resources that are served to a browser remotely. In reality, web fonts help you break free from the shackles of limited font choices and kludgy workarounds. They give you, as a content creator or web designer, more flexibility in typographical decisions and more control over how your content appears on a variety of platforms. In short, web fonts are awesome!

A BRIEF HISTORY OF WEB TYPOGRAPHY

To understand how web fonts are implemented today, we have to take a look at web typography’s brief, but checkered, past. In the early days of the web, the focus was on content and, as those who remember the web of the early 1990s can attest little attention was given to such design considerations as typography. There was some disagreement between browser developers about whether web browsers should display content the way the author intended or give the user more control over the way he or she viewed it. So, for example, if the creator intended the content to be viewed in Times, but the user wanted to view it in Verdana, who should win? A compromise was made, allowing the designer to specify a typeface while allowing the user to override it. This compromise is still in place in browsers today.

Early web typography was saddled with other burdens as well. Unlike print, a designer could not chose any font and expect the design to remain intact by the time it reached the viewer. Ideally, web designers could call a font resource, in much the same way they would an image, and serve it to the browser. Unfortunately, neither the technology nor the font foundries were ready to support fonts served over the Internet. Designers were limited to the fonts installed locally on their audience’s computers.

Some of the limitations included slow connection speeds, lack of standardized font formats, poor font rendering, and font licensing restrictions. The idea of trying to shove a resource as large as a font file through a 28.8 kbps modem just to display a web page conjures up images akin to sitting in rush-hour traffic in the rain. Furthermore, font formatting was not consistent across operating systems, and if you ever tried to bring a TrueType font from your Windows 95 PC over to your Performa running Mac OS 7.5.3, you’d understand that these things just didn’t work back then. Since most fonts are designed for print, very few fonts are hinted for on-screen viewing and would render as jagged shapes in the browser window. We’ll discuss font rendering more in a moment. Finally, fonts are intellectual property and are basically treated in the same manner as software on your computer, complete with end-user license agreements. Most EULGs include a clause specifically prohibiting the distribution of the font. The font foundries, which make their money by licensing the use of fonts, were not thrilled by the idea of browsers—and potentially users—downloading their fonts without permission. Suffice to say that when the @font-face rule was added to the CSS 2.0 specification in 1998, there was little, if any, use of it. That’s right; @font-face was introduced to CSS in 1998.

Without a way to serve fonts, designers would have to call local font resources that resided on the user's system. Unfortunately, there was no assurance that any one font would be available on the user's system. For example a Windows user would likely have Arial installed, while a Mac user would likely have Helvetica, and in either case, the user may have uninstalled the font. A method was developed to allow a designer to call on the ideal font, and if it wasn't available, to call on fallback fonts, and if none of the fallback fonts were available, to display the closest default that could be found on the user's system by calling the generic family name. To accomplish this, the designer creates a font stack, and the browser moves through the stack until it finds an available font. A font stack looks something like this:

```
font-family: Helvetica, 'Helvetica Neue', Arial, sans-serif;
```

Even when serving web fonts, we still use font stacks to call fallback fonts in case the web font is temporarily unavailable or unsupported by the browser.

Serif	Sans-serif	Monospace	Cursive	Fantasy
Georgia	Arial	Courier	Apple Chancery	Hattenschweiler
Times	Helvetica	Courier New	Comic Sans	Impact
Times New Roman	Verdana	Monaco	Zapfino	Papyrus

Browsers are designed to support a default typeface from five general categories. The defaults vary by browser and operating system. Common default fonts are listed above by category. (Source: Duckett, HTML and CSS: Design and Build Websites)

WORKAROUNDS AND GIMMICKS

You can imagine that designers and content creators soon tired of relying on Arial and Verdana. Over the years, several workarounds have been used. The most common workaround was replacing text with a graphic. This solution looked okay (pixilation and poor taste notwithstanding), but was not searchable, did not work with screen readers, and did not work well with syndication. Since the text most often replaced with graphics was heading text, this presented a huge problem for search engine optimization and accessibility.

The next workaround that garnered some popularity was sIFR, which stood for Scalable Inman Flash Replacement and relied on the ubiquity of the Adobe Flash Player and JavaScript to render text in Flash. While sIFR preserved accessibility, it was cumbersome to set up, was often thwarted by ad blocking programs, took a long time to load, and demanded a lot of the browser's resources to render the text on the fly. The explosion of mobile devices, with limited processing power and lack of Flash support, have made sIFR an even less attractive alternative.

FLIR, or Facelift Image Replacement, worked much the same way as sIFR, but it rendered the text as static images rather than Flash. Needless to say, it wasn't all that accessible.

Cufón was another solution that relied on JavaScript, but was much easier to implement than sIFR. Essentially, Cufón used JavaScript to dynamically to convert font paths to vector images. The shortcomings of Cufón are pretty steep: the rendered text is not selectable, and Cufón required that the font file be distributed to the browser, which directly violates most font licenses.

Thankfully, we don't have to deal with this anymore.

A NEW ERA OF WEB TYPOGRAPHY

Wait, if @font-face was introduced in CSS 2.0 in 1998, why have we seen Arial and Verdana plastered all over the web for the last 14 years? Due to lack of adoption, the @font-face rule was pulled from the CSS 2.1 specification, but later reintroduced in the CSS 3.0 specification. Eventually, some font foundries came to embrace the idea of allowing fonts to be served on the web. This reluctant support spurred the development

of font formats optimized for the screen: hinted for screen rendering, reduced glyph sets, reduced file size, and web-friendly license agreements. Additionally, the explosion of font-hosting services over the last few years have taken the scariness out of web typography and have empowered the uninitiated to experiment with web fonts.

THINGS TO CONSIDER WHEN SHOPPING FOR A WEB FONT

FONT HINTING

Until the introduction of web fonts, designers didn't need to concern themselves too much with font hinting or rendering. All of the web-safe fonts that are installed with operating systems are already meticulously hinted. Font rendering is a complicated and technical process, so I'm going to simplify the explanation quite a bit. Traditionally, fonts have been designed for printers. They are basically vector outlines that can be scaled to any size the printer requires.



Fonts are designed for printers and are composed of outlines that enable the text to be scaled to any size and still print smooth, crisp edges. Times New Roman is shown here.

To display on screen, a font has to be rasterized so it fits within the pixel grid. Font hinting is information added to each character at various sizes and tells the operating system and browser how the font should be displayed on screen. The method of rendering varies by OS and by browser and can be broken down into three main categories: no antialiasing, grayscale antialiasing, and subpixel rendering. Without antialiasing, pixels are simply turned on or off to display the characters, resulting in text that looks jagged. Grayscale rendering turns some outer pixels gray to make curves appear smoother, but may also have the affect of making the text look fuzzy. Subpixel rendering takes advantage of the three vertical bars (one red, one green, and one blue) that compose a single pixel in LCD displays by turning the individual bars on or off, thereby creating increased horizontal resolution.



No antialiasing



Grayscale rendering



Subpixel rendering

Times New Roman at 12 points enlarged for detail. Font hinting tells the browser how to render a typeface at a specific size.

As you can imagine, basically recreating each character to display at incremental sizes is a painstaking process makes it very unlikely that a font you pick up for free has been properly hinted. Without proper hinting, the font will appear jagged and distorted, too light or too bold, or with unsightly spurs on some Windows browsers. Mac OS X and iOS ignore font hinting information and rely on the operating system's font rendering system.

FILE FORMATS

WOFF, or Web Open Font Format, was adopted by the W3C as the recommended standard for web fonts in 2009. Web browser developers have been busy ensuring their browsers support WOFF. While the latest web browsers support WOFF, many users are still tied to previous versions that rely on other web font formats. To ensure all your users can view your web fonts, you'll be required to serve multiple formats for a few more years.

	Explorer	Firefox	Chrome	Safari	Opera	iOS Safari	Android Browser
@font-face	4.0	3.5	4.0	3.1	10.0	3.2	2.2
True Type/ Open Type (ttf/otf)	9.0	3.5	4.0	3.1	10.0	4.2	2.2
SVG Fonts (svg/svgz)			4.0	3.2	9.0	3.2	3.0
Embedded OpenType (eot)	4.0						
Web Open Font Format (woff)	9.0	3.6	5.0+	5.1	11.1	5.0	

Your choice of web font format may depend heavily on the browser capabilities of your users. The browser versions listed above are the earliest version in which the given font format is supported. Given that many of these formats have only been supported in recent versions, you may need to serve a font in multiple formats. (Source: caniuse.com)

FONT HOSTING OPTIONS

When implementing web fonts, you'll need to make one of your biggest decisions up front. Should you host the fonts yourself, or should you subscribe to a font hosting service? The choice depends on the needs of the designer and on the requirements for the site. Below is a list of some of the advantages and disadvantages of self-hosting and web-font services.

	Self-hosting	Web-font Service
Advantages	<p>Allows you to manage resources internally, which large organizations tend to prefer</p> <p>Gives you more control</p> <p>Font can easily be converted to web fonts</p>	<p>Fonts are designed for the web and tested in multiple browsers on multiple platforms</p> <p>Fonts are licensed for the web</p> <p>The service most likely maintains the code to accommodate changing browser requirements</p> <p>The service most likely provide fallback methods for serving the font in a variety of formats</p>
Disadvantages	<p>You have to keep up with the changing CSS specifications and individual platform and browser eccentricities and adjust your code accordingly</p> <p>You have to ensure that your fonts (and their variants) include a web font license</p>	<p>Possible server downtime</p> <p>Added overhead of additional http calls</p> <p>Font use tracking may conflict with your privacy policy</p> <p>Ongoing cost of subscription</p> <p>Since fonts probably can't be downloaded, designing a concept can be difficult</p> <p>Portions of the code are inaccessible to prevent unauthorized downloading of the font, which may impede your control over the display</p>

There are many considerations that you must weigh when deciding to self-host or hunt for a hosting service.

SELECTING A FONT-HOSTING SERVICE

The number of font-hosting services that have cropped up in the last three years is staggering. Fonts.com, Fontshop, Fontdeck, FontsLive, Webtype, and WebINK all offer great services. For the purposes of this presentation, I'm going to focus on two: Typekit and Google Web Fonts. They are both solid services and are probably the ones you'll come across the most. Typekit was recently acquired by Adobe and is included when you subscribe to Creative Cloud. Typekit's integration into Adobe's popular Creative Suite applications increases its attractiveness. Google, on the other hand, offers its web fonts for free, and many of them can be downloaded to your local system, which makes Google Web Fonts an attractive service, also. Chances are, you're going to use one of these services at some point. Below is a list of some of the advantages of these two web-font services.

Typekit	Google Web Fonts
Over 2,000 fonts	Free!
Selected from over 70 foundries	Highly optimized for size
High-quality fonts from reputable sources	Open-source fonts vetted for quality
Free trials	Over 500 fonts
Included with Adobe Creative Cloud	Download fonts locally if needed
Affordable subscriptions	Unlimited use and bandwidth
Well designed, easy-to-use font catalogue	

This list is nowhere near exhaustive, but you can see that each service has advantages over the other.

FINDING AND GENERATING YOUR OWN WEB FONTS

It bears mentioning one more time that you must make sure the fonts you're using contain a clause in the end-user license agreement that allows the font to be distributed as a web font or serving the font via the @font-face syntax. Finding the font for free on the Internet is no guarantee that you are permitted to redistribute it. You do not want to find yourself on the wrong side of an intellectual property lawsuit.

Having said that, you can find many free open-source fonts, of varying quality, on the web. One great source of consistent, quality fonts is The League of Moveable Type, where you can download fonts for your desktop. The League of Moveable Type offers their typefaces as web fonts through another site called Font Squirrel. Font Squirrel offers additional open source web fonts, but more importantly, features a robust, online web font generator. Using Font Squirrel's web font generator, you can upload fonts from your desktop and convert them to a variety of web font formats. The web font generator gives you some control over how the fonts are hinted for on-screen display and generates the code required to declare the web fonts in your CSS.

Font Squirrel is the Swiss Army Knife of web typography.

IMPLEMENTING WEB FONTS

If you are using a web-font hosting service like Typekit or Google Web Fonts, you'll select the fonts, weights, styles, and character sets that you want to use. The more options you select, the larger your web font will grow, so be judicious. The service will give you a snippet of JavaScript that you will need to insert into the head of your web page or template. The JavaScript ties your site to your web-font service account and enables the pages with this JavaScript to call the web font resources. Once your JavaScript is in place, simply declare the web font name in your font stacks. In the following example, the web font is called Fanwood Text:

```
h1 { font-family: 'Fanwood Text', Times, serif; }
```

If you are hosting your own web fonts, you will need to upload the font files to your web server and include the @font-face rule at the top or near the beginning of your CSS. In the following example, League Gothic Regular is the web font. The code is generated by Font Squirrel and leverages the latest bulletproof syntax (as of this publication) that will render correctly in all major browsers.

```
@font-face {
font-family: 'LeagueGothicRegular';
src: url('League_Gothic-webfont.eot');
src: url('League_Gothic-webfont.eot?#iefix') format('embedded-opentype'),
```

```

url('League_Gothic-webfont.woff') format('woff'),
url('League_Gothic-webfont.ttf') format('truetype'),
url('League_Gothic-webfont.svg#LeagueGothicRegular') format('svg');
font-weight: normal;
font-style: normal;
}

```

Whoa! What's going on with all this code? It looks like a lot of code to call one typeface, but remember that different browsers traditionally supported different font formats. You'll be stuck accounting for fallbacks for the next few years.

The first two lines invoke the `@font-face` rule and specify the font family:

```

@font-face {
font-family: 'LeagueGothicRegular';

```

The following five lines tell the browser where to go to download the font source files.

The third and fourth lines address Internet Explorer, since it's the only browser that supports the EOT format. The third line is for Internet Explorer 9 compatible modes. The fourth line is for Internet Explorer 6–8 to cope with its inability to parse font source lists:

```

src: url('League_Gothic-webfont.eot');
src: url('League_Gothic-webfont.eot?#iefix') format('embedded-opentype'),

```

Lines five through seven guide the browser through the remaining font source files until it finds a format that it can use. Other browsers don't have the same difficulty parsing the list as Internet Explorer:

```

url('League_Gothic-webfont.woff') format('woff'),
url('League_Gothic-webfont.ttf') format('truetype'),
url('League_Gothic-webfont.svg#LeagueGothicRegular') format('svg');

```

The final two lines specify the weight (e.g., bold, light) and style (e.g., italic) of the type. If you are using multiple weights or styles of a typeface, you must create an `@font-face` rule for each weight and style. So if you are using the normal, bold, italic, and bold italic variations of a font, you will need to create four distinct `@font-face` declarations, each calling the same font family:

```

font-weight: normal;
font-style: normal;
}

```

Optionally, you can add a line of code to subset your web fonts and reduce the number of glyphs that a user downloads. If your site appears in multiple languages, you can specify the range of characters that get downloaded for a user of a particular language. This is a download size consideration only and is not required. If you specified your default language when you generated the web font, you don't need to worry about this. The following Unicode range would download the basic Latin character and a range of symbols:

```

unicode-range: U+000-5FF, U+2000-2300;

```

Once your `@font-face` rules are in place, you can set up the rules for your styles as you would normally:

```

h1 {
font-family: 'LeagueGothicRegular', Impact, Arial, sans-serif;
font-size: 4em;
font-weight: normal;
font-style: normal;
line-height: 1.4
}

```

CONCLUSION

You now have the tools you need to implement web fonts on your own site. Whether you use a hosting service, or you are adventurous enough to host your own web fonts, you are ready to jump into the new world of web typography today.

ADDITIONAL RESOURCES

- “2011 Web Font Awards.” *Web Font Awards*. www.webfontawards.com.
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- “Fontdeck Web Fonts: Real Fonts for Your Website.” *Fontdeck LLC*. <http://www.fontdeck.com>.
- “FontShop. The World’s Best Fonts.” *FontShop USA*. <http://www.fontshop.com>.
- “FontSquirrel: Handpicked Free Fonts for Graphic Designers with Commercial-Use Licenses.” *Font Squirrel*. <http://www.fontsquirrel.com>.
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- “Spice Your Type.” *Microsoft and Monotype Imaging*. <http://ie.microsoft.com/testdrive/Graphics/opentype/opentype-monotype/index.html>.
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BUILDING A DEVELOPER DOCUMENTATION WIKI

Sarah Maddox

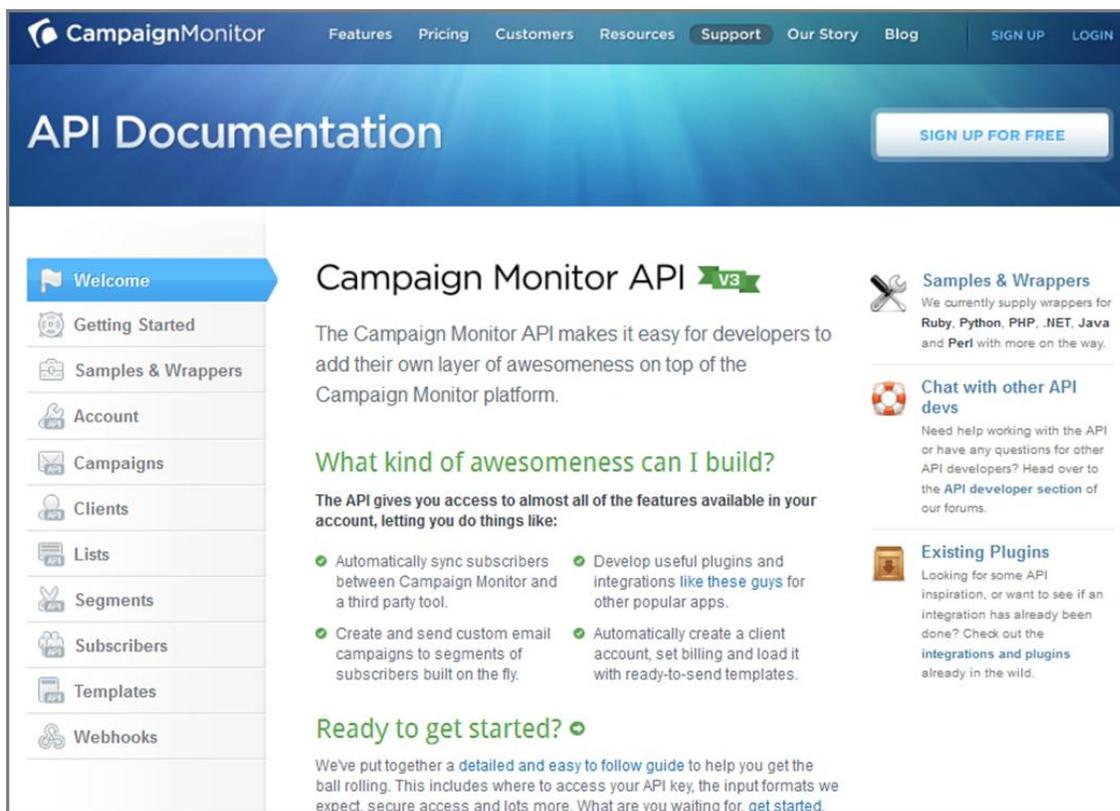
My presentation at STC Summit 2012 is about building a set of developer documentation on a wiki. It's the story of how we designed and built a new site to host the API documentation, tutorials and toolkits for our development community. Rather than reproduce the entire content of that presentation here, I've decided to focus on the core aspect of the presentation: **What developers want.**

Recently I asked a few super-geeks this question: "What's your favourite API doc site in the whole wide world?" The abbreviations and catchy phrasing are intentional. It's as well to be brief and attention-grabbing when communicating with super-geeks.

Here is a list of the sites my subject matter experts mentioned, and why they recommend them.

CAMPAIGN MONITOR

The Campaign Monitor API documentation is at <http://www.campaignmonitor.com/api>.



The screenshot shows the Campaign Monitor API documentation welcome page. The page has a dark blue header with the Campaign Monitor logo and navigation links: Features, Pricing, Customers, Resources, Support, Our Story, Blog, SIGN UP, and LOGIN. Below the header is a large blue banner with the text "API Documentation" and a "SIGN UP FOR FREE" button. The main content area is white and features a left-hand navigation menu with links: Welcome, Getting Started, Samples & Wrappers, Account, Campaigns, Clients, Lists, Segments, Subscribers, Templates, and Webhooks. The main content area is titled "Campaign Monitor API v3" and includes a sub-header "The Campaign Monitor API makes it easy for developers to add their own layer of awesomeness on top of the Campaign Monitor platform." Below this is a section titled "What kind of awesomeness can I build?" which lists several features: "The API gives you access to almost all of the features available in your account, letting you do things like:" followed by four bullet points: "Automatically sync subscribers between Campaign Monitor and a third party tool.", "Develop useful plugins and integrations like these guys for other popular apps.", "Create and send custom email campaigns to segments of subscribers built on the fly.", and "Automatically create a client account, set billing and load it with ready-to-send templates." Below this is a section titled "Ready to get started?" which includes a link to a "detailed and easy to follow guide" to help developers get started. On the right side of the page, there are three additional sections: "Samples & Wrappers" (listing Ruby, Python, PHP, .NET, Java, and Perl), "Chat with other API devs" (with a forum link), and "Existing Plugins" (with a link to check out integrations and plugins).

Campaign Monitor documentation – welcome page

In this case, the developer didn't tell me why he liked this site. Here's my assessment of this documentation's good points:

- Nice welcome page. It tells you what you can do, and links you up with everything you need.
- I love the message it gives to developers: We will help you build awesomeness.

- Good getting started guide.
- Clean, clear reference documentation.

Let's take a closer look at one of the APIs – the account resource.

Account

Gives you access to core account information such as your API key, the available clients in your account and helper procedures when creating a client including available countries, time zones and the current date and time in your account.

Getting your clients

Contains a list of all the clients in your account, including their name and ID.

Request:

```
GET http://api.createsend.com/api/v3/clients.{xml|json}
```

Expected Response: JSON XML

```

1 HTTP/1.1 200 OK
2 Content-Type: application/json; charset=utf-8
3
4 [
5   {
6     "ClientID": "4a397c5aaa55eb4e6aa1221e1e2d7122",
7     "Name": "Client One"
8   },
9   {
10    "ClientID": "a206def0582eec7dae47d937a4109cb2",
11    "Name": "Client Two"
12  }
13 ]

```

Campaign Monitor documentation – account API

It's clean and clear. First is a short summary of what the API does. Then the guide shows you how to do specific things with the API concerned, such as getting a list of all clients in your account.

FLICKR

The Flickr API documentation is at <http://www.flickr.com/services/api/>. This example shows a page where you can do a real-time test of the [authentication API](#).

flickr® from YAHOO! You aren't signed in

Home The Tour Sign Up Explore Upload

The App Garden

[Create an App](#) | [API Documentation](#) | [Feeds](#) | [What is the App Garden?](#)

flickr.auth.checkToken

Arguments

Name	Required	Send	Value
auth_token	required	<input type="checkbox"/>	<input type="text"/>

Output: XML (REST)

Sign call with no user token?
 Do not sign call?

[Back to the flickr.auth.checkToken documentation](#)

Useful Values

Recent public photo IDs:
 6784257150 - #team #travel #trip #airport #china
 #restaurant #boys #girls #tshirt #jean #people
 #body #fun #happy
 6930373585 - IMG_6074
 6930373761 - _MG_2425

Popular public group IDs:
 16978849@N00 - Black and White
 34427469792@N01 - FlickrCentral
 52239733174@N01 - B&W

Flickr documentation – API testing

In the words of the developer who answered my question about why this documentation is good:

- Being able to test the API in real time is awesome.
- Note the “useful values” section on the right.

GOOGLE

The full list of Google APIs is at <http://code.google.com/more/>. This example shows the [Google Maps JavaScript API](#).

Google Maps JavaScript API V3 Home Docs FAQ Articles Blog Forum Terms

V3: The Solution for Maps Applications for both the Desktop and Mobile Devices

Note: The Google Maps Javascript API Version 3 documented within these pages is now the official Javascript API. Version 2 of this API has been officially deprecated as per our deprecation policy. We encourage you to migrate your code to this newly updated and enhanced version!

The Google Maps Javascript API lets you embed Google Maps in your own web pages. Version 3 of this API is especially designed to be faster and more applicable to mobile devices, as well as traditional desktop browser applications.

The API provides a number of utilities for manipulating maps (just like on the <http://maps.google.com> web page) and adding content to the map through a variety of services, allowing you to create robust maps applications on your website.

The JavaScript Maps API V3 is a free service, available for any web site that is free to consumers. Please see the [terms of use](#) for more information.

New! Search for and display detailed [Places](#) information on your map, including addresses, icons, and ratings information.



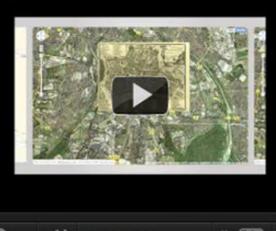
How Do I Start?

1. Read the [Developer's Guide](#).
2. Consult the [Reference](#).
3. Join the [announcements](#) group to receive important updates.

enter email

Featured Video

Google I/O 2011: Designing I



Watch other [Maps API presentations](#)

Google Maps JavaScript API

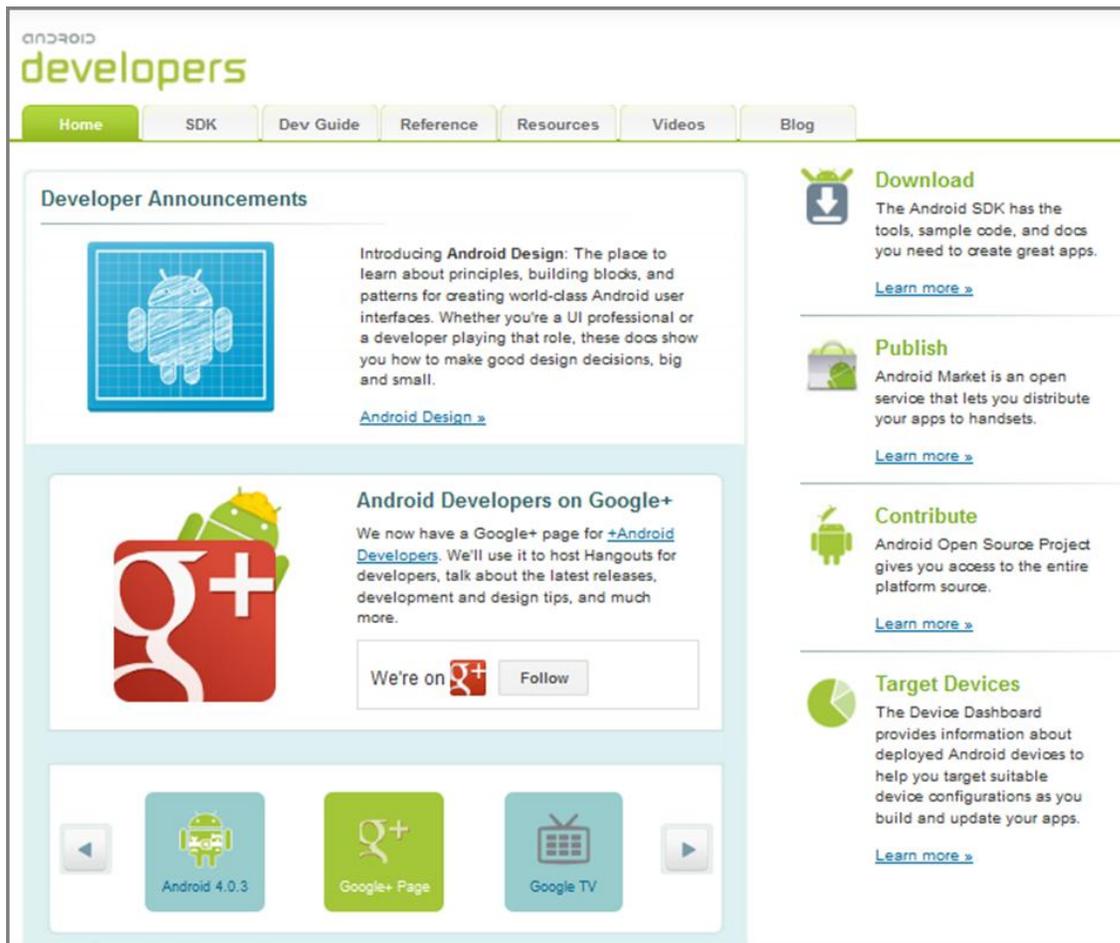
Why the developer likes this documentation:

- You can easily see what is possible.
- They have a standard format for code samples.
- It is very easy to get started. You can produce a working “hello world” application in less than half an hour.

On top of all that, the documentation just looks good! (That’s from me, not the developer.)

ANDROID

The Android developer documentation is at <http://developer.android.com/index.html>.



Android developer documentation

I think that a lot of the appeal is the super-cool appearance of this documentation! Here are the reasons the developer gave for liking it:

- The documentation gets you started quickly.
- There are some great introductory videos.
- The outline of the overall architecture is useful.
- There are plenty of examples.

- The site is a one-stop-shop for everything related to development.

JQUERY

The home page of the jQuery developer documentation is <http://api.jquery.com/>. The example below comes from the [attr\(\) function](#).

The screenshot shows the jQuery API documentation for the `.attr()` function. The page has a dark header with 'jQuery API' on the left and a search bar on the right. A left sidebar contains navigation links for 'jQuery API' (with sub-links for 'New or Changed in 1.7', 'Raw XML API Dump', 'Dynamic API Browser', and 'jQuery API Book') and 'Browse the jQuery API' (with a list of categories like 'All', '+ Ajax', 'Attributes', 'Callbacks Object', 'Core', 'CSS', 'Data', 'Deferred Object', 'Deprecated', 'Dimensions', '+ Effects', '+ Events', 'Forms', and 'Internals'). The main content area is titled `.attr()` and includes a search bar, 'Contents:' section with expandable sub-sections for `.attr(attributeName)`, `.attr(attributeName, value)`, and `.attr(attributeName, function(index, attr))`, and 'Categories: Attributes | Manipulation > General Attributes'. Below this is a blue bar with `.attr(attributeName)` and 'Returns: String'. The 'Description' states: 'Get the value of an attribute for the first element in the set of matched elements.' A code block shows `.attr(attributeName)` with 'version added: 1.0' and a parameter description: 'attributeName The name of the attribute to get.' The bottom text explains: 'The `.attr()` method gets the attribute value for only the first element in the matched set. To get the value for each element individually, use a looping construct such as jQuery's `each()` or `map()` method.'

jQuery API documentation

What the developer appreciates in these guides:

- The documentation meets an interesting challenge: The language supports functions that vary in behaviour based on their parameters. In this example, the `attr()` function supports two different calling modes.
- The documentation supports contributions.
- The permalinks (unchanging and specific links into the sections of the documentation) are useful.

ADDITIONAL RESOURCES

Discussion on Stack Overflow: "Creating Great API Documentation: Tools and Techniques".

<http://stackoverflow.com/questions/2001899/creating-great-api-documentation-tools-and-techniques>

Discussion on Stack Overflow: "Who has great API documentation?"

<http://stackoverflow.com/questions/2356567/who-has-great-api-documentation>

Discussion on Stack Overflow: "What do you consider good API documentation?"

<http://stackoverflow.com/questions/1515326/what-do-you-consider-good-api-documentation>

Discussion on Stack Overflow: “Creating Great API documentation: Tools and Techniques”.
<http://stackoverflow.com/questions/2001899/creating-great-api-documentation-tools-and-techniques>

Discussion on Stack Overflow: “Best REST API documentation”.
<http://stackoverflow.com/questions/3622766/best-rest-api-documentation>

Flickr set from Pamela Fox showing the landing pages for various APIs, libraries and languages.
<http://www.flickr.com/photos/pamelafox/sets/72157626654131382/show/>

“Web API Documentation Best Practices”, a blog post by Peter Gruenbaum.
<http://blog.programmableweb.com/2010/08/12/web-api-documentation-best-practices/>

“Writing great documentation: What to write”, by Jacob Kaplan-Moss. <http://jacobian.org/writing/great-documentation/what-to-write/>

“A Standard for Open Source Code Documentation”, by Alex Reisner.
<http://code.alexreisner.com/articles/code-documentation-standard.html>

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Android developer documentation. <http://developer.android.com/index.html>

jQuery developer documentation. <http://api.jquery.com>

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Sarah Maddox is a technical writer at [Atlassian](#), makers of [Confluence wiki](#). She writes a blog at [ffeathers](#) (<http://ffeathers.wordpress.com>) and lives in a house on a hill near Sydney. In the course of her chequered career Sarah has been a software developer, a writer, a book indexer, and now a technical writer of ten+ years' experience. She has worked with the full gamut of tools from XML to Word, and is now contentedly bending a wiki to her will.

BITE THE BULLET® — CREATING MULTIMODAL PRESENTATIONS

Beth Lisberg Najberg

Presentations that people remember are tied together with a theme. A theme goes beyond a catchy title, and includes images that relate to the title. Integrating images and infographics onto a coherent template ensures that the presentation is effective. Let's take off in this session to learn how to do all of those things.

MULTIMODAL: PRESENTATIONS WITH A THEME

People remember a story better when they're emotionally engaged. Use a short, memorable phrase supported by a strong image to evoke feelings. Integrate them all into a customized slide template.

Just as a strong theme uses emotions to aid recall, the process you use will involve feelings and paying close attention to your senses.

Use multiple modes of thinking. First, identify a theme and the word or (few) words that draw people in to your presentation. Then reach out to various resources to select the images that will support the theme. You'll need a primary image, and secondary images that relate to the theme. Then integrate the images and words into the PowerPoint framework. You'll converge your thinking to identify a theme headline, diverge your thoughts to locate as many images as possible, and then converge again to integrate them all on the screen.

IDENTIFY A THEME

When you identify a theme for a presentation it's captured in the title. This can really be a lot of fun. So let's start our journey! In this activity use your senses to identify a title, headline, or tagline.

Start with an idea, such as	Start with an image, such as
	

You can start to capture the essence of the topic either with an idea or with an image. To start with words, consider the feeling that you want to portray and then play with the words. For example, a financial services company wants to show that they're solid, steady, enduring. A short title might be "we've been around for generations."

Play around with words other ways: use word clouds or a thesaurus. Start making a list of related words; as the project progresses, you'll think of words to add to the list.

If there's an image that strikes you relating to the topic, start with that. What emotion does it recall? What will you do with that feeling? Put that into a short phrase. For example, a leopard in motion may engender "speedy delivery" or "we're fast."

So what is the theme for multimodal presentations? Getting around easily. The inspiration is thinking about all the modes of transportation that you use to get to Chicago, and hoping that it is as seamless as possible.

Formally, multimodal refers to the transportation industry’s methods to ship goods easily and “as a hub for numerous modes of transportation.”

SELECT IMAGES

Selecting images is multimodal! You can shoot your own photographs or use them from a corporate repository, but you’ll likely need additional photos. There are numerous sources from clip art within PowerPoint®, to commercial sources, such as iStock or Fotolia, or specialty sources related to an industry.

Resources and Keyword Searching

Enter keywords, and then view the many options of images. Narrow the possibilities to a few then mark them for use. You may repeat these steps numerous times. Be especially careful about the copyright status of each image that you use.

This table highlights the advantages of the different resources.

Source	Cost	Copyright	Comments
Photos you take yourself	Your time	Free	Can take very specific images; some locations may be dangerous
Microsoft via PowerPoint®	Free	Free	Limited searching, limited number of images.
Yahoo	May be free	Permission may be needed; contact photographer	Huge amount of images, some link to other sites
Fotolia	Modest charge; varies by image resolution	Royalty free. License with purchase	Good search capabilities, good number of images
iStock			Great search capabilities, great number of images
Specialty: CTA, RailPictures.net, etc.	Varies: some may be free	Must obtain license or permission	If a license is needed, allow enough time for source to prepare it.

Criteria for Images

Initially, select many more images than you’ll need. Once you have a selection of images you need criteria for choosing images for your slides. The best place to start is with your emotional reaction – do **you** like it? Here are some pointers for effective images:

- Remember that you project these on a screen. Test by projecting on a real screen before final selection.
- Be sure that the audience can grasp the image quickly. One object per image; nothing subtle here.
- Include people, if possible, so the audience relates quickly and empathizes.
- Select images that move people along to the next slide. This usually means having the person or object face right, not left.

Repeat for as many images as you need. Don't discard the images that you don't use. You'll need backups if images that you view projected aren't what you expected and you need to substitute other images.

INTEGRATE ALL

Your next stop is to arrange the images in an order that supports your theme in the slide presentation. The template is your frame and should coordinate with your theme.

Use a Clean Template

If you do not have a corporate template, you've got a lot of freedom in the structure of the template. Build your template on several components, including the position of major elements such as heading and logo placement. The color palette of the text, bullets (used sparingly, if at all!), and backgrounds should all coordinate.

Templates follow trends. We rarely see slides with yellow typeface on a dark blue background any more. Cartoon-like clip art has, for the most part, been replaced with photo images.

Options for Placing Images on the Screen

The most common placement of an image on a screen with considerable text is to the left or right of the text block. Vary this to make your slides more interesting, and for transitions between sections.

Consider a slide taking up the entire screen to add drama. It also adds the challenge of where to place the title. Here are placement options:

Left	Right	Bottom	Full Screen
 <p>Taking off</p> <p>Buckle your seat belt. Listen to safety instructions. Enjoy the flight.</p>	 <p>Taking off</p> <p>Buckle your seat belt. Listen to safety instructions. Enjoy the flight.</p>	 <p>Taking off</p> <p>Buckle your seat belt. Listen to safety instructions. Enjoy the flight.</p>	 <p>Taking off</p>
Directs eye to text	Directs eye to next slide	Directs eye to text; changes view	Viewer imagines being on plane

Transitions

Transitions between sections offer an opportunity to include a dramatic slide format. The title placement and any images and/or backgrounds should clearly indicate that a new section is starting.

Options to Add Interest: Quotations and Infographics

To vary your presentation and highlight different types of information, consider adding quotations and infographics.

Quotations are a way to give credibility a topic as well as to make the audience relate your topic to other things. Daniel Burnham's vision for the 1893 World's Fair in Chicago is still true:

"Make no little plans; they have no magic to stir men's blood."
— Daniel Hudson Burnham (1846-1912)

Infographics such as maps, diagrams, timelines and tables are a concise way to display complex information. The audience's situation determines whether you will include details about that data.

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She is active in the Chicago Chapter of STC, and became an STC Associate Fellow in 2006.

Beth has a B.S.Ed from Northwestern University and an M.S.Ed from Northern Illinois University. She has been principal of Beginnings since 1991.

TECHNICAL WRITING — NEW HORIZONS

Preran Kumar Kurnool

Companies are increasingly encouraging their writers to collaborate with users to fill content gaps and create content that meets the needs of a diverse user base. To help create user communities that they can collaborate with, writers have taken to social networking sites, user forums, and blogs in a big way. Writers use community feedback to collaborate with other teams in the company to improve products apart from ensuring documentation that users actually need.

In the new multi-device world, writers are relooking their strategies to create and deliver content that can be accessed on a wide range of operating systems and browsers. They are also looking at multimedia and other non-traditional forms to fill in content gaps and address issues not easily tackled by text-based documentation.

In many companies, writers and customer support personnel collaborate to improve the quality of customer support documentation, drive down call volume, and improve customer satisfaction. If that improved customer satisfaction translates to better sales, writers have their next big story to talk about.

MOBILE DEVICES, SOCIAL NETWORKING, AND THE NEW ORDER

Advancements in web technology have led to democratization of knowledge and the way it is disseminated. Users sharing common interests actively engage with each other to spread information and help each other. Mobile devices ensure that the dissemination of information within these communities is faster than what is provided by conventional information systems.

To improve sales and brand loyalty, companies are actively engaging with their user communities in matters ranging from product development to post-release support.

MOBILE REVOLUTION AND THE USER

In the decade that went by, changes in web technology have remarkably transformed ways in which users create, dispense, search for, and engage with information on the Internet. Users now access data on the move. Mobile devices have [surpassed](#) the size and reach of traditional desktop computers. If writers don't help, users help each other. And spite us on the go.

Better search algorithms and faster Internet speeds for both traditional computers and mobile devices have eliminated previous restrictions on using multimedia. Size doesn't matter, relevance does.

SOCIAL NETWORKING AND THE BUSINESS REVOLUTION

In an increasingly connected world, social networking, search engine optimization, and data analytics are the new business mantras driving corporate strategies.

Discussions on networking sites like Facebook and Twitter have made their way into boardrooms, and are considered very seriously. The social network engine has begun driving business goals and metrics.

NEW WORLD, NEW MASTERS

Most of the content we write is now on the internet, and most, if not all of the content that we write hereafter will move there eventually. From the secure environs of the application, our content now resides in a place where its visibility is at the constant mercy of search engines.

Community generated content is popular not only because it is deemed more reliable, but also because it is faster than traditional help content . For example, when a recently launched product had a problem with its antenna, its user community provided workarounds even before the company ventured to help.

That is not all. Data Analytics now provide businesses with information about the popularity and usefulness of content on the internet. The metrics that we dreaded is here upon us.

THE WRITER'S DILEMMA

While the demands of users for free and accessible content has gotten shriller, companies are increasingly looking at cutting support budgets to improve margins. And the writers are caught right in-between.

User requirements

- Quick resolution of problems
- Access to help and support content on multiple devices
- Free tutorials on using the purchased product
- 24x7 free customer support

Business requirements

- Better customer experience with the product
- High customer satisfaction rating
- Reduced call volume
- Cheaper creation of videos and tutorials
- Reduced localization overheads
- Metrics for the published content

THE WRITING IS ON THE WALL?

So, should we fear the new world? Most certainly not. Drawing from evolution and Shakespeare, every threat opens up opportunities, if taken in the right spirit, can lead us to better shores.

Advancements in web technology and social networking have opened up avenues that enable us to enhance the help and support experience. When used effectively, they can help us meet user and business requirements and fuel our career growth.

COMMUNITY-DRIVEN CONTENT

I use the term community to refer to all stakeholders of a product. It includes, but is not limited to writers, customer support personnel, the product team, and users of the product. Community-driven content refers to content that is generated by a community based on demand from its users.



In the context of a community, the writer can assume the following responsibilities:

- Create a community of users
- Create a forum for the members of the community to engage with each other. An example of a forum is a group on a social networking site
- Incentivize community members to help solve problems reported on the forum
- Encourage members of the community to create content
- Popularize content created by the community
- Moderate the community to ensure its smooth functioning

Advantages of community-driven content:

- Writers create basic content and enrich it using content created by experts in the community
- Content is relevant to real world problems faced by users
- Expertise of various users is effectively leveraged when solving problems
- New users are supported by experts in the community helping drive customer satisfaction and customer loyalty
- Expert users gain visibility and reach that helps increase their professional credibility
- Engineering teams create the next version of the product based on feedback from the user community
- Customer support personnel use the community content database to quickly address customer issues
- Community specific problems, such as problems faced by users using a localized version, are addressed by the community for that locale
- Writers that successfully gain recognition within the community use their credentials to substantiate their relevance. They also move to related divisions of the company empowered with enhancing customer experience.

RESEARCH-DRIVEN WRITING

What is my user reading? What is most important to my user? Why are my users dissatisfied with the current content?

Questions such as these are best addressed through data. Web analytics tools provide us with data that can help us write and improve content based on user requirements.

Useful components of web analytics reports

- Page views
- Ratings and feedback
- Bounce rates and exit rates
- Heat maps
- Referrers

Advantages of research-driven writing

- Provides insight into topics that are important to users
- Helps focus on content that is of immediate need to users
- Helps understand problem areas in the current content
- Provides info on the pages directing traffic to help content
- Provides data on frequently used features and problem features. Such data can be leveraged when working on future versions of a product
- Provides better metrics for gauging performance. For example, writers can set goals to improve the accessibility and ratings for top viewed pages.

MOBILE FRIENDLY CONTENT

The how, where, when, and why of how users access our content has changed.

As more users access content on mobile devices it is imperative that our help content is available on those devices too. The only format that currently supports all devices is [HTML](#), and it doesn't look like it is going away any time soon.

Improvements in web technology help reformat content written for the web to fit into dimensions of various mobile devices. Writers do not have to create separate sets of content for each user base. As more products morph into mobile applications (apps), writing becomes product-agnostic and task-centric.

Writing mobile-friendly content

With some hard work, it is possible to write content that caters to users on all devices. Also, the user on the desktop [isn't reading](#) a lot more than his counterpart with a mobile device.

- Reduce heading levels. Reduce every topic to a single heading that addresses a specific issue
- Improve scannability. Ensure that keywords are used for the headings, and in the very first sentence
- Keep content minimal and just as much as is required to address a given problem
- Use search engine optimization techniques to ensure better visibility of your content
- Broaden the reach of your help content. Promote your content on social networking sites.
- Stop visualizing content in the book format. The book model was for the book.

JOB REQUIREMENTS FOR TECHNICAL WRITER 2.0

Technical writer 2.0 will use collaborative and web analytics tools to improve Help content and the overall customer experience with the product.

Skill sets:

- Draw conclusions from research data to drive improvements in the product and support experience
- Collaborate with members of the product community to ensure continued engagement of its members on forums
- Write content that meets the needs of the larger user base, including mobile users
- Use the collective intelligence of the community to produce content based on user demand
- Use social networks to promote content created by members of the community
- Possess skill sets required for an internet driven world

IN CONCLUSION

Going forward, writers will leverage the collective intelligence of their user communities to create relevant content. The good news is that most writers are master collaborators. With some honing of existing skills and effective use of data analytics, writers now have the opportunity to occupy center stage. It is up to us to use this opportunity, or be relegated to the sidelines with the looming risk of extinction.

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Preran is actively involved with STC, India and has been its competition manager for two successive years. In his free time, Preran spends his hours in the kitchen or reading books related to evolutionary biology and cognitive psychology.

BRAVE NEW WORLD: TAPPING ENTERPRISE COMMUNITIES THROUGH GAMIFICATION

Marta Rauch and Samartha Vashishtha

While the general principles of building and harnessing product communities apply to the enterprise space as well, some unique challenges confront writers who are out to build content ecosystems around enterprise products. This paper examines these challenges and discusses how gamification strategies can help in effectively leveraging the expertise of enterprise communities for content creation.

UNDERSTANDING COMMUNITY CENTRIC DOCUMENTATION

The emergence of Web 2.0 has expanded the scope of the technical communication profession all over the world. An ever-growing number of technical communicators are now actively blogging and using social media to engage with customers and readers. The hundreds of technical communicators registering their presence on Twitter are a fair indication of how the profession is embracing change. While many technical communicators appreciate the dimensions that Web 2.0 is adding to their role, few realize that it is changing the very definition of technical communication and how it is perceived by users. Technical communication throughout the 1990s and much of the present decade has been focused on “core” Help deliverables that are typically shipped as part of the product DVD and are closely aligned with product release milestones. Such deliverables include user’s guides, online Help in formats like FlashHelp and WebHelp, knowledge base articles, release notes, and so on.

In the years to come, technical communication will essentially be Community Help—a continually evolving amalgam of core Help content and the best community-created user assistance content available across the Web. Also, the boundary between core Help and community content will only blur as we move along. Core Help content will hyperlink, dynamically and statically, to community content and incorporate the best community content in line with due attribution.¹

Also, the true value of community-centric documentation is in complementing traditional documentation deliverables rather than supplementing them. To this end, effective community documentation initiatives must address top user issues, fill gaps in user assistance content, or provide value-added deliverables, such as videos, FAQ, and workflow information.

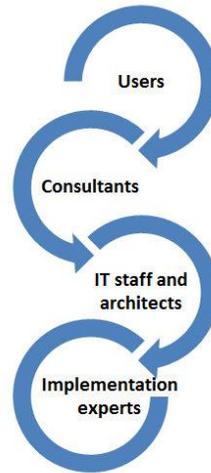
DEFINING ENTERPRISE COMMUNITY

While the basic principles of harnessing communities remain consistent across products and domains, we must examine the special nature and composition of enterprise communities to effectively tap their content expertise.

Enterprise products often differ from desktop products in both their target user-base as well as distribution models. While desktop products can be seen on the shelves of retail stores or bought off the Internet, enterprise products are often distributed through channel partners or system integrators. Unlike desktop products that feature “click-click-click” installation wizards, implementing an enterprise product could be an involved process requiring deep technical expertise. In fact, many IT services companies hire skilled consultants specializing in one or more enterprise platforms as part of their “technology practices”. For example, several Indian technology services firms employ thousands of SAP-technologies professionals.

¹ Community Help: Technical Communication for the Web 2.0 User, [Intercom](#), December 2010

In line with the usage patterns of enterprise products, the content communities of interest largely comprise IT staff and architects, consultants, and implementation experts. End users could form a significant part of enterprise communities for the “human interfaces” of the enterprise product. However, in our experience, some end users look at enterprise software as an embedded block of their organization’s IT infrastructure rather than standalone products that they have a stake in improving. These end users could report bugs or share feedback around usability, but their role in providing implementation content and best practices may be limited.



Typical composition of an enterprise community

POSSIBLE SOURCES FOR KEY ENTERPRISE CONTENT TYPES

The following table summarizes the kind of content that can usually be sourced from different key constituencies of enterprise communities:

Community constituency	Content type
Internal community (engineering, quality engineering, field, sales, and support teams within your organization)	HowTo articles, information about customer top issues, knowledgebase article ideas, case studies, etc.
Solution partners and consulting firms	Solution partners and consulting firms
Customer organizations	Customization notes, implementation scenarios, field issues, etc.

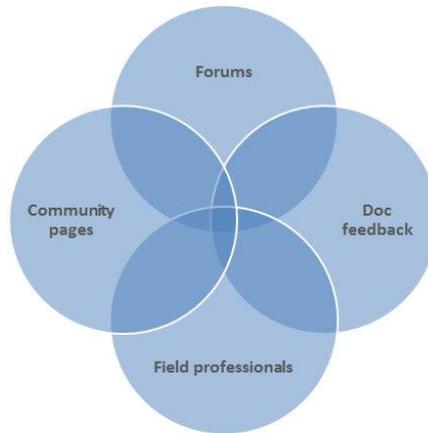
While evaluating and leveraging content from solution partners (vendors), do bear in mind that some of this content may be specific to the tools that the vendor creates on top of your organization’s enterprise offering. In such cases, carefully evaluate the value of the content for the overall product community, and if possible, also seek the advice of the product management.

PLATFORMS FOR ENTERPRISE COMMUNITY ENGAGEMENT

Generally, you can interface with product communities using one or more the following channels:

- Official and industry forums

- Feedback and comments on documentation
- Field professionals employed with your organization
- Blogs and comments on key blog posts
- Enterprise community aggregators and pages (implementation varies from company to company)



Interfacing with enterprise communities

STRATEGIES FOR TAPPING ENTERPRISE COMMUNITIES

Tapping enterprise communities successfully involves addressing the “What’s in it for me” factor for contributors. Contributors must be encouraged to share their expertise. Quality contributions from the community should be accorded adequate visibility and rewarded to the greatest extent possible. For consultants and product professionals in particular, recognition as product experts and community leaders is paramount as a business development tool.

Since community contributions are mostly voluntary, a consistent framework for acknowledgment and rewards must be enforced to sustain motivation. Such a framework must also be fun, engaging, and capable of fostering a healthy sense of community competition. It’s here that enterprises have found great value in a solid understanding and implementation of gamification strategies.

Let’s look closely at some of these enterprise gamification strategies and how they are helping leverage the content expertise of communities.

ENTERPRISE COMMUNITY GAMIFICATION

Enterprises of all sizes are ramping up on processes and products based on gamification principles. Gamification gives communities an edge by increasing motivation and performance. It also helps enterprises improve innovation, keep up with competitors, and increase return on investment (ROI). To adapt to this trend, technical communicators must develop skills in gamification. The following sections look at the definition of gamification, why it is important to enterprises, how enterprises are using gamification, and how communicators can gain skills to prepare for the future.

WHAT IS GAMIFICATION?

Gamification uses techniques borrowed from software games to drive behavior in situations outside of games. According to industry thought leader Dr. Michael Wu, PhD, it “uses game attributes to drive gamelike behavior in a non-game context.” Wu further defines gamification as:

1. “*The use of game **attributes**,*” which includes game mechanics/dynamics, game design principles, gaming psychology, player journey, game play scripts and storytelling, and/or any other aspects of games
2. “*To drive game-like player **behavior**,*” such as engagement, interaction, addiction, competition, collaboration, awareness, learning, and/or any other observed player behavior during game play
3. “*In a **non-game context**,*” which can be anything other than a game (for example, education, work, health and fitness, community participation, civic engagement, volunteerism, etc.)²

WHY ENTERPRISES NEED GAMIFICATION

Enterprises see gamification as critical for reducing costs, producing revenue, and staying competitive. Demonstrating gamification’s return on investment (ROI), the IBM Social Laboratory experienced dramatic reductions in internal project time and costs after introducing gamification to their translation process. “For a language translation and localization effort for product manuals that typically cost the company millions, IBM was able to significantly reduce the expense and increase accuracy by awarding points to employees who helped translate the documents. Employees with the highest point totals earned money for their charities.”³

With these types of benefits, the move to enterprise gamification is accelerating. According to the market research firm Gartner, “By 2015, more than 50% of organizations that manage innovation processes will gamify those processes.” Gartner further predicts that, “by 2014, a gamified service for consumer goods marketing and customer retention will become as important as Facebook, eBay, or Amazon, and over 70% of Global 2000 organizations will have at least one gamified application.”⁴

The market research firm M2 also forecasts rapid market growth in enterprise gamification⁵:

- The size of the gamification market, currently estimated at around \$100 million, will grow to more than \$2.8 billion by 2016.
- Enterprise represents the largest vertical segment of the gamification market, accounting for nearly a quarter of the market.
- Top Gamification vendors are projecting 197% growth in 2012, up from 155% in 2011.
- Gamification vendors report that 47% of client implementations revolve around user engagement, with brand loyalty accounting for 22% and brand awareness 15% of implementations.

GAMIFICATION OF THE WORKFORCE

Another reason enterprises are turning to gamification is to engage their workforce and encourage innovation. According to Dr. Jane McGonigal, PhD, 174 million Americans were gamers in 2009, and the number

² What is Gamification, Really? <http://lithosphere.lithium.com/t5/Building-Community-the-Platform/What-is-Gamification-Really/ba-p/30447>

³ Why IBM Represents the Future of Social Business http://articles.businessinsider.com/2011-07-20/tech/30034737_1_ibm-executive-ibm-employees-sametime

⁴ Gartner Press Release Egham, UK, April 12, 2011 <http://www.gartner.com/it/page.jsp?id=1629214>

⁵ Gamification.com <http://www.m2research.com/gamification.htm>

continues to grow. In the U.S., the average 21-year-old has spent 10,000 hours in games, the same number of hours they spend in school. This is also the number of hours required to become expert at a task, per Malcolm Gladwell's 10,000 Hour Rule (Outliers, Gladwell).

Using gamification strategies within the enterprise keeps these employees motivated, engaged, and productive. Dr. Michael Wu suggests that enterprises see increased profits and a return on investment (ROI) for gamification due to improved employee engagement, corporate efficiency, and quality of service. SocialCast⁶ suggests that this is because gamification can help companies:

- Energize their workforce
- Drive performance improvement
- Innovate organically
- Identify emerging leaders
- Motivate teams

GAMIFICATION OF ENTERPRISE COMMUNITIES

Gamification is an effective way to enhance enterprise communities. For example, at our own companies, both Oracle and Adobe use gamification techniques to motivate community participants, reward behavior, and encourage participants to actively contribute, share, and help address issues.

Whether using gamification internally or externally, enterprise best practices include:

- **Define the problem, mission, and rules:** Give users a clear problem to solve. Present the "gaming system."
- **Display progress:** Show players their progress, for example, using points or levels. Make the game easy to learn but hard to master.
- **Show status:** Post a leaderboard to give players a sense of social status. Provide real-time feedback. Leverage groups, teams, social media, and mobile.
- **Provide rewards:** Provide some degree of rewards, such as a new level or abilities.
- **Motivate users:** Use intrinsic motivation to keep users motivated through the end of the game. (Rajat Paharia, Bunchball Founder)

One key best practice is to understand what motivates your audience, and then map goals to their interests. The most effective rewards utilize intrinsic motivation. As Bunchball states on its web site, "Gamification works because it taps into our needs and desires."⁷ Dr. Michael Wu notes in his article on *Gamification 101: The Psychology of Motivation* that game mechanics work best when they tap into Maslow's hierarchy of needs.⁸

ENTERPRISE GAMIFICATION EXAMPLES

Oracle and Gamification

Oracle shows a strong commitment to gamification innovations for its online communities and products. For example:

⁶ Adding Play to the Enterprise <http://blog.socialcast.com/e2sday-adding-play-to-the-enterprise/>

⁷ Gamification Works <http://www.bunchball.com/products/gamification>

⁸ Gamification 101: The Psychology of Motivation <http://lithosphere.lithium.com/t5/Building-Community-the-Platform/Gamification-101-The-Psychology-of-Motivation/ba-p/21864>

- **Oracle's online forums** (<https://forums.oracle.com>) incorporate many gamification elements, including goals, points, rewards, levels, trophies, feedback, and leaderboards. The forum goal is for participants to help resolve issues. By providing helpful answers within the forum, participants are rewarded with points. Through accumulating points, they are allowed to move up through levels, which are shown by badges that display by their user names. User names are shown with badges and the number of points the user has earned by helping others resolve their issues. Top forum participants on a leaderboard called *Top Users in Category*.
- **Oracle's OpenWorld customer focus group** brought together some of Oracle's top online community participants for a dialog on what is working well for its online communities, and an exploration of how Oracle could encourage even more participation. Held during Oracle's OpenWorld conference in San Francisco California in October, 2011, this event conducted by the Applications User Experience team demonstrated Oracle's commitment to the success of its communities, and provided insights on how to enhance participants' experience in Oracle's enterprise communities.
- **Oracle's internal User Experience Summit on the Gamification of Enterprise Applications**, planned to be held in May, 2012, will bring together thought leaders and key stakeholders in Oracle Fusion Applications innovation to focus on gamifying user experience. The full-day event will be led by gamification experts on the Applications User Experience team.
- **Oracle Apps presentation at Gamification Summit 2012** will show how Oracle's research with real users helped them change how they design applications to include game mechanics, increasing participation in communities, increasing productivity in workers and making work more engaging for all. Oracle gamification experts will share the research approaches, design patterns and examples that have made Oracle a leader in gamification of enterprise apps.
- **Oracle's Apps User Experience team** includes gamification experts who share gamification best practices on their blogs and other postings. For example, [Games At Work, Part 1](#) explains why people are motivated to play games, and [Games at Work, Part 2](#) shares strategies for applying game mechanics effectively in the enterprise⁹.
- **Oracle's @GamifyOracleApps Twitter account** shares gamification news, tips, and best practices using the [#GamifyOracle](#) hashtag.

Adobe and Gamification

Some examples of how Adobe applies gamification include:

- Adobe's **online enterprise forums** incorporate gamification features such as goals, rewards, levels, feedback, and leaderboards to encourage community leaders to participate.
- **Content contributions from the community** are evaluated, rated, and showcased to encourage participation
- **Enterprise community content pages** showcase the best of community content and identify and reward community leaders (<http://blogs.adobe.com/livecyclepost>, <http://blogs.adobe.com/DMSPost>, and so on.)
- Adobe's consumer product, the **Digital Marketing Suite**, incorporates gamification analytics through a partnership with BunchBall.¹⁰

Other Enterprises

Many other enterprises are moving to gamification of online communities and for internal and customer-facing products and processes. For example:

⁹ Games at Work, Part 1 https://blogs.oracle.com/userassistance/entry/games_at_work_part_1, Games at Work, Part 2 https://blogs.oracle.com/userassistance/entry/games_at_work_part_2

¹⁰ Bunchball Working with Adobe on Gamification Analytics <http://www.research-live.com/news/analytics/bunchball-working-with-adobe-on-gamification-analytics/4006415.article>

- **IBM** gamified its product manual translation and localization, saving the company millions of dollars. Internally, its *Level Up for IBM Connections* successfully gamified the process of employee learning. Employees gain skills “not by reading manuals or taking training, but learning by doing.”
- **SAP** held an enterprise gamification cup, and gamified a recent TechEd conference.¹¹
- **Cisco** gamified its annual Sales Kickoff, achieving its goal of education, collaboration, and fun for “thousands of players highly engaged around the world.”¹²
- **Dell** is using gamification techniques to encourage attendees to get the most out of its Dell World conference.¹³
- **SalesForce** gamified its products by incorporating Nitro by Bunchball.¹⁴
- **Microsoft** gamified the PowerPoint ribbon to make learning Microsoft Office fun, and to teach users to leverage more parts of the platform. It also brought gamification to the recent release of Visual Studio, and let developers measure their success by using Tag QR codes.¹⁵

THE FUTURE OF GAMIFICATION

Gamification is growing rapidly, and the technology is not expected to mature for 5-10 years, according to Gartner in July 2011. Consistent with this trend, the enterprises surveyed for this article have already incorporated some form of gamification into internal or external products, processes, or communities. In coming years, we can expect to see more widespread adoption, and technical communicators will need to be proficient in gamification theory, aesthetics, terminology, dynamics, and mechanics.

Two recent STC Intercom articles on gamification point to the growing importance of this field to technical communicators. (“It’s All in the Game: Technical Communication’s Role in Game Documentation,” by Jeffrey Greene and Laura Palmer, *Intercom*, December 2011 and “The TC/VG Manifesto: Claiming Land in the Discovered Country of Gaming,” by Craig McKenney, *Intercom*, December 2011.)

Gamification is also being applied to solving world problems. According to calculations by gamification specialist Dr. Jane McGonigal, gamers have spent 5.93 billion years solving virtual problems. She asserts that society must harness this expertise by creating games that can help gamers change the world. (Jane McGonigal’s Reality is Broken: Why Games Make Us Better, and How They Can Change the World).

To this end, McGonigal developed the following three world-changing games:

¹¹ Welcome to the Gamification Cup <http://enterprise-gamification.com/index.php/de/blog/3-examples/6-oink-oink-welcome-to-the-sap-gamification-cup>, Gamification Gets Down to Business <http://www.forbes.com/sites/sap/2011/09/15/gamification-gets-down-to-business/>, SAP Tech Ed <http://www.saptech.com/home.htm>

¹² Cisco Information Through Play <http://www.nomimes.com/casestudies/hunt/>

¹³ Dell Hopes to Score with Gamification <http://www.informationweek.com/thebrainyard/news/strategy/231601797/dell-hopes-to-score-with-gamification>

¹⁴ Nitro for SalesForce <http://www.bunchball.com/products/nitroforsalesforce>, YouTube video http://www.youtube.com/watch?v=LprAZKSnm4Q&feature=player_embedded

¹⁵ Gamification: 4 Examples to Gamify your Content Marketing <http://blog.junta42.com/2011/07/gamification-examples-content-marketing/>, Ribbon Hero: How Microsoft Made Office Fun <http://www.youtube.com/watch?v=TRhjOBhAPb8>, Microsoft Visual Studio Achievements Program Brings Gamification to Development http://blogs.technet.com/b/microsoft_blog/archive/2012/01/18/visual-studio-achievements-program-brings-gamification-to-development.aspx

- **SuperStruct: Invent the Future** – In this game, players analyze future threats and provide proactive solutions to plan for a more successful future. After this game was introduced, 8,000 players provided 500 solutions within 8 weeks.¹⁶
- **World Without Oil** – In 2007, 1,700 players competed in this game and successfully changed personal habits, developed new strategies, and spread knowledge of how to live without oil.¹⁷
- **Evoke: A Crash Course In Changing the World** – Players of this game brainstorm ways to change the world, for which they are rewarded by certification by the World Bank as social innovators.¹⁸

The success of these games demonstrates the promise of using gamification to resolve major societal issues worldwide. In the future, many more products, processes, and communities will be gamified.

HOW TO DEVELOP SKILLS IN GAMIFICATION

If you work in an enterprise, one of your jobs or projects will involve gamification in the near future. Use the following strategies to “level up” and develop the skills you’ll need to succeed.

Here’s is the information you need to know about the gaming system for this section:

- **Your Mission** is to develop gamification skills to enhance your skillset and prepare for projects that involve enterprise gamification.
- **Your Strategy** is to complete the tasks for the following levels. After successful completion, you can move to the next level. After completing Level 6, you will be comfortable working on an enterprise gamification project.
- **Rewards and recognition:** After you move through each level, you receive the badge for that level. After you complete all of the levels, one of the authors (@martarauch) will tweet about your success.
- **Badges:** 1:  2:  3:  4:  5:  6: 

Level 1: **Begin your mission.**

- Review this article and the resources listed here as a starting point. Then continue to Level 2.

Level 2: **Learn about gamification technology.**

- Learn about gamification providers, such as the following companies that have helpful information on their sites:
 - Bunchball: <http://www.bunchball.com/>
 - Badgeville: <http://www.badgeville.com/solutions/enterprise.php#>
 - Gamify.it: <http://gamify.it/>
 - Lithium: <http://www.lithium.com/>
 - Shufflebrain: <http://www.shufflebrain.com/>
 - SCVNGR: <http://www.scvngr.com/>

¹⁶ SuperStruct Game <http://archive.superstructgame.net/about>

¹⁷ World Without Oil Game <http://www.worldwithoutoil.org/>

¹⁸ Evoke: A Crash Course in Changing the World Game <http://www.urgentevoke.com/>

- Become familiar with gamification platforms. For example, review this helpful resource: <http://enterprise-gamification.com/index.php/en/resources/platforms>. Then continue to Level 3.

Level 3:  **Deepen your understanding of gamification.**

- Take time to play a variety of games to develop an understanding of game mechanics, dynamics, leveling up, rewards, language, and aesthetics. As you play, you will become familiar with gamification concepts, and terminology, and will develop a sense of which techniques work well. Then continue to Level 4.

Level 4:  **Get involved.**

- Learn about gamification projects at your company. Provide feedback on how gamification can be incorporated in enterprise communities and products.
- Search for “gamification” in a browser and on Twitter, SlideShare, YouTube, and Google+, and begin following members of the gamification community.
- Read gamification articles and consider attending gamification events and conferences. Then continue to level 5.

Level 5:  **Try it!**

Design a mockup of an enterprise gamification solution, and have participants try it.

1. Pick an enterprise problem to solve, and determine where you want to implement gamification.
2. Determine your audience, and learn what motivates them.
3. Plan the player journey and story, and determine the goal.
4. Plan levels and a reward system. Include intrinsic rewards as well as social and mobile elements.
5. Create a storyboard and mockup that incorporates gamification elements.
6. Invite players to participate, and see if your strategy successfully guides them through levels, provides rewards for achievements, and enables them to reach their goals while meeting the enterprise’s goal. Then continue to Level 6.

Level 6:  **Mission Accomplished.**

- Put into practice the enterprise community gamification techniques used by Oracle and Adobe.
- Follow the model of the Oracle Applications User Experience group, and set up an internal Gamification Summit to collaborate on strategies for incorporating gamification in your company’s products and communities.
- As Oracle did, hold a customer focus group to gain an understanding of how to enhance the quality of your enterprise community using gamification techniques.
- Like Adobe and Oracle did, focus on curating, showcasing, and rewarding helpful community content.

Congratulations! By reading this article, you have successfully begun your gamification journey, and are developing skills to participate in enterprise gamification. You are on track to be prepared for 2015, when 50% of enterprises will gamify innovation, and 70% of brands will have at least one gamified application. Following the suggestions listed in this article will help you achieve your goal. Best wishes for success with your enterprise community!

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AUDIO RECORDING SIMPLIFIED: UNDERSTANDING NOISE, DISTORTION, AND GAIN

Robert Hershenow

Better-quality audio will more successfully engage an e-learning audience. This article offers insight into three important yet often misunderstood audio concepts, and how to deal with them effectively.

A basic understanding of noise, distortion, and gain will improve your voice recordings for e-learning sessions, podcasts, and presentations. It is relatively easy to optimize your recording environment, your microphone technique, and your recording system's gain structure, to reduce or eliminate noise and distortion in your voice recordings.

DEFINITIONS

Noise is defined as any sound other than the sound you wish to record.

Distortion is a misrepresentation of the audio signal at the output of a system or stage, as compared with the signal at its input. Distortion that degrades recorded sound is usually caused by overdriving the recording system or – to a much lesser extent – by a poor recording environment.

Gain is a measure of amplification. Gain-related considerations can be mathematically complex; however, this article considers gain only in simple, relative terms. A recording system usually comprises several *gain stages*, separate sequential parts of the audio path that each affect signal gain.

WHY IS THIS IMPORTANT?

In a recording, even minor noise or distortion is a distraction that can divert the listener's attention, and make an otherwise excellent recording sound unprofessional. The most effective recordings are transparent; a learner with no conscious awareness of "listening to a recording" can focus entirely on the content.

Properly setting the gain structure along the entire audio chain will minimize both noise and distortion.

NOISE

Noise can be separated into three categories:

- **Environmental Noise** – the sounds around us, in the room and outside; from other people, animals, tools and appliances, the building, vehicles, the weather...
- **System Noise** – sounds generated *inside* your recording system: hums, buzzes, hisses, clicks...
- **Self-Induced Noise** – sounds you make yourself with your breathing, mouth, hands, clothing...

The best way to deal with **Environmental Noise** is to go someplace where it isn't. Find a quiet room. Close the door, or move down the hall or to another building. Borrow an empty room at a school or church, or even record in your car (while parked, please). If you can't go elsewhere, maybe you can shift your recording time to before or after business hours when the building is quiet. You may also be able to adjust your environment, or work with its shortcomings.

Be sensitive, listen "with new ears" to hear sounds you may be accustomed to and don't notice anymore (a ticking clock, the ventilation system). Block cracks around windows and under doors where noise gets in. Face your microphone away from noise sources, and place it up close to make sure your voice dominates the

recording (see **Gain**, below). Use a high-pass filter to roll off low-frequency hum and rumble from the air conditioner or outside traffic.

System Noise is generated within the recording system. All electronic components create some thermal noise and pick up radiated noise from their environment. In simple recording setups this should be minimal, as long as the gain structure is set correctly.

You can minimize additional system-related noise by routing cables carefully. Run signal wires and AC power cables apart from each other; if they have to cross, try to cross them at 90°. Make sure cables are securely connected. Worn or broken cables can cause noise (or interrupt sound transmission); try replacing a suspect cable to see if that fixes the problem. Dimmer switches can radiate electronic noise that your system can pick up, so turn them off. Finally, try moving system components around relative to each other and to other nearby devices, or to a different spot in the room.

Self-Induced Noise may be the most troublesome, especially if you don't record very often. We don't usually hear the noise we make ourselves, because it coincides with our actions. Set a pen on the desk, and it makes a little noise which you probably don't notice, because you expect it and you know what it is. But on your recording, that little noise is a potential distraction to the listener, who didn't see you set the pen on the desk and will wonder – at least for a moment – what they just heard.

Other sources of self-noise are your breath, your mouth, your squeaky chair, your rattling papers, your hands and feet.

The best approach to preventing self-induced noise is to pay attention, and really listen for the sounds you make. Sit still while recording. Place your microphone out of the path of your breath, but still close enough to maximize your voice (and minimize other sounds). Practice! Use a copy holder so you're not rattling papers. Wear "quiet" clothing of cotton, silk, or other smooth fabric that doesn't rustle when you move. A nylon jacket will be noisy, and is probably not a good choice.

THE "NOISE FLOOR"

In any system a certain amount of noise is unavoidable. The simpler the system (and the better the design of its components) the lower its operating noise level, but there will nearly always be some system noise and some environmental noise. This "background noise" level is the **Noise Floor**. The goal is to record as far above the noise floor as possible, while keeping it as low as possible.

DISTORTION

Like noise, distortion can be environmental, system-generated, or self-induced.

Environmental Distortion is the product of sound bouncing around in a closed space, like a room. Every room affects sound by altering harmonics and adding echo and reverberation components. Some rooms sound good; some don't. Some are good for voice but not for music. Again, the best approach is to listen, practice, experiment, and see how different things sound on your recordings.

In general, big rooms sound better than small ones, and rooms with furniture and drapes sound better than empty rooms – though "better" is subjective and depends on what effect you're after. Microphone placement is important: try different spots in the room and see what happens. You can sometimes improve the sound of a less-than-ideal space by placing the microphone five or six feet out from a corner, so it faces the center of the room (rather than aligning it with the walls). Such placement can help break up the effects of room acoustics and deliver a more transparent sound.

System Distortion is usually negligible with decent gear, as long as you don't overdrive the mic or any of the inputs. The key is to obtain a decent microphone. USB-powered mics are handy, affordable, and they sound good. More expensive mics (\$100 and up) sound better than most cheaper ones (though the Samson GoMic at \$50 street price is a winner).

Self-Induced Distortion can result when you turn something up too far, or overdrive the microphone. Know your equipment and how to set levels properly, practice good microphone technique, and listen critically to your results!

GAIN

Even in the simplest system there are at least a couple of points where audio gain, or amplification level, can change. The first is the source; in this case, your voice (you can raise or lower its volume, changing the power of the sound wave that hits the microphone). The second “gain stage” is the microphone pre-amplifier, which may be in the microphone itself (as with some USB mics), it may be a separate component, and/or it may be part of the computer. After that your recording software has an input adjustment control, and perhaps a Master level as well.

Your system may not offer all these opportunities for gain adjustment, or it may offer even more. Either way, you must adjust each, including your voice, to deliver optimal volume. Any stage that is too loud will overdrive the next stage and cause distortion; any stage that is too soft risks increased noise.

Here’s how that works:

Each input, including the microphone, is capable of accepting up to a certain level of sound. Beyond that level, distortion occurs.

At the other end of the scale, the lower the signal level, the closer it is in volume to the noise floor. If it is too low, and you compensate by increasing it later in the audio chain – say, at the input of your recording software – you will also raise that noise floor by the same amount, degrading the recording.

To set levels, work from the beginning of the signal chain forward; each adjustment you make will affect those that come after it. Use the meters that appear in the dialog screens on your computer. Generically speaking:

On a Mac, start with System Preferences / Sound / Input; then, consult documentation for your particular recording software.

On a PC, start with Control Panel / Hardware and Sound / Sound / Recording; choose the proper input device and select Properties / Levels. Then, consult documentation for your particular recording software.

Speak into the mic and increase the level until the meter begins to show yellow. Shoot for 0 db; the yellow indicators should only blink occasionally. If the red indicators are illuminated the signal is distorting; back it off until those don’t light. Some level controls have no meters (for example, a knob on a USB microphone); in this case use your ears and the meter of the next stage to find the right setting.

With practice you’ll learn where to set the level control for each stage, and you’ll only need to make minor adjustments each time you begin a new project.

Happy recording!

ADDITIONAL RESOURCES

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TUTORIAL PACING

Viqui Dill, Sales and Marketing Technical Communications, American Woodmark Corporation

Tutorials need to be paced carefully. Too fast and folks don't learn. Too slow and they lose interest. This presentation discusses how to find a balance so that your tutorials are both engaging and effective, so that the pace is just right. Highlights include designing for the audience: creating engaged students by giving them what they need—to See/hear/touch, time to reflect, and to know what's next; creating well paced material that is “sticky”.

So you're about to make a new tutorial for an audience of folks who want to learn how to use a brand new system.

If you're like me, you may never get to meet the actual users. My company makes kitchen cabinets, which you can buy online. It's really hard to buy a whole kitchen worth of cabinets and if you make a mistake, it's usually a very costly and sometimes embarrassing mistake. My users are kitchen designers who take the home owner's input and measurements and turn the home owner's dream into a design and a list of parts to order for the kitchen. They will need to order everything from the cabinets themselves on down to the decorative handles and functional accessories like the wine rack and slide out trash bin.

I always assume that any user who is desperate enough to go to the online help is 3 things:

- New – they are new at the system and they want reassurance that it will be worth their time to use it.
- Alone – they are working alone at the moment, otherwise they would have just asked a coworker the question.
- Bothered – they are either angry, or scared, or both.

Whatever I offer them in my tutorials and online help, I have to be complete and accurate. I have to gain the trust of my audience and reassure them that no matter what the task is, they can do it if they just hang in with me and follow my instructions.

OK, so that's who will do the learning and the watching and listening. Since these folks don't work for my company, I have no prayer of ever meeting them.

Who will I be working with while I'm creating the tutorial? Who will tell me what's involved in each process? Who will give the final approval when I'm done? I will be working with the MIS folks who have designed the system for the designers to use. These guys and gals already know how to use the system. They will already know how to do each task. They will already know the answer to every question. They will be more concerned with accuracy and completeness of the content than with the effectiveness of the delivery. They will have very little patience for watching the tutorials teach them what they already know.

So I have to be able to build a bridge from what the SMEs, Developers, and maybe even the Marketing folks tell me to the actual needs of the actual users of the system.

TOO FAST OR TOO SLOW

So let's talk about pacing.

HOW FAST IS TOO FAST?

New folks need

- Time to see
- Time to read & hear
- Time to reflect
- Time to interact
- To know what's next

Well paced material is “sticky”

HOW SLOW IS TOO SLOW?

Bored learners will

- Click off
- Multitask
- Not come back

Well paced material is engaging

VISUAL PACING AND AUDIO PACING

So let's talk about two types of pacing, visual pacing and audio pacing.

VISUAL PACING

Visual tracking vs. visual focus

- Tracking
 - 1.5 second mouse sweep
 - 1.0 second silence
 - Highlight box
- Focus
 - Highlight box or draw ovals
 - Show mouse click 0.5 seconds

AUDIO PACING

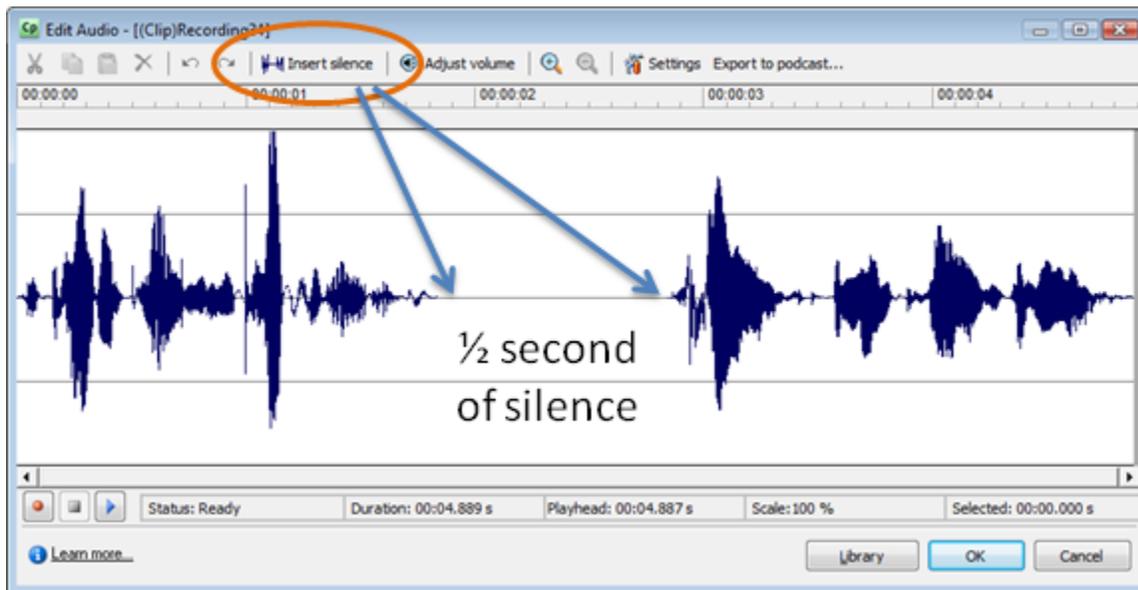
Instruction vs. narration

- Instruction

- Match video
- Read along
- Step by step
- Pauses match video
 - 0.5 seconds after caption
 - 1.0 second after screen change
 - 2.0 seconds for transition to next screen
- Narration
 - Explain concepts
 - Anticipate a question
 - Overview or summarize
 - Pauses match content
 - 0.5 seconds after a sentence
 - 1.0 second between ideas.
 - 3.0 seconds for reflection

Audio elements as objects

Silence separates phrases, sentences, ideas



Audio example

Audio Energy

Too much vs. too little

- High energy
 - Stimulating
 - Dynamic
 - Driven

- Low energy
 - Calming
 - Confident
 - Contagious

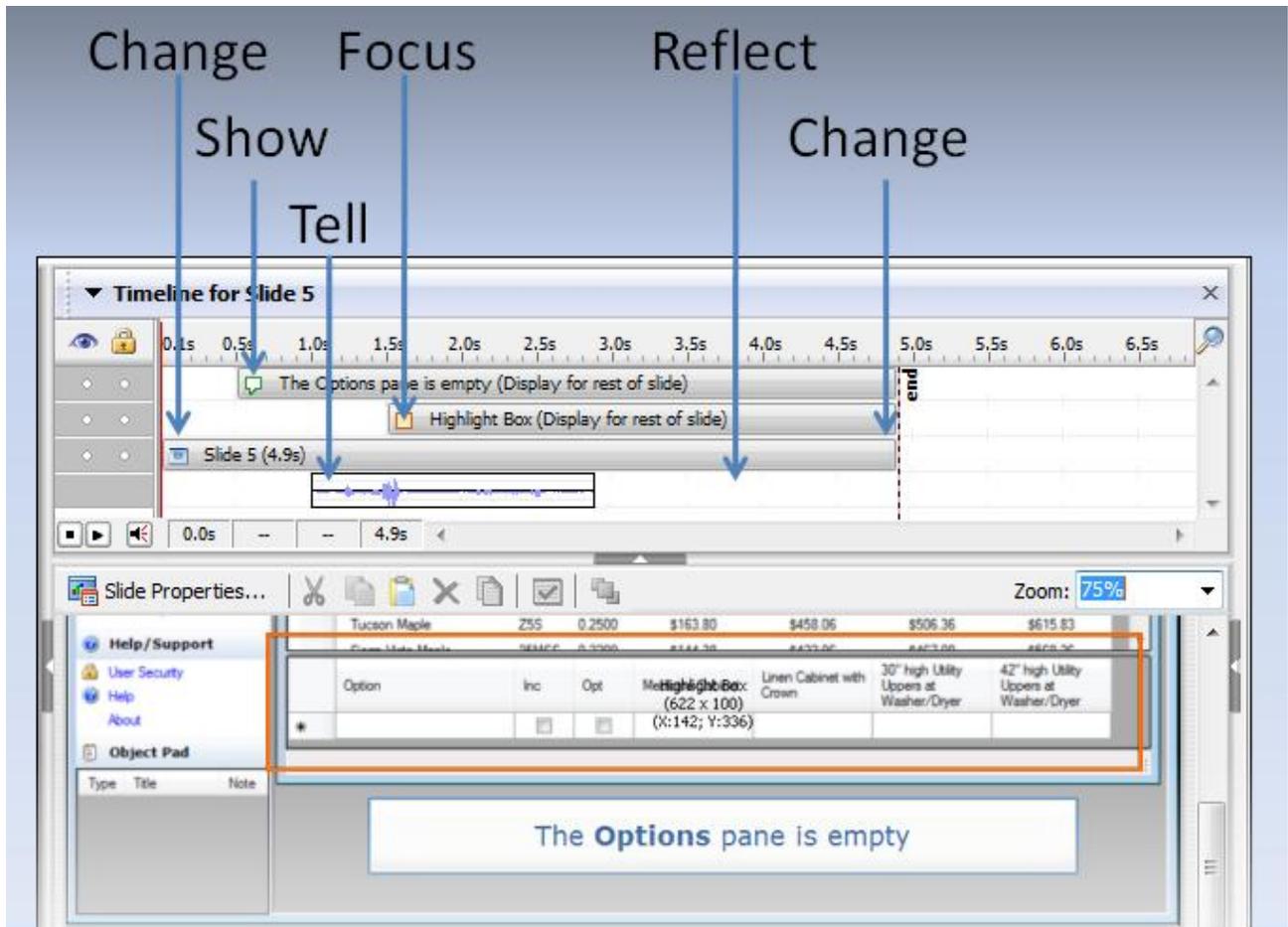
PUTTING IT ALL TOGETHER

Combined pacing of audio and video:

- Change slide
- Show what & where
- Tell with voiceover
- Focus visually
- Show what & where
- Time to reflect
- Change to next slide

The image shows a software interface for editing a presentation slide. At the top, a timeline for 'Slide 16' is displayed, ranging from 0.0s to 6.5s. The timeline includes several elements: a 'Mouse (1.5s)' event, a text box 'Default Preferred Packages are set up in the Channel Preferred Package window (Display for rest of slide)', and a 'Highlight Box (Display for rest of slide)'. Below the timeline, a preview window shows a slide titled 'Maintenance' with a list of items and a callout box containing the text 'Default Preferred Packages are set up in the Channel Preferred Package window'. Blue arrows point from text labels above the timeline to specific points on the timeline: 'Change' at 0.0s, 'Show' at 0.5s, 'Tell' at 1.0s, 'Focus' at 1.5s, 'Show' at 6.0s, 'Reflect' at 6.2s, and 'Change' at 6.5s. The interface also includes a 'Slide Properties...' window and a 'Zoom: 75%' indicator.

Example: Combined pacing of audio and video



Example: Combined pacing of audio and video

OTHER WAYS TO IMPROVE ENGAGEMENT

INTERACT

- Skip intro option
- Clickable pacing
- Roll over text
- Roll over graphics
- Review

WHAT'S NEXT? INTERACTIONS

Last slide offers choices

- Review old tutorials
- Move ahead to new tutorials

- Email me
- Online Help links
- Links to external sites

SUMMARY

Summary of conclusions:

- Design for audience
- Engaged students need
 - See/hear/touch
 - Time to reflect
 - To know what's next
- Well paced material is “sticky”

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Viqui describes herself as "Technical writer, wife and mom, bass player, worship leader. I'm happiest when folks sing along with me." She would love to connect with you and invites you to email her at social_media@stcfdc.org or follow her on twitter @viqui_dill.

PRACTITIONER-STUDENT INTERACTION: FROM CLASSROOM TO CLOUD

Ann Jennings, PhD

If practitioners are to interact with students, there must be a place for the two groups to meet. Traditional, physical locations are now supplemented by virtual locations. This exploration of locations is reinforced by the results of a survey I conducted of technical communication practitioners in 2010. In the survey, practitioners revealed their desired types of contact with students. A suitable match of locations and types of contact could make possible interactions between the two groups.

My 2010 survey of 480 technical communication practitioners (Jennings, 2010) revealed the significant interest of practitioners in interacting with university and college students. But where can interaction occur? Many institutions of higher education are located where STC communities do not exist. Thus, traditional physical locations—convenient for some practitioners and students—are inappropriate or impossible for others. Here, virtual locations come to the rescue.

WHAT KINDS OF STUDENT INTERACTION ARE PREFERRED BY PRACTITIONERS, AND WHAT ARE THE BARRIERS?

Kinds of Interaction. Practitioners who responded to my 2010 survey preferred certain activities with university or college students. Those activities are listed here in alphabetical order:

- Advising—Technical communication program boards
- Judging—Student portfolios
- Mentoring—Students or STC student chapters
- Participating—Student internships
- Presenting—Programs to classes or STC student chapters
- Teaching—Technical communication courses as part-time faculty members

Barriers. Survey participants mentioned several barriers to these activities, including lack of time, lack of contacts at educational institutions, lack of invitations to interact with students, and lack of company interest. All of these barriers can be addressed by thinking of them as problems of location rather than of access.

HOW CAN PRACTITIONERS OVERCOME LOCATION BARRIERS TO INTERACTING WITH STUDENTS?

Lack of time, which is often tied to distance, can seem less burdensome if practitioners can contact students outside of working hours and can avoid time-consuming drives to meetings; virtual locations can reduce excessive time commitments. Lack of contacts at an educational institution can be overcome if practitioners locate appropriate university and college technical communication programs listed in the academic database on STC's web site; because of online options for meeting with students, geography is not a barrier. The lack of invitations to interact with students may be overcome by practitioners approaching faculty members who

belong to STC's Academic SIG, rather than waiting for faculty to approach them. Assuming that practitioners can act as individuals in their contacts with faculty and then with students, another barrier falls away—lack of company interest. The academic database is as near as the nearest connection to the internet, and faculty members are as near as email service or the telephone.

WHERE CAN PRACTITIONERS AND STUDENTS MEET TO INTERACT?

Most of the barriers noted above are related to location and can be addressed successfully. Physical and virtual locations abound.

Physical locations. Universities and colleges with and without STC student communities have classrooms; an invitation to speak to a class will get a practitioner into a classroom. Universities and colleges also have meeting rooms where practitioners can host a meeting with students; a faculty sponsor may be required for the use of these rooms. STC communities meet at hotels and corporate offices; students can be invited to attend. Restaurants and coffee shops are available for formal or informal meetings. Local non-profit organizations such as libraries, community centers, and churches may provide space for meetings.

Virtual locations. Numerous virtual locations are available. Access to them may be limited or unlimited, free or by subscription. The most telling characteristic, however, is probably the synchronous or asynchronous nature of the medium. Examples of asynchronous locations include wikis such as STC's Body of Knowledge, communications networks such as MySTC, STC local community listservs, and Prezi. Synchronous locations for group interaction include Twitter chat as well as web conferencing opportunities such as GoToMeeting and WebEx. Some university or college online courses may permit practitioner participation through chat rooms or the GoToMeeting/group Skype academic lookalike, Blackboard Collaborate. It is available through the Blackboard learning management system used by many universities and college. Google offers various services including Google Groups for group discussions and Google+ Messenger for group texting for small numbers of users.

WHICH KINDS OF LOCATIONS ARE SUITABLE FOR WHICH KINDS OF INTERACTIONS?

Some pairings of practitioner intentions and ideal locations suggest themselves, as follows:

Activity	Physical location	Virtual location
Advising—Technical communication program boards	University or college campuses Free locations including public libraries and community centers	GoToMeeting or WebEx Group Skype
Judging—Student portfolios	University or college campuses	Online venues that permit uploading electronic portfolios and holding synchronous or asynchronous discussions
Mentoring—Individual students or STC student chapters	Individual students: face-to-face in a mutually agreeable location STC student chapters or other groups of students: face-to-face on campus	Individual students through asynchronous email or synchronous Skype
Participating—Student internships	Freelancers: face-to-face in a mutually agreeable location Corporations: a corporate office	Freelancers: email, Skype, wiki
Presenting—Programs to classes or STC student chapters	Face-to-face in a classroom or other university or college location	GoToMeeting or WebEx Group Skype

Activity	Physical location	Virtual location
Teaching	Face-to-face in a classroom	Online through a learning management system hosted by a university or college

WHAT ARE THE ADVANTAGES TO PRACTITIONERS AND STUDENTS OF PHYSICAL AND VIRTUAL MEETING PLACES?

Physical meeting places promise personal contact, which some practitioners may prefer, and which is traditional for many students. Practitioners can observe the students' responses and adjust presentations or answer questions as they arise. Students may find interacting with practitioners exciting. Students may also find live practitioners intimidating.

The appeal of online interaction is strong due to the promise of convenience and portability for busy practitioners. Online interaction based in Web 2.0, for example, wikis and social media, offers possibilities for exchange and collaboration that may be unavailable in the controlled environment of a classroom or a university's learning management system (Anderson, 2012). For practitioners and students, contact through wireless mobile devices—smart phones, iPads, and the like—offers opportunities for mutual exploration (Cochrane and Bateman, 2011). In addition, the time pressures that practitioners face are also faced by many students (Yau and Joy, 2011, p.29), and interaction through mobile devices can help overcome that barrier.

CONCLUSION

Physical distance is no longer a barrier to interaction between practitioners and students. Practitioners located close to a university or college can take advantage of that closeness to interact with students face to face in classrooms or other convenient locations. Practitioners located far from students can use online meeting software, Web 2.0 tools, and mobile devices to interact with students in the cloud. Due to the wide availability of virtual locations, practitioners who want to interact with students should be able to find a way to do so.

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DESIGNING STUDENT PROJECTS FOR THE TC BOK

Thomas Barker, Pam Estes Brewer

The TC Body of Knowledge (BOK) presents a valuable opportunity for students to participate in the creation of professional knowledge. Articles about topics related to student projects and learning are needed as the body of knowledge grows. However, professors are often unsure how to guide students in creating TC BOK content. In this presentation, we discuss the kinds of articles suitable for the BOK and present ideas for assignments that involve students in this worthwhile project.

OVERVIEW OF THE BOK

The TC BOK began in 2006 as a portal to knowledge in technical communication. It currently has 683 pages and 145 users who have written in the following topic areas: About TC, Managing Your Career, Producing TC, and Researching TC. Many contributions to the BOK list sources for future research or outline the essential nature of a topic. Thus, the BOK lies somewhere between a bibliography of sources and an encyclopedia of short articles.

The BOK has been managed by a team of professionals and academics since its beginning. It has an official charter and strategic plan, an editorial board, and guidelines for contributors.

The BOK has been featured in STC presentations and research at the STC Summit and *Technical Communication*.

TYPES OF STUDENT CONTRIBUTIONS

“One way to think is that this is a ‘superbook’ resource for those in technical and professional communication. This function is of high value to those of us who introduce students to the field. It’s not Wikipedia, because everywhere you look in TC BOK, it’s all about technical and professional communication. So exploring the resource and staying within it helps students model what the field is all about, what defines its interests, and what kinds of knowledge and experience are valued and used.” Dr. Stephen Bernhardt, University of Delaware

Reasons for Students to Contribute

- gain an introduction to the field of technical communication
- practice preparing professional materials
- contribute useful knowledge about technical communication to those in the field
- gain an understanding of collaboration with other professionals

SAMPLE BOK ASSIGNMENT

In the following figure, we provide an example of an assignment used to engage students with the BOK. Students can select any technical communication topic of interest, but they must position it in the BOK and link it with related topics taking care not to duplicate information. The BOK itself provides a real audience and context for student research; they are challenged to dig into a topic and synthesize what they find.

BOK Research Project

Eng 4300, Seminar in Professional Writing
Dr. Pam Estes Brewer

In this, the third of three projects for the professional writing undergraduate capstone course, you will research and write an entry for the Technical Communication Body of Knowledge (BOK).

Developing a technical communication BOK has been an ongoing and important effort by STC volunteers. Having a body of knowledge helps define the technical communication profession. The challenge for technical communication is that our profession is dispersed and interdisciplinary, with a large number of topics that need to be covered (STC President, Hillary Hart).

Creating content for the BOK requires audience analysis, content strategy, and rhetorical skill—most of the skills and concepts professional writing students need to prepare for the workplace. And, while you learn these skills and concepts, you will be benefitting the profession into which you will soon enter.

As you begin this project, follow these steps:

The BOK is essentially a Wiki. It is collaborative in nature. What does it mean to contribute?

Some of the best student contributions for the BOK are gist articles and annotated bibliographies.

What are some of the best resources for beginning your research?

1. Begin by familiarizing yourself with the BOK at <http://stcbok.editme.com>. Understand what is there. How is it organized? What types of content do you see?
2. Choose a topic that interests you and to which you can make a contribution with research and writing. Be sure you don't duplicate material that is already in the BOK.
3. Get my approval for your topic by pitching the idea to me, including where it will be positioned in the BOK and why there is need for further contribution on this topic.
4. Research your topic being sure to include seminal works as well as the most recent work on the topic.
5. Produce an alpha draft which you will have me review. Consider the following suggestions as you write:
 - As a web document, this entry must be easy to skim with links to related materials in the BOK as well as to other resources where possible.
 - Don't use URL's as links.
 - All bibliographic entries should be annotated to indicate the usefulness of the resource.
 - Use the active voice and a clear, concise style of writing.
6. Produce a beta draft which you will have your peers review and post to the BOK (I will give you access to the BOK as I have been assigned as an administrator for this purpose.)
7. Edit on the BOK using suggestions received. I will grade the final entry directly from the BOK.
8. Continue to edit your entry over time (even after this class has ended)!

Figure 1. Sample BOK Assignment

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Pam Estes Brewer earned her PhD in Technical Communication and Rhetoric from Texas Tech University. She teaches at Appalachian State University and serves as Director of Undergraduate Studies for English. Her research is focused on virtual workplaces, online education, and intercultural issues in technical communication. She is currently working on a virtual team book for the IEEE Press/Wiley and is Managing Partner for a start-up consulting firm, Virtual Teams International™. She is a new Associate Fellow in the Society for Technical Communication and Manager of the Academic SIG.

MENTORING 101: OTHER DUTIES AS ASSIGNED BY MANAGER

Deb Lockwood

Many technical communicators feel unprepared to mentor fellow employees or other folks asking for help through social networking sites. This paper outlines the five steps a mentor can take to create an enjoyable and successful mentoring relationship.

THE MENTORING RELATIONSHIP

Mentors come in all sizes and flavors. Each of us has had experiences with mentoring in one way or another. Think about parents/children, teachers/students, counselors/patients, or wise and trusted friends. In this paper I will discuss the mentoring relationship from a professional perspective; that of a mentor and a protégé.

In the best of all possible worlds, mentoring should be a symbiotic relationship, a give and take in which both participants gain benefit, not just the protégé. You might consider establishing this kind of relationship for many reasons, including the following:

- Advance a professional career
- Discuss career plans
- Evaluate options and achievements
- Build networks
- Discover resources
- Work through issues

On the other hand, mentoring is not professional counseling, is not necessarily a life-long commitment, nor should it be viewed as a drain on your time or wallet. Mentoring is not about mentors creating clones of themselves. Rather, mentoring is all about forming a relationship with another human being that is based on a commonality, such as working for the same employer, working in the same professional field, or having similar educational experiences.

STEP 1: MATCH THE MENTOR AND PROTÉGÉ

The first challenge is to find the right mentor and protégé pairing. Look for commonalities such as personality, field or work, or previous experiences. Keep in mind that some differences can foster creative thinking. Both parties need to have the ability to make a commitment to each other to accomplish the goal.

Know that you might not be the right match for this protégé. You'll know after you have assessed the protégé's needs and goals. If you aren't the right match, locate someone who is. Think of other professionals in your network, contact the possible mentor, and make an introduction.

STEP 2: DETERMINE THE GOAL

When starting your mentoring relationship, you need to determine the goal of your interactions. Establishing a goal up front will help you to know when the mentoring relationship has met that goal. Determine what the protégé needs. Is this person looking for a career change, needing professional or educational resources, looking for someone to help him or her with a software tool, or pursuing someone who can give him or her advice or opinions about an area of expertise?

Ensure that you understand the protégé's expectations of the relationship, including the following:

- Is this a one question/answer meeting or communication?
- Will you review a document or website?
- Does the protégé expect weekly the phone conversations?
- Will you be conducting a once-a-month review of work?
- Will you be making introductions to other people?

STEP 3: ESTABLISH THE RULES

You and your protégé must agree on the rules up front. Be clear and concise. Carefully consider your preferences and yet remain open to the protégé's needs too.

Ensure you think about and agree on the following items:

- The best time and day for communication (e.g., no later than 9:00 PM, will not respond during work hours)
- Preference for methods of communication (e.g., primarily e-mail, never text)
- Expectations for answers to queries (e.g., within 24 hours)
- Respect for one another's privacy and other time commitments

By being realistic and only committing time that you can afford to spend, you will do both yourself and your protégé a great service.

STEP 4: LAYOUT THE TIMELINE

Make sure that you talk about the timeline, discussing the following:

- How often will you interact (e.g., weekly, monthly, only on due dates)?
- Is there a firm end date (e.g., revising a thesis proposal or paper)?

Determine how much time you can devote and stick to it! (Just as it does in project management, scope creep happens in mentoring relationships too. Be on the lookout for it and handle it as soon as it arises.)

STEP 5: PLAN FOR NEXT STEPS

After your first meeting or interaction, what then? Perhaps the one interaction is all that is necessary and the protégé has exactly what he or she needs to pursue his or her goals. Great! At other times you might take some homework with you and review the person's resume, portfolio, online profile, or another document.

Make sure you mutually agree on delivery dates and do what is necessary to meet those dates. You are setting an example when you do what you have promised in the agreed upon timeframes. Expect the same in return.

Maybe you agree to be an ongoing mentor, giving advice intermittently or on a schedule. The ongoing relationship is entirely up to you, your protégé, and the needs of the situation. No two relationships will be exactly the same.

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Deb Lockwood has been a tireless proponent of the technical communications field for more than two decades. Whether mentoring students, professionals in other fields, or fellow technical communicators, Deb consistently promotes the profession's best practices while sharing information and discussing ideas. For several years she has been the mentoring committee manager for the STC Rocky Mountain Chapter, meeting with protégés in person, by phone, through e-mail, and through LinkedIn. As a lead documentation writer at CSG Systems International, Inc., in Denver, Colorado, Deb helped to establish documentation standards and constantly looked for opportunities to lead others by her example. In her new role as senior writer at OpenTV, she is currently on the other end of the mentor/protégé relationship as she learns from the company's other technical writers.

USING META-COMMUNICATION TO MANAGE SUCCESSFUL ONLINE TEAMS

Pam Estes Brewer

People who communicate in online teams in the workplace tend to emphasize the practical, day-to-day challenges of getting the job done. Few of them give thought to more broad patterns that might account for communication successes and failures. Meta-communication, or communicating about communication, can bring these patterns to the fore and help people to recognize what works and what doesn't. It can serve as a powerful tool both in preventing miscommunication and in recognizing it once it has occurred—before the miscommunication becomes more costly. This Proceedings article, based on a Summit progression presentation, explores the role meta-communication can play in managing successful online teams and how to structure meta-communication for best results.

THE POWER OF META-COMMUNICATION

Meta-communication may be the single most important component in the process of establishing effective online teams. The term “meta-communication” varies in use across fields (e.g., psychology, linguistics, business communication, education, etc.) and even within fields, depending upon the context of use. I use “meta-communication” in the online team process consistently with its use in the field of communication studies: the process of communicating about communication. More specifically, I use it to refer to communicating about communication and bringing communication preferences/biases to the conscious level within the online team, analyzing them, and finally arriving at a planned approach based on this knowledge.

The concept of meta-communication is often embedded in the recommendations of experts on online team communication regarding issues such as expectations, trust, and tool use (e.g., Lipnack & Stamps, 1997; Priest, Stagle, Klein, & Salas, 2006; Thompson & Coovert, 2006). Many of these guidelines have the potential to encourage or require meta-communication among members of the team; however, they also have the potential to be interpreted as management tasks wherein the decisions in each step are developed by management and given to team members—often not the most effective strategy.

When teams discuss communication, they become better equipped to adjust their expectations before problems arise or to correct the problems more quickly, thus making knowledge transfer more effective and making problems seem more manageable, less threatening. This is especially important in the often abstract world of online teams.

In order to harness and manage the benefits of meta-communication, we must identify this concept as having an exigency of its own and identify its components so that managers and team members may justify its importance to their own stakeholders and make it a strategic piece of the planning process for online teams.

THE PROCESS OF META-COMMUNICATION

In order to use meta-communication strategically and optimize its effects in online teams, consider the following guidelines:

1. Be sure that substantial meta-communication takes place BEFORE any work begins.
2. Provide a definition and examples of meta-communication for participants.
3. Provide information on the value of meta-communication. Be sure the team members know that the organization's leaders value this process.
4. Provide a safe place for meta-communication. "Safe" includes protected online space as well as a non-critical attitude similar to that used in brainstorming.
5. Allow adequate time for meta-communication.
6. Encourage team members to analyze and informally document their norms for communication.
7. Inform team members that they can revisit the norms anytime they like and that meta-communication will be a tool for ongoing use.

FOR CONSIDERATION

At my institution, Appalachian State University, the Department of Leadership and Educational Studies delivers many of their classes online using a 3D world tool called Teleplace. Each semester, new cohorts of teachers begin a master's program and are required to work in Teleplace in online teams to accomplish course objectives. Though this department is in a different college from mine, a year and a half ago, I began delivering a lecture at the beginning of each semester to each new cohort about the value and process of meta-communication. (This "lecture" has now evolved into a podcast that professors can show on their own instead of inviting me into each class. This has also allowed them to experiment with the placement of the podcast. They may ask students to view the podcast at the beginning of the semester, or they may delay viewing until teams have begun to have problems.) Just prior to my lecture or the podcast, students are asked to take a brief survey about their past experience with online teams and problems they may have encountered. Survey data indicate that most of these graduate students have moderate to no experience working in online teams prior to entering this program, and among those who have some online team experience, 68% report experiencing significant problems.

At the end of their first semester, and having worked heavily in online teams, they are again asked to participate in a brief survey about their experiences. Thus far, the survey data do not indicate a significant decrease in the number of perceived problems, but the course instructors report that problems in online teams occur much less frequently after the lecture on meta-communication.

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UNDER RESOURCED? USE AGILE COMPONENTS TO INCREASE PRODUCTIVITY

Julie Garrison

Even if your development or project group is not using an agile software development methodology or even developing software, documentation teams or projects can make use of individual agile components to increase productivity and quality with existing staff. This session reviews the purpose and mechanisms of six agile components and proposes indicators for their use by any team with common goals.

AGILE SOFTWARE DEVELOPMENT METHODOLOGIES

Agile software development is iterative, responsive, and adaptive. It is used best by self-organizing collaborative teams. The Agile Manifesto, published in 2001, introduced the term *agile* and 12 guiding principles for the methodology; some are easily related to the components discussed in this session. Many agile methodologies are in use today, including Extreme Programming, Feature Driven Development, and Scrum. This terminology in this session is based primarily on my experience with Scrum at two software development companies.

AGILE COMPONENTS TO CONSIDER

In this session, we will review the purpose and mechanisms of six agile components and discuss indicators for their use by any team with common goals.

These three components affect how the team communicates and collaborates.

- Daily Stand-up meetings
- Co-location
- Pairing

These three components affect how the team tracks its work.

- User Stories
- Iterations / Sprints
- Burn down

DAILY STAND-UP MEETINGS

Consider for any team interested in frequent and efficient communication to improve focus and problem-solving.

Daily stand-up or scrum meetings are described by Fowler in this way: “The whole team meets every day for a quick status update. We stand up to keep the meeting short.” A good stand-up provides status, energy, problems and routes to solutions, focus, and team building. These meetings are intended for team communication and not for status updates to management.

I personally think the focus on and sharing of your plan for the day is invaluable. The other benefits are icing on the cake. In addition to our development project stand-ups, our Doc team has a quick daily standup. Each of us provides the classic report to our peers: what I did yesterday, what I plan to do today, any blocking issues, and any discussion items to note. This provides some accountability and cross-task information

sharing, as well as that all-important focus. Discussions are noted on the board and occur after stand-up in various ways.

The Agile Manifesto includes this related principle: “Business people and developers must work together daily throughout the project.”

CO-LOCATION

Consider for any team interested in natural and rapid knowledge sharing and team relationship building.

You can use co-location part-time, full-time, or periodically as needed for members of a documentation or project team. Several or all team members share the same physical space in a team area or room. In a team room, each person works on their own tasks, but can quickly consult other team members when needed. Everyone in the room learns more about the project and work of the team. In my experience, this works best if team members are mobile with laptops, and also have a small single person space to use when needed.

From The Agile Manifesto: “The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.”

PAIRING

Consider for any team with tasks requiring creative design, expert collaboration, or focused training.

Consider this technique to encourage collaboration and accomplish training. Pairing simply means that two team members sit together physically for an agreed-upon time period or task completion. The pair has a task to accomplish and they both contribute to its completion. You can usually accomplish the task more quickly, especially challenging tasks requiring creative thinking. The pair can work in a driver/navigator manner or in a ping-pong manner.

The literature and team leads I have worked with seem to generally agree that the practice can improve productivity and quality, as well as help to train and develop career skills. The reasons it works are the same reasons that it is controversial among team members. Schuchert explains this as, “The challenge lies in the fact that working as a pair demands a level of attentiveness, collaboration, and continuous focus that working solo just doesn’t require.” As with all the agile components, you can use pairing in various ways and timeframes that make sense for your team and project.

USER STORIES

Consider for any team interested in focusing efforts on user business needs, and prioritizing work based on those needs.

Agile development captures requirements in units called user stories. An ideal user story is a statement of a user business need, which translates into a user feature. In agile, the user story is recorded on a physical or virtual card that can be placed into an iteration plan and processed by the team. Waters suggests this template: “As a [user role], I want to [goal], so I can [reason].” Although most methodologies work from user requirements, the agile difference is the creation of distinct items you can prioritize and process individually, adding technical information and adaptations as you go.

The Agile Manifesto includes this related principle: “Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.”

ITERATIONS / SPRINTS

Consider for any team interested in an improved work pace and targeted efforts.

Employ more frequent milestones and use agile iteration planning and review techniques to obtain more focus and business value. An agile iteration, or sprint, is a time period for the team to complete a specific set of work, selected at the start of the iteration. Teams can set up iterations to last from one to four weeks. At the end of the iteration, the work should be reviewable or demonstrable. Planning and reviewing work on shorter cycles helps you get more work done every day and avoid crunch time by pacing the work. You also benefit from the adaptive planning and more frequent review. Iteration planning allows you to reassess outstanding work in terms of user value, select the highest priority items, and adapt as needed.

The Agile Manifesto states the principle in this way: “Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.”

BURNDOWN CHARTS

Consider for any team with estimated tasks and a deadline to meet.

Burndown is a technique for the team to gauge its progress against a project plan that includes task estimates and an end date. In agile, the tasks are user stories, but burndown can be used with any set of tasks. Your team must commit to daily recording of the hours (or points if you are really using agile) burned or remaining, so that the total remaining can be calculated. The graph shows work remaining over time, as well as an ideal line indicating the work required to meet the date. The following graph is an example burndown chart with hours on the y-axis and dates on the x-axis.



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TIPS AND TRICKS FOR COMMUNICATING WITH REMOTE TEAMS

Elizabeth Navarro

Technical writers are increasingly expected to work with distributed teams in different time zones and even different countries. With tight project schedules and limited resources, it's vital that you communicate effectively with your team to get the information you need. This presentation addresses some common challenges on remote teams and offers some tips and tricks for improving communication, developing good working relationships, and avoiding mistakes that can result in frustration and wasted time.

BACKGROUND

I work for a software development company with offices all over the world. Most of the software developers and testers on my team are contractors located in Bolivia and India. The Development Manager, QA Lead, and I are located in Houston, TX, and our Development Lead is in Austin, TX. At my company we use Agile development methodology, which means we try to do smaller product releases more frequently. Good communication is critical to the success of an Agile team, so we've had to really work on improving our lines of communication.

Besides daily communication challenges, we've also had frequent team reassignments and turnover in Bolivia and India. As a result, we've had to work harder to develop and maintain relationships with our team members.

CHALLENGES TO EFFECTIVE COMMUNICATION

Some of the most common challenges to effective communication on distributed teams include the following:

- Working with team members who are in different time zones
- Recognizing and respecting cultural and language differences
- Working with unresponsive (or just really busy) people
- Choosing the best communication method/tool

TIPS AND TRICKS

The following tips and tricks are mostly based on my own experience, though I have also included some tips from friends, co-workers, and other sources. The Additional Resources section also includes some articles I've found helpful.

GET TO KNOW YOUR TEAM MEMBERS

Try to connect face to face with your team whenever possible. Even if you can't meet with your team members in person, do your best to put a face to the name. If travelling to India or Bolivia (or wherever your co-workers are located) isn't an option, and you don't have a webcam on your work computer or video conferencing available in meeting rooms, at least ask your team to pass around pictures of themselves. We have a SharePoint site for each of our products, and we have pictures posted of everyone on the team. (On our Information Development SharePoint site, we went one step further and asked everyone to include details

such as birthday, favorite color, outside interests, etc. We've also recently introduced a buddy system so writers in different locations can help each other with new tools and processes.)

When I first started working with my remote team, I had the sense that I was out of the loop much of the time. I didn't want to disrupt our short scrum meetings to ask a lot of questions, but it often seemed that Development and QE were sharing more information with each other than they were with me. So, I now have weekly face-to-face 1:1 meetings with our Development Manager in Houston to ask additional questions and fill in the gaps. He has travelled to Bolivia and India several times to work with our teams in person and is able to answer a lot of my questions. We talk about urgent customer issues that the team is addressing (that may impact their responsiveness to my doc questions), who is the best person to contact for specific technical information I need for the doc, turnover on the team or changes in responsibilities, upcoming priorities, and so on. These meetings have helped me be much more effective on the team.

It's important to learn as much as you can about your team members and how they work. For example, because of rush-hour traffic, most of my team members in Bangalore (India) tend to come in to the office late and work late. This type of information is helpful when you're scheduling meetings or trying to IM someone.

BE AWARE OF CULTURAL DIFFERENCES

If you're working with team members in other countries, recognize that there are likely to be cultural differences that may impact communication. Do some research and talk to colleagues who have more experience with the culture so you are better informed. Just being aware of cultural differences can help you avoid misunderstandings and project delays. For example, in the U.S. we tend to be very goal-oriented, but in some countries social hierarchy and manners are considered extremely important. You may find that some team members are too polite to ask questions, or may not be willing to disagree with a team member they consider a superior. You may have to work harder to draw them out and get their input when it's needed.

WRITE EFFECTIVE EMAILS

Writing effective emails is particularly important when working with widely dispersed teams because miscommunication often means additional unnecessary delays.

Pay close attention to the tone and language of your emails. Even if recipients are native English speakers, emails can easily be misinterpreted. That risk is magnified when recipients are non-native English speakers. If in doubt that a comment may be taken the wrong way, it's always better to leave it out. Attempts at humor can also easily backfire. It's much easier for people to gauge meaning and tone when they can see your facial expressions and body language, so save humor for face-to-face meetings or video calls.

When using distribution lists (DLs), check them from time to time to make sure all the right people are included in the list. We have a lot of turnover with contractors in Bolivia and India, and the DLs don't always get updated when team members move on to other projects. I've also discovered there are DLs that remote teams have set up internally that don't include me (not intentionally, but they are so used to using those DLs that it never occurred to them).

Some good rules of thumb for emails:

- Use the Subject line of your emails to clearly communicate the purpose of the email.
- Keep your emails concise and make them easy to scan. Use bullets or numbering where possible to organize questions. Don't use long paragraphs of text. Emails that are too long are less likely to be read.
- Don't go off on tangents with email threads. Stick to the original subject of the email. If you have new questions that are not relevant to the original thread, start a new email thread.
- Always re-read your emails before sending them.

RUN EFFECTIVE MEETINGS

As I mentioned, my company uses Agile development methodology, so we have frequent scrum team meetings. Even if you aren't using Agile though, if you are working with a remote team you need to have more frequent meetings to help team members stay connected and informed.

Use GoToMeeting, Microsoft Live Meeting, or similar tools that enable you to share your desktop and transfer control from one person to another. If you're the organizer, arrive early to set up the meeting. Make sure you know how to use the tools so you're not wasting people's time.

If you're teleconferencing and you have several people in the same room and others on the phone, try to get everyone in the habit of identifying themselves when they speak.

Share your calendar with everyone on your team and keep it up to date so people know when you're available. (You can mark personal appointments as private so the details aren't shared.) You may not be able to require the rest of the team to share their calendars (or your tools may not support this), but you can make the suggestion and lead by example.

There's no shortage of information available about running efficient meetings, but here are some important basics:

- Respect people's time. Schedule regular meetings so people can plan their time. If you're working with a larger group and different time zones, try to make sure the time works well for the majority of the attendees.
- Send out the agenda in advance, start and end the meeting on time, and stick to the agenda.
- After the meeting, send out an email summarizing decisions that were made and action items to be completed.

OVER-COMMUNICATE

Follow-up, follow-up, follow-up. For every email I send my team, I usually have to send at least one follow-up email before I get a response. It's frustrating and sometimes it's hard not to take it personally, but I know it's just because everyone is overworked and things slip between the cracks.

However, be aware that there's a fine line between being persistent and bugging people to the point of alienation. When you follow up with people, keep the tone friendly. The goal is to get the information you need to do your job, but you also need to have good working relationships with the people on your team.

After meetings, always send out an email summarizing decisions that were made, action items, etc., to minimize any miscommunication.

Similarly, if you've emailed a question to the team and it turns into a convoluted thread with a lot of discussion, try to recognize and stop this before it gets out of control. Schedule a meeting with all of the parties and get the question resolved. Then send a follow-up email to confirm the team's decision.

CHOOSE THE RIGHT TOOL FOR THE JOB

There are lots of different communication tools available nowadays, but as individuals we tend to have a preferred communication tool, and it's a good idea to find out if your team members have a preference. Non-native English speakers who may be self-conscious about their oral language skills often prefer emails because it doesn't put them on the spot. It gives them more time to think about and prepare their response.

Consider alternative communication methods. Instant messaging tools such as MS Office Communicator, Skype, and Campfire give you the ability to track and save conversations, share files and links, etc. Keep in mind though, IM can be disruptive. Even if someone's status isn't set to Busy, it's a good idea to start an IM

session with someone by asking whether it's a good time for them to chat. Don't just immediately launch into your questions.

Don't worry if you're not a fast or accurate typist. I tend to be a perfectionist when it comes to emails, but with IM I think making typos and not being rigid about capitalization and punctuation makes you more approachable and can actually lead to closer working relationships.

My team uses Microsoft SharePoint to share and store project documents in a central location, but there are lots of other tools that are worth looking at. For example, for sharing files, calendars, etc., consider Google Docs, Google Calendar, and Dropbox. Dropbox is a great tool for sharing larger files without bogging down someone's email.

There isn't a one-size-fits-all solution for remote teams. Flexibility and patience are key, and you have to be willing to say, "Okay, this isn't working" and try something else. It *will* take trial and error to find out what works for your particular team.

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CLUTCH AND COOL TECH COMM: HOW TO TRAIN

Carol Lamarche

Like athletes, technical communicators may enjoy great winnings, but they also face significant challenges. To succeed in their trials, both groups need savvy approaches to training and cultivating the right mindset. Both groups can use approaches to training, focus, and resilience to stay “clutch” and cool, and have fun pursuing their goals.

Athletes and technical communicators alike face challenges. To succeed in their trials, both groups need savvy approaches to training and cultivating the right mindset. Being “clutch” in sports means performing well under extreme stress. Being cool means manifesting everyday calm and workability.

Athletes might need to be clutch in high-stakes races or pivotal moments in games, and stay cool all year in training. Technical communicators have various high-pressure moments—deadlines, organizational changes, budget cuts—requiring us to stay clutch. And we have the daily grind, which requires us to stay cool. By incorporating approaches used in sports, including training, focus, and resilience, we can learn to stay clutch and cool and enjoy ourselves along the way.

TRAINING

Training begins with practice and culminates with mastery. As athletes tackle all aspects of their game, so do technical communicators. For us it’s about mastering our tools, techniques, and roles.

PRACTICE

Elite athletes usually spend many years perfecting their skills, often starting in the first years of life. To really become familiar with a sport, an athlete lives and breathes it. Steve Fraser, American Greco-Roman wrestler, trained for 16,000 hours over eight years to be good enough to compete in the Olympics.¹

Study, observation, and repetition (yes, drills) all have a place in a professional’s development. They require getting a good foundation, remaining involved in the industry, and gaining facility while raising the bar.

Yet practice is rewarding in its own right. Every running magazine on the newsstand extols the joys of self-mastery, not to mention runner’s high. According to the Olympic creed, “the most important thing in life is not the triumph, but the fight; the essential thing is not to have won, but to have fought well.”² At the end of the technical communicator’s day, too, qualitative experiences are often those to leave the greatest impressions.

MASTERY

If we want to excel, we might consider the Olympic motto: “Citius—Altius—Fortius.” “Faster—Higher—Stronger.”³ It inspires if we want to reach new heights, but it works equally well if we just want to limber up. Perhaps we want to parlay our way into the company’s presidency, but maybe we just want to master a new tool for an upcoming project.

Change and growth are challenging, but they are exciting and within our grasp. What’s more, we can become accomplished even when faced with obstacles. Chantal Petitclerc, Canadian wheelchair racer, who lost the use of her legs in childhood, went on to become “the most celebrated track athlete in history.”⁴ This Hall-of-Famer, who claims a host of awards and honours, is the only athlete from her nation to have won gold medals at the Olympics, Paralympics, and Commonwealth Games. Like this accomplished sportswoman, although

we may face considerable impediments to success in our projects and careers, we can meet them with tenacity and optimism. If we do, we'll end up with something to show for our efforts.

FOCUS

Whatever our hopes, athletic or professional, we need to have goals and stay focused.

GOALS

It's well known that committing goals to writing is more helpful than formulating them in mind. When asked whether they had written down their goals, nearly everyone in a group of elite athletes raised their hands. When asked if they had those written goals with them at the time, only one person responded.

Each of us needs to be clear: *What are my professional goals? Have I written them down? How can I keep them at the forefront of my mind?*

CONCENTRATION

Once we clarify what we're after, we need to keep our eyes on the prize. There's no sense in building up unnecessary upper-body bulk if it will just drag us down in the Tour de France. There's no sense, either, in perfecting a document if it will make us late to market.

A mark of expertise is mastering the whole game. What's good enough? Do we need to expend effort to win the finals or just this heat? Content management in the age of Web 2.0 often requires us to produce work that is just "good enough."

Discipline is needed to avoid wasting time and energy on any particular challenge. Agile principles and levels of edit are just two examples of techniques to employ to keep our projects on track. Also, we have many sleek tools at our disposal online for time management, collaborating, project scoping, networking, and other activities. We can also create tailor-made checklists, spreadsheets, and other tools for engaging in self-evaluation.

We can cultivate our overall professional development in a similar measured approach—not expending time and resources training endlessly for diminishing results or detrimental effects. As Ed Gandia points out, customers (internal or external) can begin to question the need for a professional's interminable training, wondering whether the person really is a qualified expert after all.⁵

RESILIENCE

Resilience is the capacity to withstand duress, overcome obstacles, and keep coming back. We need this quality to make it through single projects and entire careers.

POSITIVITY

The foundation of a contender's strength is a sporting attitude. Confidence, respect, sense of humour, joy, appreciation, and gratitude are the kinds of qualities that make athletes and professionals shine. These qualities allow for successful teamwork and envisioning best outcomes. In turn, these qualities can contribute to excellent results, which are awarded at sports podiums and professional awards ceremonies alike.

RELAXATION

To stay fit and competitive, athletes take care of their bodies and minds. For us, too, eating well, limiting caffeine and alcohol, socializing, having fun, and of course, exercising, are all necessary for us to stay in peak condition. Adequate sleep and rest are also critical to staying in the zone. Athletes take rest days. Technical communicators need to as well.

But why wait till the weekend? Resting frequently throughout the day, even momentarily, helps us refresh. Think of a runner's essential recovery periods between sprints. A rest, or even a pause, provides an opening from which we can respond, not merely react, to the demands of the workplace. We may pause before performing a task like answering the phone, or just to come back to the present moment. Either way, the mental spaciousness and relaxation we create provide the room for us to embody our best performances.

CONTROL

Whether you're a decorated triple World champion like Usain Bolt, who has just been disqualified at the Worlds for false-starting, or a team lead, whose project has just gone off the rails, worst-case scenarios happen.

When things derail, we often panic. What actually happens when we panic? Our autonomic nervous system reacts. The amygdala, part of the brain involved in managing our reactions in emergencies, prompts biochemical changes in the brain. Adrenaline, cortisone, and noradrenaline, among other chemicals, are secreted. These in turn trigger the fight/flight/freeze/submit/attach response in our bodies and minds.

Knowing how this mechanism works, we can be proactive. We can ready ourselves in advance by staying balanced. Mindfulness exercises, mediation, yoga, prayer, or hitting the gym can be ways of fortifying ourselves.

Mid-panic, we still have options. First, we can recognize that we're experiencing a reaction and avoid saying or doing things that might make things worse. Then, we can implement emergency self-care, coaching ourselves with positive self-talk, taking space if possible, and waiting for the body to start metabolizing those chemicals. Only a few minutes may be required for this process to begin and for the body to start shifting to a calmer state. That's good news if we've just been ejected from an event.

REWARDS

By implementing training, focus, and resilience practice in our professional routines, we can develop our ability to stay clutch and cool under the gun. Yes, we may attain excellence. And we may win awards.

But training like a champ guarantees one sure reward—having fun. As our own fans and commentators, we can trumpet our successes to all the world—or at least to ourselves. Can't you just hear the broadcasts now! Empathizing with our shortfalls: *Ooh! Good attempt, but not quite!* And thrilling to our successes: *Ladies and gentlemen! This is incredible! We have just witnessed another ground-breaking victory! This one, ladies and gentlemen, is for the history books!*

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Carol Lamarche is a seasoned technical communicator and sports enthusiast who grew up running the trails of the Gatineau Park. She enjoys discovering fun ways to challenge herself. For years she has trained with the Society for Technical Communication, Toastmasters, meditation groups, and athletic teams. As a result, she has honed her approach to developing practically any skill! Carol has served as a leader of the Technical Editing SIG for several years: Earlier, as Programs Manager, she spearheaded the award-winning Watercooler Chat series; now, as SIG Co-Manager, she helps make the SIG a go-to place for people interested in technical editing. Carol is the principal of the newly launched Healing Tree Communications, whose vision is to provide a range of innovative communication services in the fields of health care and medicine.

GREATLY EXCEEDS EXPECTATIONS

Karen E. Mulholland

Some employees receive superior performance reviews even when their work is not very much better than that of their teammates, while others do award-winning work but get mediocre reviews. Anecdotal evidence suggests that the difference in performance is often very real, but it is not in what the employees perceive as the core skills for the job; it is in the so-called soft skills.

This is not a research paper; it is a collection of the author's informal observations.

Every job posting exists to fill a single need: To find the right person to solve a business problem. Every job description sketches out a set of ideas about how the employee is expected to solve the assigned business problem. And every employee's duty, regardless of the job description, is to solve the business problem in a way that reflects well on the manager. To do well in any job, the employee must:

- Communicate effectively with the manager
- Make and keep commitments
- Take responsibility

These things are simple, but not easy. Ultimately, an employee's success depends as much on mastery of soft skills as on the ability to deliver the skill set on which degree programs and certifications focus.

CUSTOMER #1

Regardless of the organization's mission and the job description, one's manager is one's most important customer. It is not always possible to make a customer happy; a personality mismatch can keep the employee and manager from working well together. If the employee and the manager are unable to establish a working relationship based respect and trust, the employee cannot thrive. It may be possible to survive in this situation, but it will not be possible to advance one's career. The recommendations here are based on the assumption that the potential exists for the employee and manager to work well together.

COMMUNICATING EFFECTIVELY

Each of us has a preferred style and medium for communicating. The successful technical communicator identifies the manager's preferred style and medium, and communicates with the manager in this way. For example, if the manager typically sends messages with the tag line "Sent from my iPhone," a wise technical communicator will send emails short enough to be read on a smartphone without scrolling. If the manager tends to present solutions before presenting the analysis, the technical communicator will sell ideas successfully by presenting an executive summary followed by the reasoning and background information.

Effective communication with one's manager is an exercise in audience analysis.

KEEPING COMMITMENTS

Managers and executives need to have confidence that their employees will follow through – not just delivering their work on time, but doing each thing that they say that they will do. Few habits inspire more confidence than delivering on commitments. For this reason, one of the core values at Motorola in the 1990s was "Do what you say you will do."

Sometimes it is not possible to keep a commitment; in this case, the successful technical communicator tells the manager as soon as possible, and either offers alternatives or asks for guidance in handling the situation.

TAKING RESPONSIBILITY

Successful technical communicators own their mistakes and failures as well as their successes. Although it is normal to fear being wrong or making a mistake, taking responsibility for mistakes and bad decisions usually dispels bad feelings and defuses the situation. It requires courage to take responsibility for a misstep, but the act of doing so can confer a sense of confidence and empowerment. Employees who exhibit the confidence to accept responsibility for their mistakes usually attract very favorable attention from their managers.

CONCLUSION

In employment situations that have the potential for the technical communicator to succeed, key differentiating behaviors of the most successful employees and their similarly capable peers include communicating in the manager's preferred style, keeping commitments, and taking responsibility for all aspects of one's work.

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Karen Mulholland has spent the past 12 years designing and implementing stable, robust technical communication management tools and processes for small and medium-sized organizations. Karen won both of her ITPC Awards of Excellence as a self-managing "department of one" in a company of 50 people.

DRIVING CHANGE: EMPOWERING YOURSELF TO EMPOWER YOUR ORGANIZATION

Jamie Gillenwater

As technical communicators, we are familiar with our organizations business processes, customers' expectations, and opportunities for improvements. By understanding our capabilities as business leaders and industry experts, we can lead change within our organization. These projects not only help to show our value within our organization, but help our organizations to prove themselves at a higher value to their clients.

IDENTIFY THE OPPORTUNITY.

As a technical communications professional, you have a responsibility to research industry trends and determine what opportunities can help you company. With increasing workloads and looming deadlines, what resources can you use to stay current?

Use the power of social media to connect with leading technical communication professionals. One of the greatest benefits of social media is the ability to log on when you have a few minutes or to ask your connections directly to get information you need. If you are not connecting with individuals and businesses online, consider these opportunities:

Social Network	Benefits & Uses
Twitter	<ul style="list-style-type: none">• Build relationships with industry peers• Ask quick questions with short answers• Participate in impromptu discussions• Follow hash tags, such as #techcomm, #tcchat20, #stcorg, #a11y
LinkedIn	<ul style="list-style-type: none">• Join groups relevant to your industry• Connect with potential mentors• Follow innovative businesses and products• Read industry news and relevant business practices
Facebook	<ul style="list-style-type: none">• Join groups relevant to your industry• Connect with potential mentors• Follow innovative businesses and products
Google+	<ul style="list-style-type: none">• Build relationships with industry peers• Follow innovative businesses and products

Social networks and uses

The Society for Technical Communication offers publications, including *Technical Communication*, *Intercom*, and the Summit Proceedings that identify new technology, communication best practices, and implementation guidance.

There are additional resources available online, including corporate blogs, such as [System Documentation, Inc.'s \(SDI\)](#), professional blogs like Tom Johnson's [I'd Be Rather Writing](#), and online magazines including [TechWhirl](#). Other options for learning about the latest technology and methods include participating in professional groups, attending webinars, going to industry conferences, and subscribing to vendor newsletters.

As you follow these trends, it is important to understand which apply to your company's circumstances. A solution for a large technical communication department might not work for you as a lone writer. If you work for a consulting firm, you might be required to understand a variety of potential solutions to serve your clients. You must develop a strong understanding of your business and what process gaps you need to fill.

BUILD SUPPORT.

Once you have identified which area in your business process you want to improve, determine what support you need. Before you build your project team, you must determine who can act as your personal champion and who can act as the project champion.

In many cases, as the project leader, you will be the project champion. It is your responsibility to justify, defend, and ensure the success of the product. There may be times when others question your solution. Based on your relationship with and the position of your critic, only you can determine if it is time to step back to re-evaluate your solution. It is important to consider all critiques of your recommendation, but you must also understand when those doubts require pushback in defense of your project.

Beyond promoting and leading your project, you need someone who is able to intervene if a decision or discussion gets beyond your expertise or your level within your company. If you work for a good manager, he will defend you, your project, and your decisions. If you do not have this level of mutual respect from your boss, is there someone else in the company who can guide you? If necessary, you need someone to speak on your behalf at a higher level. This person can also demonstrate the urgency of a project if it seems to be at the bottom of everyone's list of priorities.

JUSTIFY THE IMPROVEMENT.

In order to implement a high-cost or high-energy solution, upper-level management will expect a significant return on their investment. To understand the type of impact your improvement can create, you must first understand the scope of the problem you plan to tackle.

What problem are you planning to solve? How much time or money does your organization currently spend on your problem or current system? What are the upfront costs of your solution? How long will it take to migrate to your new system? What are the benefits? How will you calculate savings? Time? Money? Does time equal money in your organization?

The justification will vary based on your company's culture, your department's size, and your project's effect. A single-source publishing solution might not be a good fit for a lone writer who generates technical documents in a single output. However, for a large department that uses the same information for their web support, printed documentation, and their in-product help, single sourcing will likely be an ideal solution.

It is important to understand why the current systems are in place and why no one has replaced them with something that is more functional. Your justification must explore your stakeholders' reasons for the current systems and fears of replacing these systems. It is important to remember that someone implemented the current system. If your manager implemented or supervised the project, he might be attached to the system. Or perhaps there is an explanation as to why certain systems are not allowed. In many companies, leadership still sees iPads as toys rather than a powerful and portable communications tool. Perhaps proprietary information has leaked when previous systems were misused.

Once you have explored the details of the current system and the opportunities with the proposed system, create a proposal highlighting the benefits. Schedule a meeting with the right people to share your ideas. With

the help of your personal champion, present your findings and show the benefits for the company, highlighting how this will directly help your audience.

LEAD AN IMPLEMENTATION.

Once management has agreed to move forward with your proposed solution, you have only jumped the first hurdle. Leading the implementation has its own challenges.

You should build a team that covers various strengths. If your solution will require new software, ensure you include a colleague from the IT department to ensure that your new product will work with current computer and network configurations. If you are adjusting the final output of your documents, consider whom this change will affect. Can you include an audience representative on the team? Who has the final say as to whether or not you can implement your proposed solution? Should she be a member of the team or will you present your findings to her? Do not forget to include the individuals who will use and support your new improvement!

As you work with your team, outline the steps to implement the solution. Outside of team members, what resources will you need to implement the solution? How quickly can the team implement the solution? Can you do a pilot implementation to test the solution on a small scale?

The greatest benefit of a pilot implementation is the ability to work out any kinks before expanding the solution to include all of your departments, documents, or colleagues. This trial will help ensure a smooth transition for the majority of your company. Following the pilot, consider what options you can change to make the full implementation better. If there were flaws in communications to the users, revise the communication for the final rollout.

As you implement the final solution, follow your company's methods for change control. Ensure the team meets any specific requirements for approving, communicating, and tracking your project.

MEASURE THE IMPACT.

Once you implement your solution, track the results. If you justified the project by guaranteeing a cost reduction, are you really saving that much money? If you convinced management to move forward with your solution by decreasing process time, are you really freeing up so many hours of time? If you were able to get approval by suggesting there would be an increase in repeat business, are your customers returning at the expected rate?

Whether your project meets, exceeds, or falls short of the initial goals, communicate your project results with management. If you meet or exceed your goal, ensure your team receives the recognition they deserve. Use the project's success to promote team members (and yourself) during your company's annual review cycle.

If your results are not as expected, examine the root cause. According to Burke, Kenney, Kott, and Pflueger, there are four areas you should evaluate for human factors that might have led to disappointing results:

- **Trust** – Did those who will be using your new technology or methods trust those who were leading the implementation?
- **Training** – Were those who will be using your new technology or methods properly trained? Did you eliminate outside distractions during the training?
- **Communication** – Did you communicate the benefits of your new technology or methods to those who will be using your new technology or methods? Did the communication include the goals of the project or was it top-down edict?
- **Empowerment** – Have you empowered those who will be using your new technology or methods to offer suggestions, find additional improvements, or point out issues with the implementation?

Did you make inaccurate assumptions in your project justification? Was your goal too lofty? Can you reach your goal through better training or additional communications? If you cannot reach your goal, examine

lessons you can share with others so they do not repeat the same issues. It is important that you take the blame for any project shortcomings.

Remember, according to Arnold H. Glasgow, “a good leader takes a little more than his share of the blame, a little less than his share of the credit.”

CONTINUE GROWTH.

John P. Kotter’s research showed that most companies do not use their short-term wins to their advantage. By celebrating each successful project, promoting the improvements within the organization, and building on previous improvements, organizations can transform their way of thinking. These celebrations will encourage others to recommend and lead projects, which will help the company become an efficient, industry leader.

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Jamie is the chapter secretary for STC Carolina. She is also an active member of the Greenwood Chamber of Commerce's Connect Young Professionals and Women's Leadership Council. She has presented on many topics, including technical communication, improving results through writing, and business communications.

HOW TO MERGE TWO CORPORATE STYLE GUIDES

Elizabeth Navarro

This presentation describes one writer's experience in leading a combined Style Guide project for two relatively large companies who recently underwent a merger. Both companies had established Style Guides that had been developed over time by experienced writing teams. This paper describes the process we followed for identifying and addressing the key differences between the Style Guides, making recommendations and providing rationale, and rolling out changes to both teams of writers. It also describes some important lessons learned.

THE INITIAL CHALLENGE

NetIQ Corporation acquired Novell Corporation in the spring of 2011 and we began the integration process. We carefully assessed the information development tools and processes at both companies and selected the best of them for all writers to use going forward. We wanted to reduce overlap and also have common templates and writing standards so Novell and NetIQ documentation would look the same to our customers.

At the time, the NetIQ Information Development (ID) team included 17 writers, the majority of whom were in Houston. Novell had an equally large, but more distributed team of writers, including writers in India.

Both companies had established corporate style guides that had been developed over a period of many years by experienced writing teams. Writers at both companies had strong preferences and opinions about writing standards.

Novell had a full-time dedicated editor, whereas at NetIQ, writers all did peer editing for each other.

OUR APPROACH

Since I had a strong editing background and had previously led a NetIQ Style Guide Committee to manage updates to the Style Guide, I was asked to compare the NetIQ Style Guide with the Novell Style Guide and prepare a summary of the major differences. The Novell editor performed the same review at roughly the same time. I didn't look at her summary until I had completed mine, but we both found the same things. Fortunately, our writing styles and standards didn't differ dramatically, but there were definitely some differences that needed to be addressed if we wanted consistency across our product documentation.

We already had a tools team that was working on unifying our tools and templates, so we formed a separate Style Guide committee to focus specifically on writing and editing rules, preferred terminology, and so on. I set up weekly meetings with the committee, which consisted of myself, the Novell editor, the Novell Documentation Manager, and another senior NetIQ writer who was also on the tools team.

I compiled a worksheet in MS Word that included the items the Novell editor and I had both identified. Using this worksheet, we discussed each item, how the original standards had been arrived at, current industry standards, and how we thought we should proceed. Our primary resources were the Microsoft Style Guide, the Chicago Manual of Style, and the Sun Style Guide, since both of our Style Guides had relied heavily on these resources. Sometimes items were not addressed in any of these resources, so we did some Internet research or just drew on our own experience in the software industry. The following table provides a sampling of some of the items we addressed.

	Current NetIQ Standard	Current Novell Standard	Recommendation	Rationale
1.	Use <i>email</i>	Use <i>e-mail</i>	Use <i>email</i>	Although Microsoft still uses a hyphen, the industry as a whole is definitely moving away from the hyphen. There doesn't seem to be a good reason to keep it.
2.	AM, PM	a.m., p.m.	a.m., p.m.	Follow latest Chicago 16th ed. (This is not a technical term where we might decide to follow Microsoft.)
3.	Use <i>select</i> and <i>clear</i> for actions associated with a check box.	Use <i>select</i> and <i>deselect</i>	Use <i>select</i> and <i>deselect</i>	Novell deliberately did not follow Microsoft on this standard because the word <i>clear</i> can be somewhat ambiguous, whereas <i>select</i> and <i>deselect</i> are direct opposites. <i>Deselect</i> is also more accurate for referring to some GUI components.

Style Guide Worksheet (Sample)

I updated the table after each meeting with our recommendations and rationale, and then sent out the latest document to the committee members so they could review it and make any comments. I also posted the document to our ID SharePoint site so the ID managers could see our progress.

When we had reviewed all the items on the list, I sent the final document with all of our recommendations to the ID managers and our director to review. We then had a meeting to discuss any potential issues. As it turned out, there wasn't that much discussion. The ID managers and director felt we had already researched and addressed the items fairly and they approved our recommendations.

CHALLENGES ALONG THE WAY

The main challenges to this project included the following:

- The merger had resulted in some major changes at both companies. There was not only a large reduction in force at Novell, but the remaining writers were undergoing a lot of other adjustments. Some writers were being moved to other product teams, and NetIQ writers were being asked to switch to some Novell tools. We wanted to develop a cohesive Novell/NetIQ team of writers, so we had to approach this project with sensitivity and a willingness to compromise.
- Novell's full-time editor had been with Novell for 20 years. She was wholly responsible for maintaining the Novell Style Guide and obviously had a lot of time and effort invested in it.
- NetIQ writers have always strong opinions about writing standards, so we had already gone through some lengthy discussions to arrive at our standards. We didn't want to rehash previous decisions, and we didn't want to ask NetIQ writers to undo recent changes they had made in implementing recent Style Guide standards in their doc sets.

OUR RECOMMENDATIONS

Once we had the Style Guide changes approved by management, we needed to decide whether to use the Novell Style Guide or the NetIQ Style Guide as the basis for the new combined style guide, and the process to use going forward. We made the following recommendations (which the management team agreed to):

- Use the existing Novell Style Guide as the basis for the new combined NetIQ/Novell Style Guide. We had already decided to transition all NetIQ documentation to FrameMaker 10 and the Novell DocSys help solution, and the Novell Style Guide was in this format already. By contrast, the NetIQ Style Guide was in FrameMaker 8.0. The Novell Style Guide had some other advantages – for example, it was available online and was searchable, and it was available as a menu item from within FrameMaker. It also included some comprehensive sections (such as localization considerations) that the NetIQ Style Guide did not, so it would have required additional work if we had decided to use the NetIQ Style Guide as the basis for the combined style guide.
- Leave the responsibility for making updates to the Style Guide with the Novell editor (at her request). This made sense since she was most familiar with the Novell Style Guide, she had previously had full responsibility for making updates to it, and she had more time to devote to this effort.
- Review the existing NetIQ Style Guide issues and enhancement requests, determine which ones were worth pursuing, transition them from the NetIQ (TeamTrack) system to the Novell (Bugzilla) system, and use Bugzilla for all new Style Guide issues.

EDUCATING THE TEAMS

To roll out the changes to the team, I prepared two documents, one for NetIQ writers, one for Novell writers, summarizing the changes to the standards.

I posted the NetIQ document to our internal Information Development SharePoint site, asked writers to review it, and then presented our recommendations at one of our weekly team meetings.

The Novell writers were more distributed and did not have regular team meetings, so the Novell editor emailed them the document and also posted it to the Novell intranet where the style guide itself was already located.

LESSONS LEARNED

A little sensitivity and willingness to compromise go a long way. The Novell editor and manager on the committee evidently expected to be pressured into conforming to current NetIQ standards, and were pleasantly surprised to find that we wanted their input and were willing to make compromises.

When you're trying to develop a single unified corporate Style Guide, it's easy to become caught up in every little issue and think that it has to be resolved. But it's important to find a balance, pick your battles, and realize that sometimes it's not worth asking writers to make a big change just for the sake of consistency. You have to ask the following questions:

- Will the change result in additional localization costs (and is it worth it)? Some of the Novell doc sets were huge and even seemingly small changes could mean significant localization costs.
- Is it worth the significant rework that will be required of writers to implement this change?
- If we do things slightly differently in two different products, will our customers even notice?

Our combined template now provides a more consistent look and feel across all documentation, but in some cases we decided it actually made more sense to continue following separate standards.

We found we had to remind writers several times about the new standards because they were implementing the changes in their doc sets only as it made sense for their product release. By the time it was feasible for some products, writers had forgotten about the new standards or couldn't remember where to find them.

THE FUTURE

Whereas in the past we had a Style Guide Committee at NetIQ for addressing updates or additions to the Style Guide, I am now working directly with the Novell editor to discuss items that come up. Writers can open bugs/PRs to identify issues with the current Style Guide or request enhancements. I meet with the Novell editor on an as-needed basis to discuss the bugs and try to come up with recommendations to management. Once final decisions have been made, she implements the changes in the Style Guide, adds the rationale to the bug, and closes it.

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Elizabeth has nearly 20 years of experience as a technical communicator in various industries, including software and hardware, oil and gas, and state government. Prior to her transition to technical writing, she earned degrees in anthropology and library science, and then worked as a legislative editor for the Department of Justice in Canada for several years. She is currently responsible for the documentation sets for the NetIQ Migration Suite (three major software products and several associated utilities), working with distributed teams in the U.S., Bolivia, and India.

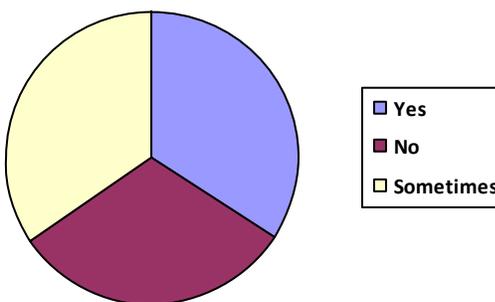
USING CHECKLISTS FOR MORE EFFICIENT EDITING

Kelly Schrank

Aviation has long used checklists to ensure that pilots and other personnel follow proper procedures. According to The Checklist Manifesto, many other types of professionals use checklists, too: health care providers to ensure patient safety, builders to ensure building safety while keeping to tight schedules, chefs to maintain consistent quality in fine dining, and investors to reduce risk while increasing returns. I believe editors can also benefit from using checklists for their editing tasks, especially if they use flexible, dynamic checklists created especially for a specific type of editing task. Further benefits are realized when you grow an editing checklist from a punitive requirement of management to a tool an editor creates to walk step-by-step through an editing task, offering structure that allows an editor to more easily stop and pick up where he/she left off and track information that can be used in metrics.

INTRODUCTION

In October of 2011, I sent a survey to the email lists of the Technical Editing special interest group of STC and the Editing/Writing list of the American Medical Writers Association. One hundred seventy-six members responded to my survey on editing checklists.



Results from 2011 Survey of Technical and Medical Editors on Whether They use Editing Checklists

Of those who use checklists:

- 20 have jobs that require checklists and the checklists were provided to them (Bad idea)
- 23 took checklists they were given and made them better (Better scenario)
- 74 made their own checklists (Best-case scenario)

WHY SHOULD EDITORS MAKE THEIR OWN CHECKLISTS?

Why does the best-case scenario involve an editor creating his/her own editing checklist? Because editors have the right skills and motivation to create their own checklists:

- Editors are good at creating structure and documenting processes.
- Editors know what they do better than anyone else does!
- Checklists need to be flexible and change often.

EDITORS ARE GOOD AT CREATING STRUCTURE AND DOCUMENTING PROCESSES

Editing often requires taking a rough draft of a document and giving it the structure and organization needed to be a strong piece of writing. Editors must see what *should* be there when only a glimmer of the structure may be there. In creating an editing checklist, editors must envision what type of document would be most helpful for the editing task and create it (often from scratch).

As technical communicators, editors know how to document steps, processes, and other systems in writing. Creating a good editing checklist is no different than other documentation projects...we must decide what needs to be documented, we must test the document until we have worked out all of the kinks and covered all of the bases, and we must publish it.

EDITORS KNOW WHAT THEY DO BETTER THAN ANYONE ELSE DOES!

Who knows best how to make you more efficient? You do. Most managers and writers do not understand (and appreciate) what editors do to a document when they have it in their possession. Just ask a manager what you do; many will say something about making it look pretty, others may say things about bringing consistency to formatting or terminology. Even if your manager has a full appreciation of what you provide, he/she still may not understand all of the little things you check and change on a daily basis. How, then can someone create an editing checklist for you?

Editors can be an insecure bunch. In most cases, we don't want our managers and the writers to know that we need some assistance to keep us at the top of our game. Using a checklist somehow feels like an admission of defeat. As noted in *The Checklist Manifesto*, checklists are often not used by doctors or finance types, even when it's proven they are effective...because they are not cool. "It somehow feels beneath us to use a checklist, an embarrassment."(p 173)

CHECKLISTS NEED TO BE FLEXIBLE AND CHANGE OFTEN

This is another reason why it's bad to use a checklist that someone else has provided. In order to be effective, the checklist needs to change as often as other variables (such as your processes, your authors, your material, the systems used) change...this is harder if you have to get all changes to your checklist approved by the person who provided it. Of those surveyed, 101 change their checklists as needed. This is essential to making sure an editing checklist continues to be helpful and useful to you.

There are many scenarios in which a checklist would need to be changed. Did you NOT notice an error that got through to the customer? Add a check for that error to the checklist. Has your process just changed? Your checklist will need to change to reflect the steps of your new process. Has your manager just decided that you need to track how long it takes you to edit a document? Add a place for your start and stop times to the checklist.

WHY USE AN EDITING CHECKLIST?

From *The Checklist Manifesto*:

"Checklists...remind us of the minimum necessary steps and make them explicit." (p 36)

"They provide a kind of cognitive net. They catch mental flaws inherent in all of us-flaws of memory and attention and thoroughness." (p 48)

From the survey:

"good way to stay on track"

"provides for a more systematic, uniform, and consistent approach to editing"

"good place to start the process-because I tend to jump into a new piece too quickly!"

“free me from having to remember every little thing, so that I can focus more on the editing itself”
“always know what was and was not checked”
“because they make editing faster and less dependent on my “sharpness” or mood on a given day”
“ability to justify my time spend on editing”

HOW CAN YOU BE MORE EFFICIENT WITH A GOOD EDITING CHECKLIST?

- Create an editing checklist that leads you through your editing process with a particular type of document.
- Specify in your editing checklist what to look for in that document:
 - NOT: check that the heading levels are correct.
 - BUT: Heading levels should be as follows:
 - Level 1: **Bold**
 - Level 2: *Italics*
 - Level 3: Underlined

Use the editing checklist to document or track variables that change from one document to the next:

- how long it takes to edit material
- level of difficulty of materials
- level of edit provided
- whether it was a rush job
- author or team
- topic or product

Test your editing checklist and tweak it until it flows and feels like an integral part of your process.

Adapt your editing checklist as your needs and other variables change.

HOW DO YOU KNOW WHEN YOU HAVE A GOOD EDITING CHECKLIST?

- When you start a new project without a checklist and you feel lost!
- When you find an error because the checklist told you look for it.
- When you feel like your edits are consistently more thorough, and faster, and you are confident that you have done all you can in the time allotted and that you have documented what you have done.

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IT'S ALL MARCOMM: A TECH WRITER GOES FLUFFY

Joe Staples

This progression session argues that all technical communication is marketing communication (commonly called “marcomm”) because all technical communication shapes the reader’s perception of the company and its products. Many technical communicators, accustomed to traditional tasks such as procedural documentation, are apprehensive when their jobs require a shift to marcomm content development. Participants will learn why technical communicators are well suited to marcomm writing and will learn tips for making the transition a smoother one.

Are you a technical communicator whose job also entails marketing writing (marcomm)? Perhaps you fell into a marcomm role reluctantly (“other duties as assigned”). You might have disparaged marcomm as “fluff” compared to the serious and precise technical communication you were accustomed to creating. However, as an experienced technical communicator, you bring valuable and directly applicable skills to the task. With a little guidance, these skills can help you rock your marcomm role, turning fluff into engaging, action-inducing substance.

IT'S ALL MARCOMM

Marcomm is often denigrated as fluff—empty (and empty-headed) communication that’s long on hype and short on truth and accuracy. This caricature is often true of badly written marcomm, but it is an unfair generalization. Well-written marcomm does much more work than simply deliver its message. It projects the company’s image, reinforces its brands, and gets the reader to take action.

Technical communication does the same things, though perhaps less overtly intentional. Have you ever wasted time with a badly written setup guide or help system that did not solve your problem? When you suffer through such poor documentation, you don’t blame the writer—well, maybe *you* do, but most readers don’t—they blame the company. When you create outstanding technical documentation, you are already doing marcomm work by helping a company communicate a positive message about its product and brand.

That’s what marcomm writers do. If you are transitioning to a marcomm role, you will continue to use the technical communication skills you have worked so hard to develop, and you will find that they are highly valued.

TRANSFER THESE THREE TECH COMM SKILLS

The transition from technical communication to marcomm is not an easy one. It takes time and practice. However, you are very well equipped to make the move. The table lists three skills you already possess that will help you excel at marketing writing.

Skill	How It Applies	Tips for Implementation
Technical aptitude	“Fluff” is pure sales talk written by someone with little technical acumen. By contrast, you can write impactful pieces because of your ability to grasp and distill difficult technical concepts.	Drink deeply from the source material. You can and should understand the subject at a much deeper level than the level at which you’ll write. This deeper understanding allows you to add tremendous value. This value add is required if your job is to survive the commoditization of technical & marketing communication.
Attention to detail and precision (D+P)	Thanks to your D+P habits, you can help your clients tune their message and its delivery. It also helps you quickly spot and rectify empty, vague phrases that give marcomm writing its pejorative label, “fluff.”	Remember that marcomm cannot and should not try to match the detail and precision of technical communication. Use your D+P skills to ask smarter questions, make better word choices, and get beyond the buzzwords to the real meat of the content.
Information extraction (SMEs, source docs)	You are adept at getting fundamental, often obscure information from stubborn sources. (Ever tried to write a config guide based on programmer specs?) This skill will help you probe more deeply to anticipate the needs of your audience and to understand the <i>why</i> that drives the <i>what</i> .	Whenever possible, insist on an interview with a SME. Do not rely on a marketing manager to relay technical information to you. They can give you the marketing language, but only SMEs can give you the technical detail you need to give your writing heft. Similarly, do not rely solely on other marcomm material (called <i>collateral</i>) as sources. Read the technical documentation as well.

Three of many skills that transfer well to marcomm writing

These and many other skills you exercise as a technical communicator can help you make a successful transition to marcomm writing. A partial list would include information architecture, information prioritization, and an insistence on technical correctness. So when an opportunity arises to do some marcomm work, grab it! You are well prepared and the addition to your skill set can only help you.

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Joe Staples is a senior information architect and managing writer at Prowess Consulting, where he and a team of outstanding writers and designers create technical and marketing content for large IT industry firms. Joe spent ten years in education before making the transition to technical communication and then moved, kicking and screaming, to marcomm content development.

OUR USERS [SORT OF] HELP WRITE OUR DOCUMENTATION

Ryan Williams and Adam Evans

Creating a feedback loop with our users was half the battle. Once we had feedback pouring in, our jobs changed drastically. Learn how we created one-to-one interaction with our readers, how we've integrated this feedback with other departments, and why you should want your readers to contact you.

CREATING ONE-TO-ONE INTERACTIONS WITH READERS

Everyone knows the first commandment of technical communication: Know Thy Audience. But knowing and doing are two different things. At ExactTarget, every employee is encouraged to develop relationships with their clients. In the documentation department, we took that to heart and started developing ways to get to know our readers and to learn how they use the documentation.

Our wiki-based, open-source documentation allowed us to implement a feedback form on every page of our [doc site](#). Users can provide a comment or ask a question, opt to leave their name and email address, and send feedback directly to us.

Encouraging readers to contact us has led to a variety of interactions. Sometimes people point out typos on a page, but other times, a user has a recommendation that will drastically change the format or structure of the document. This is where we had to start making decisions.

HOW WE'VE INTEGRATED CUSTOMER FEEDBACK WITH OTHER DEPARTMENTS

Fixing a typo is one thing, but changing a document based on one user's comment is another. We had to decide how we were going to handle incoming feedback. Because one of our corporate values is customer satisfaction (similar to your company's values, no doubt), we decided we would try to meet every customer request to the best of our ability.

Having a direct line to your clients is a powerful tool. Suddenly we, the document writers, knew what our clients were thinking and often times what they wanted out of the product. As the company released new features and we, in turn, released new documentation with it, clients began making feature requests on our feedback form instead of contacting their product manager. We took that knowledge into planning and design meetings and began speaking on behalf of the client. We became client advocates, and our status within the company began to elevate. Members of the user experience, product management, and even development teams started asking us, the doc writers, questions about client satisfaction and needs.

The feedback we received from our documentation feedback form added to our role as the knowledge management repository within the company. We not only used it to improve our documentation, but we also helped shape the product and could speak knowledgeably to what features the company should prioritize.

WHY YOU SHOULD WANT YOUR READERS TO CONTACT YOU

Having direct contact with your users—or rather, allowing your users direct contact with you—can appear daunting. We were certainly apprehensive when we first put the feedback form on our wiki. But the benefits have far outweighed any concerns we initially expressed.

You should want your readers to contact you because:

- **Close contact with users promotes confidence in documentation and product.** When your users feel like they can ask questions, receive answers, and improve documentation, they gain confidence in your product and brand.
- **You learn as they learn.** Knowing how customers use a feature or that they care about one procedure over another educates you as the knowledge provider and enables you to create more usable documentation.
- **It breaks down silos and enhances collaboration.** Not only have we forged relationships with our clients, but our own employees use our feedback form. Services, development, and marketing have all left feedback and asked questions via our feedback form that has raised our internal collaboration to a new level.
- **It allows direct response to problem areas in documentation.** If you've written any amount of documentation, you know some areas are stronger than others. It's easy to ignore those weak spots, but having users ask questions forces you to strengthen the areas that can otherwise go unnoticed (by you) and therefore unhelpful (to your users).
- **It promotes swift attention to issues.** On our team, we've committed to a 24 hour turnaround period. Feedback comes in, and within 24 hours we try to have an answer to the question. You need to decide what's right for your organization and team, but prioritizing feedback is one of the most beneficial efforts we've undertaken.

ABOUT EXACTTARGET

ExactTarget is a leading global provider of on-demand email marketing and interactive marketing solutions. Our Software as a Service technology provides organizations a single platform to connect with customers via triggered and transactional email, integrated text messaging, landing pages, and social media.

Supported by collaborative global services teams, ExactTarget's technology integrates with more sales and marketing information systems than any other in the industry, including Salesforce.com, Microsoft Dynamics™ CRM, Omniture, Webtrends, and many others. ExactTarget's software powers permission-based multi-channel communications for thousands of organizations around the world including Expedia.com, Aurora Fashions, Papa John's, CareerBuilder.com, Gannett Co., Inc., The Leukemia & Lymphoma Society, The Home Depot and Wellpoint, Inc. For more information, visit <http://email.exacttarget.com>

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Adam Evans is a technical writer for kCura in Chicago, specializing in online and print documentation. He previously worked at ExactTarget in Indianapolis where he introduced several social media components to the documentation workflow. He began a technical communication organization called “Tech Writer Indy” in Indianapolis and is currently the PR Manager of the STC Chicago chapter. Adam has a B.A. in Technical and Professional Communication from Cedarville University.

WRITING FOR GLOBAL AUDIENCES

Barbara Jungwirth

Writing in simple, easily understood English while retaining highly specific technical terms is becoming increasingly important as more and more industries turn to English as their lingua franca. This paper outlines some issues English-language writers should consider when writing for readers whose primary language is not English.

Consider this sentence: "Thanks to the redundancy of language, yxx cxn xndxrstxnd whxt x xm wrxtxng xvxn xf x rxplxcx xll thx vxwxls wxth xn "x" (t gts lttl hrdr f y dn't vn kn whr th vwls r)." (from *The Language Instinct*). Native English speakers can decode this relatively easily as "You can understand what I am writing even if I replace all the vowels with an 'x' (It gets a little harder if you don't even know where the vowels are)." But how would people who use English in their business lives, but aren't near-native speakers of the language, fare?

POTENTIAL WRITING ISSUES

To be sure, most business communication isn't quite that unintelligible to speakers of English as a foreign language. Besides leaving all the vowels in their accustomed places, there are a number of other issues writers should consider to make it easier for their global audience to understand the text.

One of the most important is consistency in word choice: same concept = same term. If a widget is a widget in the help system overview, that same widget should not have morphed into a thingamajigg in the section on installing widgets and a gizmo in the appendix about different widget types. A corollary to this rule is to use standard terms with standard spellings. If the widget is spelled weedgit, a reader unfamiliar with the term cannot look it up in a dictionary and is forever left to wonder what this item might be.

Long convoluted sentences with many dependent clauses, such as this one about how writing style might affect readability, and, by the way, how this sentence might be interpreted by speakers of specific languages, such as, for example, Chinese, are difficult to understand even for native speakers. Complex concepts with many variables can still be explained in a series of sentences. Each of these sentences should refer to the concept explained in the previous sentence by name. Non-specific pronouns, such as "this," are harder to interpret than if the specific term to which "this" refers is repeated.

Most non-native speakers reading technical documents in English will be quite familiar with the terminology specific to their particular field. They may, however, not know colloquial expressions and terms common in documents written for U.S. readers. This applies especially to expressions referring to sports, movies, or cultural icons. References to politics and religion, as well as anything even slightly off-color, should obviously be avoided when writing for people from different cultures.

CONSIDER FORMATTING, TOO

While it is relatively easy to understand how vocabulary and syntax issues may affect understanding, formatting questions are often overlooked. Bulleted or numbered lists may be a better way to illustrate a set of options than a long paragraph describing the choices available. Tables, too, can present the relationship between distinct pieces of information in a fairly intuitive way.

Not all images are worth a thousand words, but procedures can sometimes be summarized in flow charts that require little linguistic knowledge. That said, writers and designers need to be mindful that a left-to-right progression is not necessarily obvious for readers who come from right-to-left (or top-to-bottom) languages. The significance of specific symbols may also not be apparent to everyone. Most U.S. readers will recognize an eight-sided red sign with white lettering to mean "Stop", but the corresponding road sign in Japan is triangular and in Tonga the sign is a white circle with a red triangle inside.

When creating documents that will be read online also take into account slower download speeds and differing standard fonts on non-English computer systems. A page that downloads quickly over your broadband connection and displays nicely in Verdana may look quite different on a machine running the Russian version of Windows and using a dial-up connection. Whenever possible, try to test online documentation in the countries where it will be mostly viewed.

FINALLY, TEST YOUR DOCUMENT

Besides trying to test under local technical conditions, it's a good idea to have colleagues from the countries where the document will be mostly used read your text. What seems perfectly clear and understandable to you may not be so for someone coming from a different language. If people who actually live in the target countries are not available, native speakers of the languages in question who live in the U.S. are a good second choice. Failing that, someone familiar with the native languages of the people likely to read the text may be able to point out significant problems.

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Barbara Jungwirth of reliable translations llc has for more than 10 years translated both globally appropriate and extremely country-specific technical documents between German and English. She has also tailored some of these translations to audiences whose primary language is not English. Barbara lived the first half of her life in Austria, where she passed her university entrance exam, and the second half in the U.S., where she holds a B.A. As a result, she considers both German and English her native languages. Her website is www.reliable-translations.com.

STYLE GUIDE WITHOUT TEARS

Valerie M. Ball and Debbie A. Kerr

Style guides are seldom consulted, rarely updated, or simply unwritten. This article provides plans and actions that adapt to individual situations and establish components for comprehensive style guides that range from an individual document to all publications of an international corporation. The plans and actions include: (1) a method to divide and delegate the tasks so that one person does not have to research, compile, write, monitor, and manage the entire style guide; (2) a top-down listing of style-guide components that technical communicators can adapt to their situations, whether those situations range from teams of document contributors in international corporations to a single practitioner with a single document; (3) recommendations of and references to qualified sources of discipline-specific style manuals that can support standards of writing style and mechanics. The audience may contact authors to acquire electronic files to adapt for their individual or corporate style guides.

STYLE GUIDES AS QUALITY ASSURANCE

In the summary of her chapter on quality assurance in *Information Development: Managing Your Documentation Projects, Portfolio, and People*, well-known author and consultant JoAnn T. Hackos (2007, 532) states, “Copyediting should focus on compliance with the corporate style guide and the basics of correct writing, graphics, and layout.” Her expectation of the use of a corporate style guide is so basic that she does not define the term, nor does she comment about its creation, development, and management.

Other professional technical communicators agree with Hackos on the value of style guides, including Drs. Elizabeth G. (Bette) Frick and Elizabeth A. (Betsy) Frick in their article “Style Manuals” (2009, 12). They pose a question about the necessity for a style manual or guide, which they answer with the application of two encompassing conditions: “whenever two people write in an organization, or whenever a document is going to be more than four pages long with more than one heading.” They endorse the use of a guide “to ensure standardized usage and conventions” (10), even as they also admit that the choices for various style guides may be “political” (10). The Drs. Frick differentiate a style guide as “company” or “project-specific” (11), while a style manual is a publication of standards, such as the *Chicago Manual of Style*, the *Gregg Reference Manual*, or the *Publication Manual of the American Psychological Association*. Style manuals save time and money, ensure consistency, and demonstrate professionalism (11).

In his article “Creating, Implementing, and Maintaining Corporate Style Guides in an Age of Technology,” Mark R. Bright strongly supports how style guides save time and money as well as provide the consistency that improves the quality of communication (2005, 43–44). In addition, Bright provides practical suggestions that make style-guide creation, development, use, and maintenance a part of professionalism that evokes management and employee support and participation.

In this article, “company style guide” refers to a style guide that an individual organization creates for its own use. A “published style manual” indicates any of a number of copyrighted, discipline specific manuals that are available for public use.

CONCEPT OF A “STYLE GUIDE WITHOUT TEARS”

Mark Bright attributes online and web media as the technological advances that bolster style guides (2005, 42). Access to supporting documentation is only a hyperlink away for users, and the same technology allows rapidity, efficacy, and immediacy for revisions, updates, and access that are independent of physical locations. These features enable a technical communicator not only to monitor and maintain a corporate style guide but also to delegate portions of the workload to appropriate colleagues. The technical communicator who updates an existing style guide or creates an entirely new guide can most easily do so through a division

of responsibility that involves the reviewers of the components as the principal contributors. Such a division of responsibility is likely to ensure more accurate oversight because of a sense of ownership.

The technical communicator should never be the sole keeper of the company style guide—the technical communicator should manage it. Other professionals make valuable contributions, but the technical communicator knows the relationships of the components far better than anyone else. JoAnn Hackos' *Information Development: Managing Your Documentation Projects, Portfolio, and People* provides best practices in such projects as a company style guide or any other technical document.

STAKEHOLDERS AND CONTRIBUTORS ON TEAM

The principal contributors who become stakeholders in the success of the style guide are a team or, according to Mark Bright, a committee (2005, 44). Selections from among the higher levels of management (*i.e.*, legal staff, subject-matter experts, marketers, graphic designers, consultants) are potential team members. Such contributors need executive decision-making capability because they determine the appropriate action(s) for their individual style-guide components. Their active participation provides immediate answers. Moreover, their professional standing within the organization increases the credibility of the style guide. As decision-makers, they can appreciate each other's expertise and therefore be more accepting and respectful of individual teammate's recommendations.

While a team is the best vehicle to develop and/or maintain a style guide, management may not approve style-guide development, maintenance, and usage training because of a misperceived conception that a style guide requires extra energy, time, and money. To remedy this situation, Mark Bright observes that an individual can develop and "share a personal style guide with others in the organization" (2005, 44). Acceptance and endorsement by colleagues may encourage management to "see the value of consistency guidelines" (44) and thus lead to official endorsement of a style guide.

TOP-DOWN APPROACH

A top-down "construction" is a logical approach for a style guide. For example, reaching a consensus about the serial comma is pointless if the items in a list violate laws, regulations, statutes, or the organization's policies and procedures. The following list indicates a recommended order of criteria for a style guide:

- Regulatory and legal issues
- International, intercultural, localization considerations
- Company branding and marketing
- Layout, design, art
- Standards for writing and mechanics
- Schedules for style-guide revisions and updates
- Delivery media to style-guide users
- Management endorsement and support
- Style-guide training and implementation for users

REGULATORY AND LEGAL ISSUES

A document for an international audience may need to comply with laws and regulations that could dictate content, layout, or even format. The best source for this component of the style guide is the organization's legal team or contractual, onsite legal consultants. Even if a document pertains only to a single country, regulations and laws may differ among different regions or cities. The legal staff can provide the appropriate determinations and restrictions, which may affect the top-down structure of the style guide even in the specifics of content, individual words, design, or graphics.

INTERNATIONAL, INTERCULTURAL, LOCALIZATION CONSIDERATIONS

If documents require multiple localizations, then the consistency of technical terms, appropriate repetition of syntax, and an overall single “voice” in the original language save time and money in translations. The company style guide is an excellent repository for these techniques. A further saving is the use of a content management system (CMS) that rapidly and accurately permits blocks of native-language text to become blocks of translations.

However, the English language has long dominated international communications in business, science, and technology, but Dr. Michael Bokor of Long Island University in New York suggests a different perspective on American culture and American English as global standards. In his article, “Moving International Technical Communication Forward: A World Englishes Approach,” Bokor observes that educational programs for international technical communication often identify a “communication failure” as “language proficiency problems of non-native speakers” (2011, 114), an assessment that native English speakers further exacerbate by “cultural assumptions” (114). Bokor agrees with other linguistics subject-matter experts that the variety and quantity of non-native English speakers may exert more influence upon English than do the native speakers (116–118). Addressing the concern with industry-specific controlled languages such as Simplified Technical English or Caterpillar Technical English is too restrictive (118–119) for international technical communication.

In his courses for native English speakers at Long Island University, Bokor studied the effects of World Englishes as training in international technical communication. Bokor observed that the native-speaker students changed their attitudes and no longer regarded non-native speakers as the cause of communication failure (134). Students became much more sensitive to the confusion caused by their American idioms and their assumptions about non-native speakers from other cultures (123).

Organizations that rely upon international technical communication may benefit by providing additional cultural awareness training to all employees. Although such companies may not necessarily adhere to or even endorse Bokor’s recommendations for World Englishes, a greater awareness and sensitivity on the role of native-English speakers is likely to enhance successful technical communication.

BRANDING AND MARKETING

Branding is a major component of any organization; however, style-guide team must ensure that branding characteristics do not hinder the delivery of technical information. If the organization proposes a change in branding or marketing, the style-guide team must try to be part of recommendations and reviews. Technical documentation may not be able to support some branding elements, or some elements may be too costly or distracting.

LAYOUT, DESIGN, ART

Any standards in layout, design, technical art, and related concerns need to reflect company branding and marketing strategies. The style-guide team member for layout/design is likely to be an in-house graphic designer or a senior member of the company’s technical-art team. Smaller companies or individual practitioners may consider hiring a freelance graphic designer to create new layouts that incorporate style recommendations from team members while also remaining consistent with branding and marketing. Technical communication for an international audience may need additional legal and cultural-sensitivity reviews.

Documentation delivery systems can also affect layout and design. For example, if a manual is available as print and/or on screen, equal readability in both media is possible with more recently developed typefaces. All documents need further considerations for compatibility, such as margins that accommodate printing on the 8 ½” x 11” paper size in the US and Canada and the A-4 dimensions of 8” x 12” in Europe and Asia. Reformatting wastes both time and money.

STANDARDS FOR WRITING AND MECHANICS

The technical communicator is the likely choice to determine the standards for writing and mechanics through the authority of a published style manual. Numerous published style manuals offer assistance, but selection of a standard may depend upon the industry or academic choice of specific disciplines or industries. Drs. Elizabeth G. (Bette) Frick and Elizabeth A Frick discuss many of the more prevalent style manuals in their article “Style Manuals”; they often recommend *The Gregg Reference Manual* as providing the most solutions to questions of style (2009, 10). On her web site, “The Text Doctor,” Dr. Bette Frick also provides “Selected published style manuals,” a matrix of reviews of 12 of the more commonly selected style manuals. Careful review of various style guides is beneficial before making a selection. Moreover, company culture may overrule standards of any published style manual; such differences and deviations are best included in the company style guide.

Mark Bright advises that company style guides should include a published style manual for reference, but exceptions or additions to the style manual need to be included in the company style guide (2005, 47). Some of Bright’s examples for specification in the company style guide include the serial comma, abbreviations, industry- and organization-specific technical terms, organizational colors, logos, trademarks, hyphenation, colophons, and layout(s) of all documents (47–48).

SCHEDULES FOR STYLE-GUIDE REVISIONS AND UPDATES

Mark Bright recommends a review and update of the style guide every six months (2005, 50).s However, if members of the style-guide team are SMEs, their regular monitoring of activities in their profession is likely to alert them of changes that affect the company style guide. In these instances, SMEs should notify the team, which can agree upon an appropriate action.

DELIVERY MEDIA TO STYLE-GUIDE USERS

Mark Bright advocates that all users of the style guide have convenient access to the company style guide and related materials (2005, 49). Electronic access eliminates the need to replace physical books or even revised pages. The team should determine how and when to alert management and style-guide users about revisions, updates, and their effective dates.

MANAGEMENT ENDORSEMENT AND SUPPORT

When the organization first releases the style guide to users, Mark Bright recommends that a high-ranking member of management endorse its value as a standard; such an endorsement helps to convince the staff to rely upon the style guide. Encouragement of users to provide feedback and comments further extends their identification and reliance upon the guide (Bright 2005, 49).

STYLE-GUIDE TRAINING AND IMPLEMENTATION FOR USERS

With the memo or announcement about the release of the style guide, management should also include a training schedule about best practices for using the style guide. Management should clarify that the training is part of the style-guide users’ workloads, and no employee should have to work extra hours to compensate for the training.

CONCLUSION

Weep no more! A “Style Guide without Tears” is here!!!

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A technical communicator with over 20 years of experience in Ontario, Canada, STC senior member Debbie A. Kerr has had multiple career paths in a variety of fields. In the private sector, she has worked as a technical writer, senior communications analyst, and business analyst for insurance, telecommunications, and retail companies. She has also written for various provincial ministries and government agencies. Since 2001, she has been a council member of the Southwestern Ontario Chapter STC in a variety of roles: president, immediate past president, newsletter editor, public relations manager... to name a few. For these contributions, the chapter recognized Debbie with the Distinguished Chapter Service Award. In addition, the chapter newsletter that Debbie edited, *The Quill*, won Best of Show. Debbie has judged STC competitions at the chapter and international levels. A graduate of the University of Waterloo in Ontario, Canada, she has been a guest speaker at college and university events.

We extend our deep appreciation to reference librarian Alla Powers of the Oregon Institute of Technology, Klamath Falls, Oregon, for her patience, wisdom, and perseverance.

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EXCELLENCE, NO DRAMA

Karen E. Mulholland

In organizations employing a small technical communication team or a lone writer, the technical communication business function often reports to someone who is unfamiliar with the challenges of technical communication. To be successful in this environment, the technical communicator must be prepared to function autonomously. Understanding how to create lightweight but robust processes and tools can make all the difference in meeting deadlines and delivering excellent work in a repeatable way, while sparing others the drama that we sometimes experience.

This is not a research paper; it is based on the author's observations in various workplaces.

In an environment lacking clearly defined business processes and workflows, the technical communication professional or team has an opportunity to introduce processes and tools to manage the technical communication business function smoothly. This can encourage others in the organization to move their own teams toward a higher level of process maturity.

THE PROCESS-LIGHT ENVIRONMENT

Technology companies, in particular young or small organizations, often lack the process controls that are common in larger and more mature organizations. To thrive in this kind of organization, technical communicators must design tools and processes to manage their own projects. Because the situation can be very fluid, the tools and processes must be simple enough to adapt almost instantly.

Even if the organization has not adopted the Agile methodology, the technical communication team may find that its underlying principles can be very helpful in designing an approach that results in superior work, delivered on time every time, with no drama.

ENSURING QUALITY

Particularly for lone writers, the first challenge in a low-process environment is often to address management's concerns about the quality of customer-facing deliverables. Two tools can help with this.

A style guide can be helpful in demonstrating the technical communicator's commitment to establishing a consistent voice for the organization. It can be as simple as a list of terms and phrases that should be used consistently, along with those that have specific meanings within the organization.

A publication readiness checklist helps to ensure that material is error-free before it is published. The judging criteria for the STC competitions form an excellent starting point for a publication readiness checklist.

REDUCING DRAMA

The goals of creating the processes and tools to manage the technical communication process are to make it predictable, eliminating both the frantic "crunch times" and the slack periods from the information development cycle, and to build in the resilience to handle unexpected developments gracefully. Technical communicators who accomplish this are likely to gain the respect of the managers they work with, and the appreciation of those they report to. Two tools, a writing technique, and a process change can help with this.

The information plan informs stakeholders of the planned effort on each project. Like the overall project plan, it typically includes expected deliverables, scoping and estimating information, a project timeline or a set of project milestones, assumptions, risks, risk mitigation, and names of key participants. Information plans

must be available to project stakeholders outside the technical communication team. Publishing them on the organization's intranet or collaboration site and keeping them up to date keeps the team visible, and keeps management informed.

Writing in chunks – whether they are topics, procedures, or any other kind of self-contained units of information – makes it simple to apply the tools and techniques for smooth project management.

The project tracking spreadsheet helps to track work on individual deliverables or entire libraries, and to manage the technical review process. Track deliverables down to individual chunks, noting changes required, subject-matter expert, review status, and other relevant information. Spreadsheets offer a lightweight, powerful tool for determining when a project meets the criteria for completeness defined in the project plan.

Incremental technical reviews allow the technical review process to run in parallel with information development, eliminating the lengthy review phase at the end of the project. Information chunks can be distributed to the appropriate subject-matter experts for review as the technical communicator completes them. When reviewers receive only the content for which they are the subject-matter experts, they are more willing to read it; and when they receive only a few paragraphs at a time, they are likely to return thoughtful and timely reviews.

CONCLUSION

Simple tools and simple process adjustments can help very small technical communication teams and lone writers to deliver consistently superior work while reducing or eliminating both frantic activity and slack from the information development project schedule.

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Karen Mulholland has spent the past 12 years designing and implementing stable, robust technical communication management tools and processes for small and medium-sized organizations. Karen won both of her ITPC Awards of Excellence as a self-managing “department of one” in a company of 50 people.

IS THERE ANYONE OUT THERE? WORKING VIRTUALLY

Katherine (Kit) Brown-Hoekstra

So, you've set up your home office and have a few clients. You have enough outings planned that you don't think you will turn into "THAT" virtual worker--the one with all the cats, who wears pajamas all the time, and never sees people. Now what? During the progression, we will talk about tools and strategies for being successful working with virtual clients and maintaining your sanity and life balance in the process.

When you first start working from home, it can seem downright peaceful after the hustle and bustle of the cube farm that most office workers endure. You wake up feeling energetic and excited about the business, feel more productive, and feel like work and life balance better. The shorter commute adds hours to your day, enabling you to start that workout, meditate, attend your kid's play or soccer game... And then, the alarm goes off and you wake up 6 months later... You start to realize that you feel out of the loop and yet are busy all the time; that you are losing touch with both your family and your friends; that you find yourself saying 'Yes' to one more project even when you really want to say 'No'; that the boundaries between work and home have blurred so much that you aren't sure they still exist and clients want you on calls from 6am to midnight your time.

Here are 10 tips for maintaining your sanity and staying productive when working virtually:

- **Organize your office at the beginning.** When you first start working from home, take the time to set up your office and get organized (this might take a couple of days). Make sure that you have a place for everything, and that everything is in its place. You are going to spend 8-10 hours a day in this room, so make it comfortable for yourself. Invest in good furniture and an excellent ergonomic chair. Think about how you are going to manage and store the inevitable detritus of office work—papers, tax records, old projects, and so on. Consider opening a safe deposit box for off-site backup of really important or irreplaceable items (I use it for my computer backups, among other things). De-clutter. Failure to do this at the beginning will result (after a couple of busy years) in an office where you can't find a pen under all the stuff on your desk, and where the dog is afraid to lie down because there isn't a spot of carpet left uncovered. You might even find yourself avoiding the office because you just can't face the mess any more. Believe me; it's not pretty.
- **Take sanity breaks.** No one can work for 10 hours without a break and stay productive. When you were working in an office environment, people interrupted you, you had to walk down the hall for a meeting, you chatted with people in the break room. Now, there's no one to interrupt you, except maybe the dog or the cat. It's easy to get focused on something, only to realize that you are stuck in an awkward position because you've been sitting for hours. Ergonomics specialists recommend getting up and moving around at least once an hour, with periodic longer breaks. Your dog would love to play ball or go for a walk with you, and that 15-20 minutes outside will help you feel more energetic and focused. Breathing fresh air and stepping away from a problem can help you find a solution more quickly than stubbornly staying on task past the point of productivity. Ironically, the busier you are, the more important it is to take a break once in awhile.
- **Network and volunteer.** Scheduling a lunch or coffee out with a friend or colleague at least once a week will remind you that you can still function in a social setting. These get-togethers are especially important if you live alone (yes, even if you have a pet and lots of books to read). Studies have shown that people who have a wide and varied social circle tend to live longer and be happier than those who are isolated. Even introverts need to see real-live people once in awhile. Volunteer with a group that has meaning for you. Get active in STC and other professional organizations. Every client I've ever gotten has come as a direct result of this networking; I've never had to cold call or advertise.
- **Work with your circadian rhythms.** One of the best perks of working virtually is that you can work more effectively with your personal rhythms. Everyone has times of day when they are really productive and other times when they are really not. Don't force working during the unproductive times. Instead, schedule your work around the times when you are most productive. Obviously, this is

easier if you live alone, but even with family and kids, it can still be done with careful planning. For example, I'm really not a morning person, so I don't do anything mentally challenging or stressful early in the morning if I can help it (periodic conference calls with European clients notwithstanding—and I make sure I've had at least two cups of tea first). I get up, toddle into my office to turn on my computer, putter in the kitchen making breakfast and reading the paper; sometimes I meditate or do yoga (though not as often as I should). I check my email, then at about 9am, settle into my big task for the day. I find taking that time in the morning makes me sooo much more productive and centered. At about 2-3pm, my energy starts to flag, so I might run a couple of errands, or do something mindless like filing or going through the mail. The early evenings I spend with the family, and often I go back to work at 9pm or so to tackle a particularly thorny task because that's my best time of day. It works because my husband has a solar-powered consciousness. Find a schedule that works for you and then stick with it.

- **Guard your downtime jealously.** One of the downsides to working virtually is that the work/life lines start to blur. It becomes very important to set boundaries. Say 'No' to vampire projects (you know the ones—they suck you dry and leave you feeling drained and cranky). Such projects do not serve your higher goals, and saying 'No' to them opens opportunities for projects that do serve you better. No one needs to know that your 3pm meeting is with your personal trainer or your massage therapist. When you are on vacation, be on vacation. At least a few times a year, I go somewhere where I have no internet access for a few days. I schedule projects around this time and tell my clients that I will be unavailable. And, you know what?! The sky doesn't fall and the world doesn't come to an end. I come back refreshed and ready for the next challenge. I read an article recently about one small business owner who goes offline one day per week—no calls, no internet, no tv—hmm, I might have to try that. As important as your work might be, the truly important things in life aren't work-related, but include family, friends, and being fully present in your life.
- **Be proactive.** No news is not good news in virtual working. If you are feeling out of the loop, you probably are. Take the initiative to contact people and to stay in touch. If conflict arises, pick up the phone (preferably with web cam as well). Conflicts are easier to resolve in real-time and face-to-face, even if face-to-face means a web cam instead of in person. This visual contact is especially important if you are working with people for whom English is a second language. Body language provides about 70% of our communication, and comprehension (not to mention compassion and empathy) goes way up when you can see each other. Follow up meetings with a summary of action items and due dates. If you see a problem, speak up and identify possible solutions.
- **Be accessible and responsive.** Use technology, such as instant messaging, Twitter, texting, and so on to be accessible to your clients and coworkers. Consider using Google Calendar or another method for letting people know your availability. Publicize your office hours, and if you are offline or in a meeting, publicize that as well. When you are going to be offline for more than a day, set up an "out of office" message for email and on your voice mail (and remember to turn it off when you get back). Respond to requests within 24-48 hours. Make it easy for people to reach you. When they do reach you, make sure you respond in timely fashion to requests. If the request requires more time to fulfill, respond and let them know that you are working on it. Practice good customer service.
- **Communicate early and often.** Being proactive, accessible, and responsive are part of good communication, but not the whole picture. You need to also listen well and provide accurate, thoughtful, and timely information to your team and clients. Take time to learn about your coworkers' and clients' cultures, preferences, and peccadillos. Make sure to close the feedback loop by checking your understanding, summarizing, and so on. There is no such thing as too much communication in a virtual team. You should be checking in daily with teammates and clients when you are in the midst of a collaborative project. Don't assume others on the team are aware of developments that affect your project. Spread the time-zone pain around so that the coworker in India isn't always having to get up at 3 am and the client in Europe isn't having to stay up until midnight to participate in meetings.
- **Do excellent work.** The 4-H motto is to "make the best better", and my mother always told me to "always do my best". When you are working virtually, people tend to scrutinize your work more carefully. Make sure that you are always doing your best by double-checking facts, reviewing your work before sending it out, following up and following through on your commitments. Part of doing

excellent work is also admitting it when you do make a mistake and having a plan for rectifying that mistake. Maintain high standards of quality, integrity, and teamwork.

- **Be professional at all times.** One of the good things about working virtually is that no one can hear you scream, you have easy access to your pillow when you need to work off some frustration, and when you are wearing your cranky pants, you don't have to talk to anyone. Step away from the keyboard when you are angry or upset, and for goodness sake, don't click that Send button until you have read and re-read the email to remove any residual snarkiness. If you must scream, do it into your pillow—you'll feel better and no one will be the wiser. Take deep cleansing breaths and maybe go for a walk before having difficult conversations with clients or coworkers so that you can stay calm and centered when dealing with problems. Make sure that you always present a calm, reasonable, friendly demeanor when interacting with coworkers and clients.

One of the many great things about working virtually is that you get to live wherever you want and work with people all over the world. By using these tips, you can keep your sanity and enjoy your work, while keeping your boss and clients happy.

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Katherine (Kit) Brown-Hoekstra is an award-winning writer and consultant with a background in the life sciences and 20+ years of experience in the technical communication field. She is currently the Principal for Comgenesis, LLC, which provides consulting services and training to clients on internationalizing and improving the usability of their documentation, developing a coherent documentation strategy and content model, as well as more traditional technical writing and editing services.

Kit is an Associate Fellow for the Society for Technical Communication (STC), has spoken about various technical communication topics at many conferences in the United States and internationally. She coauthored (with Brenda Huettner and Char James-Tanny) *Managing Virtual Teams: Getting the Most from Wikis, Blogs, and Other Collaborative Tools*. In addition, she is the former editor of IEEE-PCS News, a frequent contributor to *Multilingual*, and a periodic contributor to *TC World*.

TRANSFORM A PROSPECT MEETING INTO A SIGNED CONTRACT

Teresa S. Stover

You've gotten your foot in the door of a prospective client. Now it's up to you to prove that you're the perfect match for their project. Sell yourself at the initial meeting, and then gather the right information to develop an accurate estimate and proposal. After the client says "yes," be sure that the contract the two of you sign covers all the bases to make sure you both understand your respective commitments.

INTRODUCTION

Often contractors and consultants think of the first meeting with a prospective client as just an interview. It is, but it's also the best opportunity for some your most effective business marketing. It's also an information-gathering session for your project proposal. That proposal is the tool that accurately and realistically outlines the scope of work and your cost estimate. When the client says "yes" to your proposal, then it's time to convert the proposal details into the terms of a fair and responsible client-consultant contract.

FIRST IMPRESSIONS: THE INITIAL MEETING

You've done your cold-calling and other marketing, and now, success! A prospective client wants to meet with you. This is more than just an interview, but rather a meeting between the representatives of two companies who each have something to offer one another. Specifically, the client has a problem or an opportunity, and you have solutions and skills to help them solve that problem or make the most of that opportunity.

To make the most of this meeting and get to the point where you can offer a proposal, do the following:

- Prepare for the meeting with research, a portfolio, a leave-behind, and questions.
- Sell yourself, your skills, and your services.
- Show your samples and leave behind your marketing materials.
- Learn pertinent details about the project.
- Describe how you are the perfect match for the project.
- Schedule your proposal.

WHAT'S YOUR BALLPARK: THE PROPOSAL

Never offer a ballpark estimate during the initial meeting. At the most, state your hourly rate (if applicable), and then explain that your proposal will include the estimate of the number of hours and a not-to-exceed amount. If you work on a project basis, explain how you will estimate that.

Also in the initial meeting, be sure to obtain all the project information you need to prepare a proposal. When you're back at your office, break the project down into its components to figure out the schedule and work estimates. The breakdown, schedule, and work estimates help you determine how long it will take to do certain tasks so you can bid your time accurately. If you're working with other clients, be sure to take that into consideration. Your new client needs to know how available you are for this project.

Include the following components in your proposal:

- Scope of work
- Assumptions
- Cost
- Billing and invoicing
- Independent contractor information
- Availability
- Proposal term

In a more competitive situation, you might want to include additional information to your proposal packet. This can include one or more of the following items:

- A detailed narrative about your understanding of the project and the client's unique requirements.
- Specifics on your qualifications for this project type beyond your resume or company brochure.
- Relevant writing samples.
- Relevant references.

Submit the proposal by the date you committed. If possible, present the proposal in person.

LEGALIZE IT: THE CONTRACT

When you and your client have completed any negotiations from the proposal stage, you're now ready to start working together. It's time to develop and sign the contract. No matter how small the project or how well you know the client, always be sure you both sign a contract and that you both have a copy.

Create a boilerplate contract that works for your technical communications projects, and have your attorney check it out and advise you on content and wording.

Typical technical communications service contracts include the following elements:

- Scope of work
- Term of the contract
- Requirements and responsibilities of contracted parties
- Payment terms
- Ownership and copyright of work produced
- Nondisclosure agreement
- Independent contractor clause including tax responsibility
- Insurance
- Applicable law

After the contract is signed and executed by you and your client, you're ready to start work on the project. You have successfully rounded the bases from the initial client meeting to a signed contract. Home run!

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Ms. Stover has a BA degree in English Literature from UC Santa Cruz and a Certificate in Technical Writing from San Jose State. Teresa is an STC Senior Member, having been affiliated with the Puget Sound (Washington), Mid-Valley (Oregon), and Willamette (Oregon) chapters. She’s been a member of the Consulting & Independent Contracting SIG since 1990. Learn more at www.stoverwriting.com.

HOW TO ENCOURAGE GOOD USE OF SHAREPOINT

David Dick

Many organizations are adopting Microsoft SharePoint as a content management system, and view it as a low-cost alternative to a high-end content management system. However, just because an organization has SharePoint, does not mean that everyone is aware it is available. Likewise, just because it is available does not mean everyone will use it or wants to use it. The paradox is that nobody knows how to win user acceptance, and how to transition users from maintaining documents on desktops and share drives to SharePoint.

Introducing a new technology to the workplace involves change that is rarely welcome by the user community. I faced these problems when I took the initiative to transition a project team from maintaining documentation on a share drive to SharePoint. The transition was mostly to my benefit because it would centralize documentation and enhance collaboration. This article describes my efforts to encourage good use of SharePoint and lessons learned.

This paper describes how change management and usability play an important role in helping users transition from maintaining documentation on desktops and network-shared drives to SharePoint. This paper does not compare and contrast other content management systems.

THE OPPORTUNITY FOR CHANGE

For as long as anyone could remember, the project team maintained documentation on desktops and network-shared drives, which had a few acceptable risks.

- The document owners did not always have the latest version because the documents were misplaced on desktops and network-shared drives.
- Documentation reviews involved e-mailing a document to several people who returned the documents with markups.
- Occasionally, documents were deleted from the share drive. Recovering the document meant asking the help desk to restore the file from the previous backup. Restoration of the document was not a priority for the help desk.
- Folders on the share drive were listed by project name and sub-folders named by categories such as user guide, system design document, and project charter.
- The share drive did not support version history, which encouraged saving every document with a version number.

Despite the risks, change was not an option.

CONVINCING SKEPTICS AND WINNING PROPONENTS

While navigating the corporate intranet, the organization tried to introduce SharePoint in 2007 and created SharePoint sites for several projects and divisions, and I found a site created for the project team. Most of those sites either were under construction, dormant, or contained a few documents of no value to establish a presence. How could a potentially valuable tool be so underused?

Several factors contributed to lack of interest of its use:

- SharePoint did not have the support of management to champion its use
- Management did not have a rollout strategy

- Ignoring stakeholder concerns
- Users were not taught how to properly use SharePoint

I saw the power and potential of SharePoint demonstrated at other organizations and I understood that its usefulness extended well beyond the “filing cabinet syndrome,” as most organizations’ approach to SharePoint. To get past “no,” I needed a strategy to convince skeptics and win proponents. I started by soliciting the support of a champion.

SOLICIT THE SUPPORT OF A CHAMPION

I discussed the use of SharePoint with the project’s team leader. He was willing to explore opportunities for getting people to work together and improving documentation management. If SharePoint could satisfy those expectations, he was willing to consider it. This story could have easily ended here if the team leader opposed the use SharePoint; however, he offered to be a champion for change. With a champion on my side, I could build a SharePoint site that exhibited essential features and functions to support documentation management, communication, and collaboration.

ROLLOUT THE PRODUCT TO USERS

The SharePoint System Administrator gave me permission to have full control of the SharePoint site that was created for the project. Following the guidelines written in Microsoft Office SharePoint Server 2007 Best Practices, I enhanced the site with SharePoint’s out-of-the-box templates such as calendars, lists, announcements, and documentation libraries. I introduced the new project site to my coworkers at our weekly team meeting and did a walk-through of the site’s features and functions. As luck would have it, management had concerns that if not adequately addressed would put an end to the use of SharePoint.

ADDRESS STAKEHOLDER CONCERNS

Access control and user privileges were an important concern of management. Corporate policy required that the project’s home page be accessible throughout the organization. However, my manager did not want external audiences to view documents, calendars, and announcements. SharePoint makes it possible to restrict access at every level of the site. Good practice suggested assigning individuals to user groups so that is what I did. The SharePoint System Administrator created user groups for Site Owner, Manager, Contributor, and Reader. Over time, my manager agreed to allow selected parts of the home page to be visible to external audiences.

EDUCATE USERS AND PROMOTE GOOD PRACTICE

When I proved that adequate control was established, my role evolved from being the custodian of the SharePoint site to maintaining the site and promoting good practices. I provided individual training on how to use SharePoint, which helped to alleviate anxiety of using SharePoint. In addition, I provided a quick reference card with common features and functions.

As users became acquainted with SharePoint, I enhanced the site in response to new user requirements. I became the point of contact for all concerns, complaints, and problems with SharePoint. Management agreed that familiarity with SharePoint would be part of everyone’s job description. Within six months, the project team was comfortable using SharePoint, and I received fewer requests for help. Over time, I became the resident authority and tireless evangelist on “All Things SharePoint” as other project teams sought advice.

HOW THE SHAREPOINT SITE EVOLVED

The project's SharePoint site became an integral part of project communication.

- The Home page has two calendars: one to track absences and meetings, and another to track when developers are on-call and when new releases of software are ready for production.
- Important links to Web sites and documents on the corporate intranet are accessible from the SharePoint Home page.

How the project team works together has improved as well.

- The project team sends links to documents instead of attaching documents to e-mails.
- When the project team conducts peer reviews, peer reviewers checkout a document, enter comments, check it in, and SharePoint workflow informs the next person that the document is ready for review. The project team use SharePoint's reporting tool to track the progress of peer reviews.
- The network shared drives are seldom used for documentation except for a few individuals who still believe their documents are safer on the shared drive than SharePoint.
- SharePoint allowed the project team to work from home when inclement weather prevented commuting. SharePoint is essential to the work-from-home program.

Microsoft Office seamlessly interfaces with SharePoint. However, for the interface to work, the organization must be running SharePoint 2007 and Microsoft Office 2007 and above. As soon as the organization upgrades to Microsoft Office 2010, I will train coworkers on how to take advantage of SharePoint's new features and functions.

LESSONS LEARNED

There are lessons to be learned when introducing a new technology to the workplace:

- Introducing a new technology to the workplace involves change, which is not always welcomed, so be prepared to address stakeholders' concerns and issues.
- An important step towards winning user acceptance and encourage proper use is to train users on the fundamentals and good practices to prevent bad habits.
- To encourage user acceptance, always be prepared to help users.
- Solving usability might be out of your hands.

SharePoint is not always properly implemented and maintained, which results in significantly slow response times during peak use and frequent system crashes. With poor usability, people quickly lose trust in SharePoint and revert to their familiar way of working. This situation fuels the skeptic's argument that SharePoint is not reliable, so be prepared to address these issues and concerns.

SharePoint is more than a platform for a Web site, file repository, blogs, and Wikis. In the hands of an experienced SharePoint System Administrator, the out-of-the-box features can be tailored into multiple business solutions that will enhance communication and collaboration.

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Take SharePoint Server 2010 training at your desk <http://office.microsoft.com/en-us/sharepoint-server-help/take-sharepoint-server-2010-training-at-your-desk-HA101859255.aspx>

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