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The Society for Technical Communication's 58th Annual Conference focuses on important trends in our profession. This publication contains papers submitted in support of the 2011 Summit conference sessions. This year's conference is the result of the efforts of many individuals, including the Conference Manager, Program Advisory Committee, and staff of STC.

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That's a Good Question!

Elizabeth Frick, PhD, ELS

All of us have suffered the consequences of expensive, unasked questions both in our professional lives and our personal lives. As technical communicators, we must ask good questions to elicit information, but many of us lack adequate training in this skill. Add to that the natural reticence of some technical communicators, and it's no wonder that we walk away from SME interviews or department meetings wishing we'd remembered to ask X, Y, or Z. This paper offers information as to why questions are so important, who needs to improve discovery skills, what types of questions are useful, how to strategize your questions, how to ask good questions, how to handle people answering the questions you ask them, and how to answer questions that are asked of you.

WHY ARE QUESTIONS IMPORTANT?

We've all experienced the pain of unasked questions. One of my clients shared an example of not asking where they should design the cleanout door on a machine they were prototyping for a customer. They just assumed it would follow past designs. That was a $20,000 unasked question (and mistake)!

I recently was penalized by an unasked question: When I replaced my windows with casements, I asked if I could clean them from the inside of the house. I was assured I could. When the windows were installed, I found that someone with a 28-inch arm could clean the window from inside (but I have only a 24-inch arm). I failed to ask the right question: "Can a person with a 24-inch arm clean this particular width window?"

Why should you care?

- You always have a "question budget"—a point at which others will stop answering your questions.
- If you ask the right questions, you'll get the information you need.
- If you get the information you need, you'll save money (and time).

WHO NEEDS TO IMPROVE DISCOVERY SKILLS?

Everyone needs to ask good questions. For the question-phobic (many technical communicators), let's call it "discovery skills." Here is a partial list of those who need discovery skills:

Attorneys and judges, children and parents, engineers and their clients, focus group leaders, HR managers (interviewers), physicians and patients, police officers and investigators, politicians and voters, programmers, salespeople and consumers, scientists (all research begins with a question or questions), teachers and learners, the media, therapists. . .and YOU!

WHAT TYPES OF QUESTIONS ARE USEFUL?

There are many different types of questions.

1. **Permission** questions demonstrate your positive intent in asking questions. They show respect and help you build trust.
   - Let me ask you…
   - Could you show me how you want….?
   - May I get some more information about….?
2. **Open-ended** questions stimulate thought and encourage continued conversation. They cannot be answered with one word or with a simple "yes-no" response.
   - What items are critical to ZZZ?
   - What are the risks?
   - How does this subassembly fit into the overall drug delivery?
   - What's that all about?
3. **Closed** questions elicit "yes" or "no" answers (often, verifiable data). Once answered, this type of question may preclude further conversation without asking another question.
   - What is the piece price of XXX?
   - Is this process currently being used?
   - What is the tolerance of YYY?
4. **Probing** questions help you explore more in a certain direction. You can elicit further detail by asking probing questions.
   - Why is that?
   - How would that look?
   - What if…?
   - Tell me more about…
   - What about…?
5. **Encouraging** questions help speakers keep going without interrupting them: Silence is a great encourager!
   - Un huh…
   - I see…

- Oh, really…?

6. **Restatement/paraphrase** questions show that you've been listening. They can keep the communication open, perhaps because they show that you are listening and want to clarify your perceptions. They are also a graceful way to check up on inconsistent information.
   - Let me play this back to you…
   - Here's what I have heard so far. Let me state it in my own words to make sure that I understand it correctly.

7. **Catchall** questions invite further information. As you listen to the answer, you might receive verification of information already placed on the table. Then again, catchall questions might elicit another viewpoint.
   - Would you like to tell me anything I haven't asked you about?
   - What haven't we discussed that might be relevant?
   - What else is important for me to know?

8. **Checking** questions help you further clarify conflicting information, especially if answers have diverged from expectations.
   - Please explain that a little further…
   - Help me understand your intention…
   - Tell me more about…

There's another question paradigm that I've just started thinking about, thanks to Jane MacKenzie: left-brained (logistical) questions and right-brained (intuitive) questions. At this point, it seems that left-brained questions are those that elicit facts ("How many widgets do we need to keep on hand?"), while right-brained questions look at the big picture: "What's most important about this?" or "What if. . .?" I'm looking forward to thinking more along these lines.

HOW TO STRATEGIZE YOUR QUESTIONS

Once you have brainstormed your list of questions, it's important to plan your questioning strategy. Generally, it seems best to proceed from open-ended questions ("Please give us your vision of the X machine you want us to build for you") to more specific questions ("Where should we place the cleanout door?" or "Do you want the color red for this flap?"). If you find that your specific questions are eliciting information that conflicts with earlier information, you might need to go back to more open-ended questions ("Tell me again your vision of the human interface of this machine?").

Of course, probes and encouraging questions are always appropriate at any time. Catchall questions may be most helpful at the end of a question session.

HOW TO ASK GOOD QUESTIONS

Before you start popping questions, you must first establish a relationship with the interviewee or group being questioned. You must convince them of the following:
- I care about your issues.
- I am honest.
- I do not have an axe to grind.
- I want to understand your truth.
- I meet my commitments.

You might accomplish this by a diplomatic statement of purpose ("We're all interested in understanding your truth") or by starting with a few throw-away questions ("How was your trip?" "How is the hotel?" "Is this your first time visiting Minnesota?"). These questions, which are not related to your area of discovery, will help to warm them up and show them how easy it is to answer your questions. It may be best to avoid questions about politics, religion, or sports.

Then, you need to ask your questions in a non-threatening manner:
- Aim for dialogue, not interrogation.
- Don't use questions to state your opinion.
- If you have two questions in one, separate them out.
- Be aware of cultural insensitivity; not every culture likes being questioned. If you are questioning a person from one of these cultures, don't overdo the eye contact; instead, focus on their lips.
- If you don't get an immediate answer to your question, count silently to ten. This will allow the interviewee to formulate an answer. They will feel less rushed than if you jump in right away with a paraphrased question or a different question.

HOW TO HANDLE PEOPLE ANSWERING THE QUESTIONS YOU ASK

- Listen. That's another workshop, of course. We can all learn to listen better.
- Use body language to show you are listening; lean toward your audience and focus on them when you're not writing.
- Take notes.
- If you can get their permission, tape record the question-and-answer session. Use an unobtrusive but powerful mike (available from Radio Shack or other technical shops) with a long cord that will allow you to place the

recorder where it's not so obvious. Be sure to
use fresh batteries in the recorder.

HOW TO ANSWER QUESTIONS THAT ARE ASKED OF YOU

- When asked a question, pause for a few seconds to think about your answer.
- If you're not sure how to answer a question, ask a clarifying question to give yourself time to collect your thoughts.
- If you are in front of a group of people, restate the question. It's hard to tell who in the group might be hard of hearing, but expect that not all in the audience will have heard the question. Be sure to restate the question EXACTLY as it was asked (see next bullet).
- If you need to rephrase the question in order to answer it, ask the questioner if your paraphrase/restatement is OK with him or her (this shows your respect for the questioner).
- If you don't have an answer or don't want to give your answer right away, ask the group for their answer.

TIPS FOR BECOMING A BETTER QUESTIONER

1. Be serious about improving your questioning skills. Most of us were never formally trained to ask questions, but this is a crucial skill for any profession.
2. Start today: Make a list of the questions you don't ask and write down what your ignorance costs you. The next time some "failure" occurs in your work group or in your own life, ask yourself "What question didn't I ask that needed to be asked?"
3. Hang out with a 2-year-old. Be very conscious about their questions. What can you learn from them?
4. Practice being 2 years old again. When you're on a walk or driving your car, start consciously forming and voicing questions ("Wonder why the snow is completely melted in that spot?" "Why is all the traffic in the left lane?").
5. Play Jeopardy. A great website of Jeopardy games for teachers is at http://www.hardin.k12.ky.us/res_techn/countyjeopardygames.htm.
6. Play 20 Questions. For fun online practice, go to http://www.20q.net/ to play 20 Questions against artificial intelligence.

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Giving Effective Presentations

Jang F.M. Graat

The difference between a presentation where at least part of the audience is dozing off or doing something else and a presentation that captivates all lies in attention and how the presenter is able to control it.

Attention behaves like a young puppy and causes the minds of the audience to wander off in many directions. As a presenter, your main objective is to captivate the audience and lead them through a story that delivers your key message. Anything else - beautiful slides, appropriate clothing, technical aids and particular skills - is merely secondary to your success as a presenter.

This session tells you all about attention and how you may start learning to master the art of presenting.

CAPTIVATING ATTENTION

One of the big problems in presenting is that most of the audience seems to suffer from some kind of Attention Deficit Disorder (ADD). It seems very hard to captivate an audience, even if they have paid a decent amount of money to come and listen to what you have to say.

Rather than viewing this as a more or less pathological disorder of the audience, I approach this as a problem of the presenter. Quite simply, when the presenter lacks focus, the attention of the audience will wander. Only through insight in what attention is and how it works can you hope to control it and improve the effectiveness of your presentations.

Distractions

Many presentations suffer from a lack of focus. Most presentations have their focus on the slides. In these sessions, the speaker could well have been dead for a couple of minutes before anyone notices it. The slides make the audience read what the presenter is literally saying at the same time. Nobody will actually hear the speaker anymore, so it is totally irrelevant what he or she is saying.

All the wonderful effects that PowerPoint offers even add to this effect. They take the attention of the audience away from the focal point where it should be: on the speaker, not on the screen. Slides are secondary and it should not make a huge difference to the effectiveness of your presentation if the projector suddenly dies. It is not your presentation that presents; it is, or should be, you.

Effective presentations do away with all distractions, so that it becomes easier for the audience to concentrate on what the speaker has to say. But this is only half of the story: the speaker must also get rid of his or her own distractions.

If you are worrying that you will not finish in time, many people in the audience will start looking at their watches. If you wonder whether your fly is open, some people in the audience will start checking their own.

Presence

Nobody will hear you if you are not present. This is why presenting is called presenting in the first place. Being in the here and now creates a natural focal point for the audience to be drawn into. All good presenters share this one characteristic, even if their personal styles vary: they are completely in the here and now, together with you.

When you witness a powerful presentation, you forget about everything else. Your attention will be captivated completely, leaving you with the unique sensation of calm excitement at what the presenter is telling you. In fact, this sensation will also be what the presenter is experiencing at the same time. Because in powerful presentations, there is no real distinction between your attention as a presenter and the attention of the audience. They are both focused on the same captivating story.

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Strategies of SME Communication

Patty M. Murdock, Sarah M. Wakefield, Katrina Pigusch

One of the most important competencies of a technical communicator is dealing with subject matter experts (SMEs). While this competency is extremely important, it can also be very challenging at times. A successful technical communicator is someone who is able to still produce results within this sometimes-frustrating relationship with an SME. In this interactive simulation, participants take part in the development of a short piece of documentation that will eventually be used for a "mock" training class. Participants have the opportunity to practice strategies of communicating with different, but equally challenging SMEs as information is gathered.

RESEARCH

Collaborating with a subject matter expert (SME) is one of the most important competencies for a technical communicator. Unfortunately, this skill cannot be learned any other way than with experience. Technical communicators will have ideas on how to best collaborate, as will the SME. The goal is to find an ideal level of communication that works for all parties involved.

An article written in 1991 describes this idea in detail. The article "Working Successfully with Technical Experts—from Their Perspective" states "a writer's conduct is not (and should not be) solely determined by an engineer's expectations" (Walkowsi, 1991, p. 67), but that the technical writer is also able to control the interaction. These results come from a study where Walkowski asked 19 software engineers: "What qualities do you most appreciate in a technical writer?" and "What qualities do you least appreciate?" The responses are identified in various categories.

Category 1—Technical Knowledge

Technical writers were not expected to share the same level of technical knowledge as engineers, but they should share a fundamental knowledge of the subject matter. SMEs wanted writers that asked informed questions and who were honest about not understanding concepts (Walkowsi, 1991, p. 65).

Category 2—Communication Ability

An engineer's ideal technical writer had superior writing and language skills. The writer should be able to maintain technical accuracy above all other stylistic and grammatical issues.

Category 3—Attitude

Engineers did not enjoy working with technical writers "who secretly (or not so secretly) want[ed] to be engineers and competed with them at every turn" (Walkowsi, 1991, p. 66). The most successful collaborations were with technical writers that enjoyed performing their role.

Category 4—Professionalism

Engineers enjoyed working with technical writers that are able to meet deadlines, are responsible, and are able to work as part of a team professionally. The writer's level of professionalism increased their credibility in the eyes of the engineer (Walkowsi, 1991, p. 66).

As technical communicators, it is up to us to identify the best way to establish communication. This presents a challenge if the SME is especially opinionated. Engineers that serve as SMEs have identified technical writers as "wordsmiths who refuse to learn the technology" (Amare, 2004, p. 211). In Amare's article on the technical writer and engineer interface, she identifies each person as having a role in the communication model. Each person has a script they plan on following and they rehearse as a way of preparation (Amare, 2004).

The premise of our workshop, *Strategies of SME Communication*, is based on the simple approach of identifying generalized personality types and communication styles that we encounter every day in our work. During the course of our workshop, we will work together to identify solutions to effectively communicate with the three SME personality types we have identified. Much of the discussion in the workshop will revolve around our experiences as well as those of the attendees.

APPLICATION

We have identified three primary types of SMEs we work with in the oil and gas industry. Primarily we are working with engineers and operators. Technical writers in other industries may be able to identify additional SME personality types, but we believe that these three main personality types are typical across most industries.

Busy Betty

Busy Betty is the SME that cannot say, "No." She wants to help, but has spread herself so thin, that she is not helpful to the process unless she can take time from her day to discuss the project. When asking Betty questions, she is typically performing another task and not giving you her full attention. Busy Betty is notorious for cancelling a meeting at the last minute. What are some strategies you have identified to effectively collaborate with a Busy Betty?

Skeptical Sam

Skeptical Sam takes convincing that the technical writer she is working with is "worthy" of receiving the fountain of knowledge she is willing to share, with the right person. Sam probably had a negative experience with training or as an SME and now needs to be coaxed into cooperation. Skeptical Sam is notorious for answering a question with a question. What are some strategies you have identified to effectively collaborate with a Skeptical Sam?

Skeptical Sam

Overly Complex Olive has been an engineer for so long that she has forgotten how to discuss a topic with someone that has no experience in the field. Mostly Olive is annoyed that the technical writer isn't an engineer and doesn't understand everything she is saying. Overly Complex Olive is notorious for providing answers in record time using the longest words available. What are some strategies you have identified to effectively collaborate with Overly Complex Olive?

Technical writers that attend our workshop and use this knowledge to their benefit should be able to effectively collaborate with any type of SME, no matter their personality style.

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Change, Trust, Collaboration: Adapting to Single Source Technologies
Paula Toth

Over the last 10 years, single-source technologies have evolved to be fairly straight forward and predictable. They can be relied upon to do exactly what they are designed to do. Yet, organizations continue to struggle with the amount of adaptive change that accompanies a single-source implementation. What makes the difference between the success and failure of a single-source initiative is the ability of individuals within an organization to adapt successfully to changing areas of responsibility, job descriptions, position assignments, and skill requirements.

In other words, the adaptive skills of employees have not kept up with the progress of the technology. This challenge can be mitigated by applying adaptive change methodologies to create simple and fun ways to support team members as they navigate the change factors involved in new technology initiatives, such as single-sourcing.

HOW IT STARTS

You and several of your colleagues arrive early to a meeting where a new corporate initiative is to be announced. Each of you has concerns about what's coming, how it might affect your work and your position in the company. The conversation goes something like this…

"So now's when management tells us all about this single-source, content sharing initiative we've been hearing about?"

"Yea, it seems that we're all going to use XML and share content with each other, Training, and Marketing!"

"Any of you got XML experience?"

"I took a class once, but never got to use it. And you?"

"Nope, and I hear a new component content management system is ready to be rolled out too."

"So, exactly how are we going to learn to use all this new stuff and get the release out on time? That's what I'd like to know!"

Seems like a perfectly natural response, doesn't it? We typically feel cautious when new initiatives cause us to change. Yet, the best way to deal with change is to throw caution to the wind. More than anything else, successfully adapting to change requires trust and collaboration. We could have some fun, too!

The Child of Change

From our early childhood play, we learn how trust and collaboration help us adapt. New technology projects that involve single-sourcing, content sharing, and XML content authoring require broad departmental process changes that stretch our adaptive skills. How much we're willing to stretch our trust and collaboration, as well as our openness to playing with new software and processes, is the biggest contributing factor to the success of these projects.

Stretching is Good

Stretching is a good thing for our careers and for our personal lives. It keeps us engaged and part of the current trends in our industry. Stretching also ensures that we'll have the pleasure of being part of a successful project.

Once we embrace the benefits of stretching, what we need is a reliable, clear methodology for achieving success when new technology trends, like single-sourcing cause our jobs and roles to change.

JUST DO IT

The methodology has two phases and seven steps.

In the first phase, we create a big picture view. The steps in this phase are an antidote to the instinctive caution that is our natural response to change. Using these steps, we discover a definitive course of action.

In the second phase, we practice stretching in iterative cycles. This deepens our ability to trust and collaborate, while encouraging us to play with the newness of things as they change around us.

One Step at a Time

Here is a quick look at the seven steps.
(1) Chill out—Get a broad view of the situation and relax your thinking.

(2) Identify change factors that may cause you to stretch your trust and collaboration skills and list your concerns about them.

(3) Categorize change factors into three groups.
-Technical factors that have known solutions with implementation paths, and available authorities
-Factors that require training or in-depth research
-Personal factors that can only be addressed by changing peoples' priorities, beliefs, habits, and loyalties
Note: Change factors can appear in more than one category.

(4) List and rate at least one thing you can do to stretch for each change factor.
-Easy—a comfortable stretch
-Achievable—requires practice and effort
-Challenging—a stretch you have to work up to or one that might take some time

(5) List resources that can help you achieve each stretch action. Resources could include the help of coworkers, contacts, social groups, or something that would make stretching easier.

(6) Select one stretch action and practice it.

(7) Evaluate what worked and what didn't. Make adjustments as needed.

Once you have a positive result for one stretch action, try another.

Practice Stretching

Next, practice makes perfect. All we have to do is apply the seven steps to some real-world change factors involved in single-sourcing. Here are two examples of steps 2, 3, and 4. Steps 1, 5, 6, and 7 you can explore on your own.

Example 1
Before single sourcing, you have long files that contain content. These files will be broken down into many shorter topics. These topics will be used in one or more books. Organizing and keeping track of topics can be a technical, training, and personal change.

Change factors:
Managing topics instead of files
Concerns:
How to organize files so they can easily be found?
How to keep track of where the topics are used or reused?
Will topics get lost?
Categories:
-Technical
-Training
-Personal
Stretch actions:

Use a Component Content Management System (CCMS) to store files, search for them, and keep track of where they are used
-Get training for the CCMS
-Put all the topics into master bookmaps
-Over time, let your mind expand

Example 2
Ownership of content is the first thing on every author's mind when you mention single-source. Technically, the teams involved and their management need to decide what type of ownership model is most appropriate, including rules of behavior, and a path for negotiating conflict resolution.

Change factor:
Team instead of sole writer ownership
Concern:
Who controls and monitors content?
Will the content be tampered with?
Category:
-Technical
-Personal
Stretch actions:
-Convene a governance committee
-Increase inter-team and cross-functional business unit communication
-Remain open to hearing requests to change content.

SUMMARY

Projects, such as single sourcing, content sharing, XML authoring, and other initiatives that require broad interdepartmental change, stretch our adaptive skills. Our instinctive response to stretching is often "OH NO!" instead of, "Let's Boogie!"

We can turn this around by practicing the seven steps of the adaptive change methodology. The continual practice of stretching adaptive skills is key to the success of projects.

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Paula is the TechProse team's in-house subject matter expert on DITA and single-source solutions. With more than 20 years of experience in technical communications, she is passionate about helping organizations streamline and reuse their content. She has worked with TechProse since 1990 and has managed single sourcing projects for small firms and large corporations. For the last nine years, her focus has been single-source analysis, development, and information architecture.

In addition to her work with these solutions, Paula has years of experience in information design, instructional design, content development, help system development, marketing writing, and process and procedure development.

Getting Started as an Independent Technical Communicator

Linda G. Gallagher

Anyone just starting out as or thinking about becoming an independent technical communicator must address many issues to be successful. You must be sure that you are honest with yourself about going independent and what it takes.

You must also prepare adequately including, understanding the different contracting options, determining what services to offer, setting up your business and bookkeeping, setting up your office, finding clients, and negotiating contracts.

Your reputation is everything, so protect it by always doing good work and making clients happy.

ARE YOU READY TO GO INDEPENDENT?

Working as an independent is not for everyone. You should be sure that it is right for you before making the leap. Consider the following questions. If you answer yes to each of them, you are on your way. If you answer no to some or all of them, be sure that working as an independent will truly fit your work style and personality.

- Can you deal with uncertainty?
- Can you manage your finances effectively to ensure that you can pay taxes and make it through the lean times?
- Are you able to work in an unstructured environment and create your own structure?
- Can you market your skills and negotiate contracts?

UNDERSTANDING THE DIFFERENT CONTRACTING OPTIONS

You should learn about and understand the different contracting options: W2 vs 1099. Each option has its pros and cons and will work for some and not for others. Consult with an accountant about the effect of each option on your tax deductions.

DETERMINING WHAT SERVICES TO OFFER

You should decide what services you want to offer. Even if you have many talents, limiting the basic services that you offer will help to target your marketing efforts. You always have the option to accept other types of projects that may come your way, but if you try to market all possible services, you'll have difficulty marketing your services.

SETTING UP YOUR BOOKKEEPING

If you are in business for yourself, you must keep close track of your revenues and expenses. Be sure to open a bank account for your business. You must also pay your federal (including social security) and state income tax quarterly.

I strongly recommend that you use a program like QuickBooks to set up your accounts. You will have to learn a little about the program and basic accounting, but it will be well worth your while when you can easily generate reports about your business including revenue and expenses.

You might want to take a class or hire a local accountant or bookkeeper to help you set up the program. Check your local high school and college continuing education classes for short, inexpensive classes to assist you.

SETTING UP YOUR OFFICE

I suggest having a room in your house that is your office. Not everyone has the space to do this, but having a room that is only your office helps with separating your work life from your home life and helps you stay focused on work.

FINDING CLIENTS AND NEGOTIATING CONTRACTS

This may be the hardest part of all. You may have everything you need to do the work, but no business is complete without clients. Here are some tips and ideas to get you started:

- Get business cards and always have several with you

- Consider developing a Web site or writing a blog

- Practice your elevator speech (what you do in 30 seconds or less)

- Be active in STC and other local organizations

- Network, network, network

Always sign a contract with your clients that describes the scope of project (always be aware of scope creep during the project). This protects both you and your client. For sample contracts, see the Rocky Mountain Chapter resource below. Consult your own attorney about issues specific to your business.

LASTLY

- Always be business-like, do a good job, and meet your clients' needs. Happy clients are great sources of testimonials and referrals.

- You are always marketing (gently, quietly, but always on the look-out).

- Create a portfolio of work examples to show and adjust it, as needed, for each prospect.

- Keep up with industry trends, technology, and tools.

- Have a life, too! Find ways to get away from your office to recharge.

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Structured Authoring: A First Step to Content Management

Pamela Kostur & Mary Craig

Content is often developed inconsistently in technical authoring environments, as new documents are created and existing documents are revised. Standardizing your content before moving it into a content management environment saves you time and money, and helps you to get the most value from your CMS.

This paper describes Trane's content management initiative, from their decision to adopt content management through to the pilot, in which we tested new content structures and a new authoring tool. We focus on the challenges the writers faced in their authoring environment, and explain why starting with the content was a critical first step.

TRANE'S CONTENT MANAGEMENT INITIATIVE

Content matters most! Most content management systems are easy enough to use, but if your content isn't structured at the start, your success using any CMS will be limited. The writers at Trane have seen this first-hand. Working with Pamela Kostur (Parallax Communications) and Mary Craig (Content Management Leader, Trane Commercial Systems), these writers are standardizing their content and readying it for reuse, before its move to the content management system.

The challenge: A threat to innovation

With up to an 80% potential for content reuse within a product family, the writers at Trane were doing all they could to effectively reuse content within their existing unstructured, desktop publishing environment. At the worst end of the spectrum, writers were using cut-and-paste to reuse content. And at the best end of the spectrum, writers were using conditional text features to reuse content. However, with writers located in different parts of the United States, content reuse remained seriously limited.

Many factors led Trane to look into content management as a solution:

- Writers have a difficult time retrieving reusable content from source files that are stored by document number. The writer must know which document to look for in order to retrieve content. To make things even more difficult, the source files may be stored on multiple servers.

- Writers have a difficult time finding all instances of reused content in affected documents. With a manual search method being the only option, it is easy to miss a change that occurs in multiple documents.

- When developing new content, more than one writer can create the same or similar content without realizing it, introducing inconsistencies. Also, the order in which content appears in a document varies between different libraries.

- The process to review and approve content isn't automated, which requires writers to manually track reviewer comments as well as collect forms or emails as records for approval. It also takes more time for Subject Matter Experts (SMEs) to review the same content in multiple documents.

- Writers spend up to 25% of their time on non-value added tasks such as formatting documents.

- The current authoring environments do not integrate with engineering systems from which technical data and many illustrations originate.

- The current authoring environments do not easily produce new outputs to meet future user requirements, such as displaying information on mobile devices.

All of these factors lead to issues with documentation quality, including technical inaccuracy and inconsistency. It is no surprise that inconsistent content and structure make it even more difficult for users to find the information they need.

Consequently, Trane Commercial Systems (TCS) and Trane Residential Systems (TRS) entered into a joint effort to move into a content management environment.

We recognized that multiple aspects of the project had to be considered:

- Selection of CMS technology that facilitates content reuse. Research as well as corporate direction made Arbortext the obvious solution from a technology view.

- Standardization of content to ensure maximum reuse potential through consistent structure and content modules. Trane selected a consultant (Pamela Kostur, Parallax Communications) to help us establish a content reuse strategy and begin the process of structuring our content.

- Ability to demonstrate the success of a new authoring environment. We conducted a pilot to test our reuse strategy as well as the Arbortext authoring environment; this hands-on experience was the only way to prove we were moving in the right direction.

Before Trane could move forward with testing a new authoring environment, we knew we had to analyze our content and processes first.

IT ALL STARTS WITH ANALYSIS

Content analysis is a critical first step in a content management initiative. Content analysis requires that you look at your content analytically and critically, identifying reuse opportunities as well as any usability issues that should be resolved before moving it to a content management system.

Not only is it important to examine the content. It's equally important to examine the processes currently in place to create, review, and edit content—basically, you want to know everything happens in the content life cycle so you can improve your processes, making sure that every task adds value to the content.

Trane new they wanted to move to content management, but first, they needed to take a look at their content to understand its nature, subject matter, and structure. Our thorough content and process analysis helped to set specific goals for the project, and to determine where best to start restructuring and reusing content.

We selected a representative set of content, spanning several writing groups and document types. We examined the content to determine reuse potential, and to learn about other issues with the content that should be resolved as part of the content management initiative.

We also interviewed writers, reviewers, subject matter experts, managers, internal content users, and legal experts throughout the organization, learning from them first-hand what they thought was problematic with the content and the processes they were following to get content out the door.

What we learned

Our analysis showed considerable potential for reuse, but to make content truly reusable, we would need to do considerable work standardizing content, documents, and processes. Our analysis uncovered several issues, including:

- Differences in documents depending on writing group and writer. We found several different approaches to writing similar types of content, such as procedures, sequence of operations, and checklists.

- Lack of authoring standards describing how documents should be structured; e.g., what topics belong in each type of document and in what order, what goes in one type of document as opposed to another, and what level of detail is required?

- SMEs also didn't know what content to provide, so they provided inconsistent types of information and levels of detail.

- Lack of authoring standards explaining how particular topics are to be written; e.g., what is the standard for a procedure, for a warning, for a sequence of operations?

- Difficulty in finding definitive versions of content/entire documents. Writers and SMEs like to follow an existing document when putting together a new one, but they couldn't tell which documents represented good models. In addition to having difficulty finding representative sample documents, they couldn't easily find definitive reusable content.

- Lack of reviewing standards; SMEs reviewed documents differently and provided inconsistent feedback to writers.

Analysis of content and processes helped us to understand pain points and to start planning how to resolve them. For example, we learned that both writers and SMEs were frustrated with current authoring and review processes and were open to change. We learned that writers *wanted* to be able to reuse content, but before reusing it, they wanted to know that it was *good* content. They needed to know that what was stored in the content management system was definitive, and usable.

For example, in looking for the definitive version of field wiring for certain products, is it this?

```
TTA150B/TWE180B
TTA180B/TWE180B
TTA240B/TWE240B
TTA240F/TWE240E
TTA180C/TWE180B

Field Wiring:
A.  3 power wires, line voltage.
B.  3 power wires, line voltage.
C.  Cooling only thermostat:
    5 wires, 24 volts.
    - One Stage Electric heat: add 1
    additional wire, 24 volts.
    - Two Stage Electric heat: add 2
    additional wires, 24 volts.
D.  5 wires, 24 volts.
```

Or this?

```
TTA240F/TWE240E
Field Wiring:
1.  3 power wires, line voltage
2.  3 power wires, line voltage for 3
    phase; 2 wires for single phase
3.  Cooling only thermostat: 4 wires,
    24 volts***
    a.  One stage electric heat: add 1
        additional wire, 24 volts
    b.  Two stage electric heat: add 2
        additional wires, 24 volts
4.  Add 5 wires, 24 volts
```

Or this?

```
TTA240F/TWE240E
Field Wiring:
A   3 power wires, line voltage
B   3 power wires, line voltage for 3
    phase; 2 wires for single phase
C   Cooling only thermostat: 5 wires,
    24 volts***
    –   One stage electric heat: add 1
        additional wire, 24 volts
    –   Two stage electric heat: add 2
        additional wires, 24 volts
D   5 wires, 24 volts
```

POST-ANALYSIS: INTRODUCING CHANGE

Once you've analyzed your content and processes, you have the information required to make decisions about how to reuse it, and how to improve it. Our analysis showed us that we would need to clean up both the structure of documents and the structure of the components within them. However, defining new structures is just the beginning. You need to test how well your reuse and structure decisions will work in the authoring environment, using the tools authors will be using once they move to content management.

We decided to move ahead with a pilot, testing our reuse strategy and new document structure within the authoring environment. Here's what we did:

- Selected one type of document as a starting point. We decided to start with Service Facts, a document that technicians use in the field while servicing units. We found several inconsistencies in the structure of this document, so it was a good candidate for cleaning up, plus it is used by both Trane Residential and Commercial Services. Service Facts documents also contained potentially reusable content that could be reused within Residential Services, within Commercial Services, and across Residential and Commercial Services. Service Facts are also a manageable size, ideal for getting started in a content management initiative.

- Defined its structure (information architecture), mapping semantically-named components to DITA. The structure also allowed for variations required to differentiate Residential Service Facts from Commercial Service Facts, as well as variations for different types of products.

- Formed a content reuse strategy, focusing on hazards, cautions, and certain types of procedures that were reusable across several documents.

- Presented findings to the writing groups, taking them through a structured writing workshop. The structured writing workshop was critical in helping the writers to understand the findings from the content analysis and to understand the need to standardize documents and content. During the structured writing workshop, we worked on establishing additional writing guidelines to support consistency.

- Selected writers from different writing groups to participate in a pilot. Writers from both Residential and Commercial Services participated, and the writers had varying degrees of experience.

The pilot: Testing authoring tools & authoring processes

Our pilot lasted eight weeks and focused on using the new authoring tool and applying structured writing principles. We asked the writers to perform a series of tasks over the course of eight weeks. They were given specific tasks each week and were asked to answer questions about each task. Our goals were to:

- Test how well Arbortext (specifically, SMA, Service Manual Application, which is a DITA specialization that comes with Arbortext) meets Trane's needs for content development and management as well as document publishing.

- Obtain feedback from pilot participants on the:

  - Paradigm shift in authoring, managing, and publishing in a content management/XML/DITA environment;
  - Process changes required to move to a content management environment.

- Gather information to support a business case to move ahead with a content management implementation.

Overall, the pilot was successful, as we accomplished our initial goals. We learned that structured authoring is critical in getting content ready for content management, and that it is also challenging to get writers accustomed to working in a structured writing environment. Regardless of the tools being used, understanding how to author well-structured, reusable content is critical.

Note that the pilot focused on authoring, not on review or editing. Our analysis indicated that the review process also needs unifying, but we were not able to involve reviewers in our pilot. Review is being addressed, however, in the content management implementation, as are all findings from the analysis.

CONTENT MANAGEMENT GOALS: WHAT'S NEXT

As a result of the pilot activities, we learned:

- Existing content requires rewriting for reuse. The amount of effort involved in rewriting for reuse takes more time than anticipated, and requires participation from SMEs.

- As is true with any significant change, there is a learning curve that needs to be addressed. A combination of online and instructor-led training is preferred when there are major changes to the way content is developed, to the authoring environment itself, and to processes.

- Authoring and owning topics rather than entire documents is a huge paradigm shift for writers. There is much to learn about effectively authoring in a DITA environment, including the use of DITA maps and trusting the Publishing Engine to give you the expected output.

Where are we now? We completed our business case and had it approved at all management levels. We also sent a Request for Proposal (RFP) to potential implementation vendors and will have a vendor selected in April 2011.

It is exciting to know we will move from an unstructured content development environment to one with structure that focuses on the content, and allows us to reap all of the benefits of a content management system. Without structured content, none of this would be possible.

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Pamela Kostur is a Partner in Parallax Communications and has been consulting with clients on their content management and content reuse strategies for several years. She recently worked with Trane on their content management initiative.

Pamela has been writing professionally for over 20 years and has extensive experience helping companies align content with their users' needs and their business requirements. Whatever the project, Pamela is passionate about "making content work." Pamela has authored several articles, taught workshops, and presented on topics such as content management, information architecture, content modeling, writing for reuse, and structured writing and is a co-author of *Managing Enterprise Content: A Unified Content Strategy* (New Riders, 2002).

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Mary Craig is the Content Management Leader at Trane, a world leader in air conditioning systems, services and solutions. Trane controls the comfort of the air for people in homes as well as many of the world's largest and most famous commercial, industrial and institutional buildings. And applying Trane's expertise in environmental technology and energy conservation makes a difference in energy efficiency around the globe both today and in the future.

Mary has had a career in the technical communication field for over 25 years. She began her career as a technical writer for a computer hardware and software company where she also held several management positions before moving to Trane in 2006 as the Product Communications Manager in St. Paul, MN. She currently has the responsibility for setting strategy and implementation of a content management environment at Trane Commercial Systems.

Scrum and the Single Writer

Kathee Kuvinka

How much bacon can one Pig put on the line? Agile Scrum can be a beautiful thing. The Technical Writer produces timely, accurate, "shippable" user assistance at the end of each Sprint, reducing the risk of delivering incomplete or inaccurate documentation by the release-time rush.

However, Scrum involves many meetings, much planning overhead, and time-consuming team collaboration. Is it possible for a single writer to keep up?

This paper summarizes my experiences as lone writer supporting several Scrum teams in an Agile environment. As expected, there are pros, cons, and most of all incredible opportunities for growth and contribution.

WHAT'S IT ALL ABOUT, AGILE?

Agile development methods are proving successful and Scrum is emerging as the most popular approach. Technical writers need to learn how to fit into a process where their contributions might not have previously been considered. Contributing as a Pig especially relevant where the lone writer is concerned, as the challenge of managing input and feedback from multiple teams can approach overwhelming.

I want to share my experience in a growing software startup company where I remain the lone writer, aside from a contractor or to who specialize in non-software documentation. It is not my first position as a lone writer, but it is the first time I have encountered Agile Scrum.

Knowing My Place?

My small company, unlike many others, adopted Agile Scrum from the get-go. We did not have to make a painful transition to Scrum from a waterfall methodology. Originally, I was member of a few small teams that required my services to develop user guides and online help for three software applications.

As we grew, my role evolved from a member on all teams, to a member of the "Core Services" all-purpose team. The charter of Core Services is to support the other Scrum teams, which now number seven. My team members' responsibilities touch every other team—Build Master, Test Automation Engineer, System Test Engineer, Quality System Project Leader, and Database Administrator.

As a team, we are required to maintain a backlog, have daily stand-ups, present demos and status at Sprint reviews, and conduct Sprint planning for our user stories. As I was previously free to focus on the team with the most immediate priorities, I now have additional responsibilities as a Core Team member. Furthermore, as you can imagine, my team is not exactly cross-functional.

The Scrum-Ban Experiment

Kanban is a lean, or just-in-time methodology which is often used in manufacturing for inventory control and, like many good methodologies (including Scrum), originated in Japan. The philosophy is that you should only take on as much work as you have the capacity to perform. As translated into Scrum-Ban, each team member maintains a Work in Progress (WIP) board where sticky notes are placed in columns to represent scheduled tasks (Sprint commitments), tasks that not planned but necessary, work in progress, completed tasks, and impeded tasks.

We are committed to work on no more than three tasks at a time. The WIP board gives visibility to our progress and status. When a WIP sticky is moved to another column, a task-in-waiting sticky takes its place.

In addition to giving us visibility, Scrum-Ban proved to be a great organizational and motivational tool. However, we ultimately found that, like Scrum, it did not work so well if everybody in the organization was not doing it also. The demand on Core Team members did not allow us to "just say no." Still, the WIP board is used by some team members today.

I recommend further reading on Kanban and Scrum if you are interested in how to make the best use of both of these methodologies together or separately.

WRITER AS (SCRUM) MASTER

I find that being a member of a Scrum team such as Core Services presents many opportunities to test the leadership waters. Technical Writer as Scrum Master? Why not?? It is the type of role where our organizational and communication skills are especially useful. And it is a great way to get to know all the players and gain an understanding of what they are doing. This important role

is highly valued in some markets today and can be the key to a new career path, or to other positions within your organization.

Here are some additional bonuses.

I contribute to the process on a daily basis
Being part of the process is definitely much better than reacting to the needs of an organization in a less-than-timely fashion. Furthermore, I have my own user stories and through this team structure, the stories have visibility. I get to talk about them in front of everybody. I get feedback and input. Want to be sure your documentation or user experience design is reviewed? Get it into the Definition of Done! As a part of the daily process you and your work are no longer an afterthought.

Customers are Chickens and I build the coop
Customer requirements and their subsequent feedback are key to Agile Scrum. This input makes the wheels turn. My company does an excellent job of helping us understand customer needs through mutual visits, and inviting these important stakeholders to a review and demonstration, complete with breakfast, every three months. Furthermore, I am able to talk to customers personally and get the feedback I require—no waiting for that comment card that may never be mailed back. Finally, additional emphasis on customers and their needs turns the spotlight on my work.

DID THE PIGGY REALLY GO WEE WEE WEE?

Scrum encourages agility (duh!) so naturally there are areas that our process needs to address.

(Sprint) Size does matter!
Our Sprints are two weeks. Documentation tasks are usually approached at the end of a user story, which is often the end of the Sprint. Too many teams and this is hard to manage. Other companies I know involved in Scrum only add documentation tasks and sometimes UI design tasks to the same Sprint in which the development occurs only when their Sprints are three weeks or longer.

Don't let the tools drive the process
We use Rally to manage our requirements, user stories, and defects. While it is a great tool, it is just that, a tool. The nail doesn't define where I hang my hat. Although we are required to use Rally as a means to communicate our progress, the Scrum-Ban experiment showed that we can be creative in showing off our process.

Who needs time for lunch, anyway?
I support seven teams. 'Nuf said.

CONCLUSIONS

Not only can the lone writer be a team member on multiple teams, the writer can contribute significantly to the development and advancement of the Agile Scrum process. The practice of Scrum will stretch you as a technical communicator and a team member!

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Kathee Kuvinka is a technical communications professional with twenty years of experience in private companies and government agencies, crisscrossing the country to write and edit software and hardware documentation of all types. This is her first experience with agile Scrum. Her current employer, Omnyx, LLC, is developing an innovative digital pathology solution and is committed to the Scrum process to produce products that respond to the needs of their customers.

Working with Contract Agencies
Cheryl Landes

Regardless of the state of the economy, companies hire temporary, or contract, technical communicators. We are hired to work on special projects, to help during major product releases, to fill in during a regular employee's absence, or to help a start-up company or new technical communications department set up its documentation processes.

Despite the economic downturn and slow rebound nationwide, in the third quarter of 2010, an average of 2.6 million contract workers were employed daily nationwide, according to the American Staffing Association (ASA). Total quarterly sales from contracting employment were $18.1 billion, an increase of 35.6% from the same period in 2009. "The year-to-year percentage increases in employment in this year's second and third quarters are comparable to the industry's job growth rates in the early 1990s," ASA reported. That demand is expected to grow.

Staffing agencies place most contract employees in these assignments, which can last from a month to a year or more, depending on the client's needs. Contracts are often extended beyond the original ending dates.

Since 1995, I have worked as a technical communications contractor through a variety of agencies for several companies, ranging from Microsoft to start-ups in the Northeast. Contracting is rewarding for me, because I am constantly learning something new. During my last two Microsoft contracts, I learned how to use SharePoint, which is becoming a popular content management tool. During a knowledge transfer project for a large retail client this year, I documented tasks completed for a taxonomy developed in Oracle PDQ, a product I had never heard of until then but is in strong demand.

How do technical communicators land contracts through agencies? What types of contractual arrangements exist? What's it like to work as a contractor? I will answer these questions and more in my progression topic, "Working with Contract Agencies," for the progression sponsored by Consulting and Independent Contracting Special Interest Group (CIC SIG).

TYPES OF AGENCY CONTRACTS

The types of agency contracts and pay arrangements are:

- Agency employees—Temporary only or temp-to-hire (W-2)

- Independent contractors (1099)

- Consultants or vendors—Microsoft uses the vendor term to refer to its consultants hired through agencies (1099 or W-2). In all of my other experiences, the term, "consultant," was used.

- Third-party or outsourced projects (1099 or W-2)

More information about W-2 and 1099 arrangements are included in the "Pay and Benefits" section below.

Pay and Benefits

Contractors are paid an hourly rate. These rates vary by agency, the type of position, and the region of the country.

The rate an agency pays contractors is less than the amount the agency bills its clients. Currently, agencies' mark-ups range from 50% to 100% above contractors' hourly rates. So, for example, if an agency hires a contractor for $50/hour, the agency bills its client from $75 to $100/hour, depending on the agency's arrangement with the client and the types of benefits the agency covers for its contractors.

These mark-ups might raise a question about why anyone would want to work for an agency, since you could make more money as an independent. With an agency, you have access to companies that will not hire independent contractors because of federal and state regulatory concerns on the definitions of employees versus contractors. In addition, the agencies are handling your tax deductions and pre-tax deductions for medical benefits and 401K contributions, which means that you do not need to pay quarterly taxes as an independent contractor (unless, of course, you also have independent income).

When you are hired as a contractor on a W-2 arrangement, you are considered an employee of the agency. The agency will deduct federal and state taxes from your check. Any other deductions, such as your contribution to insurance or deposits to a 401K, are also taken. If you work on a 1099, you are considered an

independent contractor. As an independent, all taxes, insurance, and retirement deductions are your responsibility. This is why when I work through agencies, I prefer W-2 arrangements.

Most agencies now have direct deposit. Many pay weekly, while most of the rest pay biweekly. There are some exceptions. For example, I worked with an agency two years ago that paid me after receiving the money from its clients. This often resulted in a three- or four-month time delay before I saw a check. After the contract ended, I did not pursue any more work with that agency.

More agencies are providing benefits to its contractors, because contracts are often longer term. In some states, the benefits will start after one to three months of employment, while in others, the benefits begin on the first day. Some states are also requiring agencies to provide benefits to its contractors.

METHODS FOR CONTACTING AGENCIES

The most common methods contract seekers use to contact agencies are:

- Job boards, such as Monster and Dice

- Agencies' websites

- Phone

- E-mail

- Face-to-face encounters, such as appointments with recruiters, networking events (STC and other professional development meetings), and job fairs—When I attend the monthly STC-Puget Sound and Boston chapter meetings, I usually meet at least one recruiter. Sometimes agencies will sponsor monthly STC chapter meetings as part of their efforts to recruit qualified candidates.

- Professional networking sites, such as LinkedIn—More recruiters are viewing LinkedIn profiles when they are searching for qualified candidates. They also send connection requests to build their online networks.

APPLYING FOR CONTRACTS

Contract seekers typically apply for assignments posted online. Sometimes, though, they will conduct "cold calls," where they contact an agency that has been recommended or they find on the Internet or in a phone book. The process for applying for contract in either

situation is almost similar. See the two subsections below for more information.

Applying for Contracts Posted on Websites and Job Boards

When you apply for a contract that is posted on a website or job board, do not apply through the e-mail links or form provided on the website or job board. Your résumé will be stored in a general mailbox or staging area and will never be read. Instead:

1. Call the agency and ask for the recruiter handling the opening.

2. Talk to the recruiter about the job. Ask specific questions and express interest in it.

3. E-mail your résumé directly to the recruiter so that it is presented to the hiring client.

4. Follow-up with the recruiter periodically.

Applying at an Agency when You don't See a Job Posting

When you contact an agency blind, follow the same steps as when you apply for a specific assignment:

1. Call the agency and ask for the recruiter handling your primary area of expertise.

2. Talk to the recruiter about opportunities in your field. Ask specific questions and express interest in working for the agency.

3. E-mail your résumé directly to the recruiter.

4. Follow-up with the recruiter periodically.

WORKING WITH AGENCIES

Working with agencies is similar to working with a regular employer. The primary difference is that the agency is your employer, not the company where you will work. The company where you will work is the agency's client. You will have a main contact at the agency, typically the recruiter who placed you on the assignment, as well as a supervisor at the client's site.

Submitting Résumés to Agencies

E-mail your résumé in Word format directly to the recruiter you contacted. If the recruiter does not contact you within 24 hours after you send your résumé, call to confirm that it was received.

Typically, agencies will remove your contact information from your résumé and replace it with theirs. They do this because they do not want the client

contacting candidates directly. Sometimes clients will attempt this to avoid paying the mark-up the agency charges above and beyond the rate paid to the contractor.

Most agencies will not revise a candidate's résumé, but I recommend that you verify this with the recruiter. I had a bad experience last year when a recruiter reformatted my résumé. Instead of using my Word version, his administrative assistant retyped it and introduced many obvious errors. I learned about the typos after the recruiter presented my revised résumé to the client. I was not hired for the project, and I did not pursue any more assignments with the agency after that.

Limit your résumé to two pages. Most potential clients do not want to read a longer résumé, unless they are looking for someone with extensive experience or specific skills for a certain amount of time. Even in these cases, they prefer clarity and conciseness over a rambling tome.

Submit your master résumé to the agency, unless you want to target a specific type of assignment every time. The résumé you send to the recruiter is stored in a database, so the agency will refer to it every time recruiters are looking for candidates for new assignments. Therefore, if you do not update your résumé periodically, the version targeted toward a certain assignment will be stored in the agency's database. If this version is tightly targeted, it could block your chances from being considered for other assignments that match your qualifications.

Working with Recruiters

Gauge the recruiter's experience. This will become clear during a phone conversation based on the questions they ask or responses to your comments. If you notice that the recruiter is new to the industry or does not have much experience, try to educate them in your area of expertise. If the recruiter is not receptive to your educational efforts or you do not feel comfortable after your conversation with him or her, then look for another agency or recruiter.

Know what you want, and communicate this to the recruiter. For example, we all have preferences on the types of assignments we want and the size of company. Some prefer working for small companies, while others want to work at the large corporations.

Do not sell yourself short on your hourly rate, regardless of your desperation for work. Many agencies have a range but often quote the low end of the range. If you lock into a lower than usual hourly rate, it will be difficult to land contracts at a higher rate at the same agency in the future. Sometimes it can also be tough to

get a contract at other agencies at higher rates as well, because agencies often ask about your rate at your last contract.

If you are not qualified for a contract or are not interested, say so. The best recruiters will even discourage candidates from being considered for assignments that are beyond candidates' levels of experience. This protects the agency's reputation, along with the candidate.

Check in with the recruiter periodically. If you are being considered for an assignment and do not hear from the recruiter by the date promised, follow-up with an e-mail or by phone. When you have submitted a résumé to the agency but are not being considered for a contract, I recommend following up once every two weeks, preferably by e-mail.

Avoid these types of recruiters! Do not work with a recruiter when it is obvious that s/he does not understand what you do. If the recruiter does not understand what you do and is not willing to learn from your feedback, then s/he will not be effective in finding assignments for you.

Never work with recruiters who refuse to give you details about the job, such as the client's name, the location, and your responsibilities. This is happening more often as agencies outsource their recruiting processes.

Do not work with recruiters who ask you to avoid contacting anyone else at the agency other than themselves. Usually this means the recruiter is trying to start his/her own agency and wants to keep the candidate and client information confidential. The recruiter is planning to stay at the agency long enough to build a stable of qualified candidates and stable clients and then launch the new business. Working with these recruiters can result in a bad relationship with the current agency and even harm your reputation and your chances of getting contracts with other agencies.

Recruiters should never pressure you into leaving your current position, even after you say "no." When I worked at a small dot-com in the Northeast, a staffing agency obtained my work number. Two recruiters from the agency called me constantly during office hours, trying to entice me into leaving my job. They would not give up, even after I asked them several times not to call me anymore. Finally they stopped when I threatened to report them to the authorities.

During challenging economic times, scams increase, and the recruiting industry is no exception. One I started encountering in 2009 was so-called agencies that would

call me with an opportunity that fit my skills. As the conversation continues, the "recruiter" will tell me that in order to present my résumé to the potential client, s/he needs my Social Security Number. I refuse to provide it, and the response is the same every time—the "recruiter" hangs up and I never hear from the "agency" again. You do not need to provide your Social Security Number to any agency until you accept an offer and are completing paperwork for the agency's payroll department. When you do, a recruiter will not be requesting it; someone from payroll will instead.

There are a few companies, such as Microsoft, Amazon, and AT&T, that now require the last four digits of a candidate's Social Security Number to be considered for an opening. The information is used to match candidates' names in their databases. If a person is submitted by more than one agency, then the person will not be considered for the assignment. In most cases, if a person has been submitted by more than one agency, the person will never be considered for future contracts with the target company. This is another important reason you should always keep track of the companies that have received your résumés and which agencies presented your résumés.

Interviewing for Assignments

The interview process for a contract often consists of two phases: interviews by the agency and interviews by the potential client. The types and number of interviews vary by the agency and client.

Interviews by the agency. The best recruiters call you and ask for additional information after they receive and review your résumé. They want to know the types of assignments you prefer, the hourly range you will accept, how far you are willing to commute for a project, and whether you will consider a contract that involves travel.

When a client is interested in interviewing you, the best recruiters will call you to prepare you for the interview. The recruiter will tell you what s/he knows about the person or people who will interview you, what types of questions to expect, and provide as many details that are available about the corporate culture.

Interviews by the potential client. The number of interviews varies by client. Usually when I interview for a contract, the client will conduct a screening by phone and will follow-up with one to three face-to-face interviews. Some industries will require more than three interviews for certain contracts. For example, when I interviewed for a contract in New York City at a large financial services firm, the client scheduled four separate in-person interviews. This is common in the finance industry. I have heard of as many as 12 separate

interview appointments for contracts at finance companies.

Often clients in the software and retail industries request interviews on short or no notice. On one short retail assignment in Massachusetts, I was called in for a face-to-face interview within an hour after the recruiter contacted me about my availability and received an offer for the contract two hours after the interview. I started working onsite the next day.

Accepting and Working on Contract Projects

Starting and ending dates. Sometimes start dates for a contract are moving targets, especially with the large corporations. Reasons include background check delays and client's internal processes for hiring contractors, which are often slow. Based on my experiences, my start dates with large clients have ranged from three weeks to four months after I accepted the assignments.

End dates may be extended, depending on the client's needs. During the mid- to late 1990s, when contracting was booming in Seattle, it was not unusual for an agency contract that began as a three-month assignment to be extended as far as a year or more. My longest agency contract was two years, but some of my colleagues have worked on projects lasting up to six years.

Working onsite versus offsite. Almost all contracts through agencies require you to work onsite at the client. This is another important reason that I prefer to work on a W-2 arrangement through agencies. Working on a 1099 arrangement means you are an independent contractor, and according to federal guidelines, companies should not require independent contractors to work onsite. There are exceptions, though, when an independent contractor would need to spend time onsite conducting research and meeting with team members.

Some companies will allow agency contractors to work offsite on certain days of the week after the contractor has established a trustworthy, reliable working relationship onsite. If you are allowed to work offsite, make sure you communicate with your client frequently and establish a consistent schedule as much as possible.

Resolving issues with clients. Try to resolve an issue with the client before requesting help from the agency. Agencies are reluctant to become involved in most cases, because their primary interest is keeping the client. They do not want to harm their relationships with clients, because the clients pays the agencies' bills. This does not mean the agency will not support you, but keep in mind where the agency's interests lie.

Contracting work through agencies will continue to grow. Understanding the agencies' and clients' needs and keeping abreast of contracting trends are critical to being successful in finding and securing contracts. Being flexible and continuously marketing yourself to agencies are also crucial to your success.

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Keeping Track: Order out of Chaos
Darice M. Lang

Our worlds are becoming more complex as time goes by. We work in environments where a few people support multiple projects. This method helps folks who are trying to support multiple products (with multiple files in each). It provides a way to show what changes impact what files, what changes do NOT impact files, and what changes have been put off until the next release.

INTRODUCTION

Schedules change. Designs change. Product names change. One small change can have so much impact. Then, halfway through updating for one change you need to drop everything for something else. Are you going to remember where you were one week later? A couple of days later? Heck, even an hour later?

These low-tech, easy-to-maintain task forms help track what has been done, what is still to be done, what requirements changed, and what has been put off until the next release.

What's required? All you need is Microsoft Word or an equivalent.

DETERMINING WHAT TO TRACK

When you are a lone writer supporting multiple projects, you can have multiple things to track. Each project may have different:

- Information they want to track
- Due dates
- Expectations of how much effort is involved in creating/updating their documentation

All of these things are valuable to the project, but they don't track what you are doing at a detailed level.

If you entered all the tasks that needed to be done for a release in your project's tools, you might not get the chance to actually work on it.

A simple task list that addresses your priorities can really help. What should this list included? You must decide on the balance that works for you.

Steps to Complete Documentation

Some project managers don't understand what is needed to complete documentation. By listing the details you can use these task forms to help them learn what is involved.

If a document has been finalized and new information comes in that causes those steps to be repeated, it is nice to track how many times that one document was finalized.

For example, if I had to recreate a Word document from a help file, fix the formatting, and regenerate a PDF file three times, it can have a big impact on the time spent. Especially in those precious days before the final release.

Percentage of Changes that Impact Documentation

I have calculated a percentage of software changes that typically impact documentation. Our development group uses software change requests (SCRs) to track bug fixes and enhancement requests for releases. Because I have tracked which SCRs require document changes and which do not, I have been able to show that 10-15% of the SCRs entered impact the documentation. This allows me to look at what SCRs are planned for a release, and estimate how much effort might be involved.

Total Changes Within the Release

Since SCRs can be added, removed, and then added back to a release it can be helpful to track which numbers represent efforts that do not impact your documentation. This saves time when an updated list of SCRs appears. For me, each project updates the list every week. Some of these changes are status only.

Documentation Impacted by Changes

One change can impact multiple documents. For example, a change to installation requirements could impact a user's guide, hardware installation cards, and an installation procedure.

New Documentation

If you have a new document that needs to be created, or a major change that needs to be implemented, add that to the task list. You probably want to accompany the task list with a detailed estimate of what you think needs to be done for each new document or major change.

Feature Creep

At one point, I was tracking what I planned to change from the beginning of a release, and changes added at a later time. Being able to point out the feature creep can be valuable when you need to identify why something took longer than expected or why it wasn't ready.

Statistics

There are all kinds of statistics you can keep about a release:

- How many pages/topics did you have when you started?
- How many at the end of the release?
- How many separate documents did you have to change?
- How many did you plan to change at the beginning of the release cycle?

Other Things You can Include

You can also add the following information:

- Changes made to formats and why
- Changes that impacted all documents (for example, product name change)
- Direction that changed after you started (for example, products that were dropped and how much time you had spent on it)

Use these task lists to track any information that you might want to know later. It's better to track information that you may not need, than to try to figure the information later.

KEEPING TRACK

When you are juggling multiple projects, how can you keep everyone up-to-date? Each project, each release gets its own task list.

Starting to Track a New Release

A copy of the last task list is used to start the next release. Items that were left on hold are moved back to active status. SCRs are reviewed to see what

documentation may be impacted. Release plans are reviewed to see what new files may be needed. Tasks you need to do for each document (whether creating a PDF, preparing it to be printed, or archiving the source files) can be moved back to not complete.

Once the initial task list is complete, a copy is given to the project managers /development leads involved.

Keeping Task List Up-to-date

The task list is updated by changing the status of the detailed items that need to be worked. I use Word, and therefore styles, to track each task's status. Statuses include:

- ☐ Open task
- ☑ Completed task
- 📖 Task on original release
- 🔒 Cancelled task, task on hold, or task/SCR with no document impact

Once a release is in work, you can choose how often you need to update the task list. Towards the beginning of a release, I may update the list from a printed copy every week or two. As the due date gets closer, the time between updates becomes shorter. If anyone needs a status update, you can print them (or email them) a copy.

When working with two or three projects, all with different release schedules, keeping track becomes critical. You'll typically work on the documents with the soonest release date.

If the change spans multiple projects, you may make a bunch of changes to only half of the files that need to be updated to get one release's documentation package ready to ship. But not all of the information you need for that first release will be ready at the same time. So you move on to the documentation with the next higher priority.

Part way through that project, some of the original project's information becomes available. The task lists track what you have and have not done for each project, for each release. This allows you to double-check and make sure you've completed all you planned to do before declaring a project done.

Finalizing the Task

The release is done. Take a deep breath. Now you can update the statistics in the release. I have found it convenient to include the text used when I archived my changes through the content management tool. This puts all your information about a release in one convenient

package. Once the task list is finalized, a copy is given to the project managers /development leads involved.

HELPING JUSTIFY TIME NEEDED

Estimating what needs to be done can be of value to you and your project. Use a written estimate to help you identify:

- Specific tasks to be done
- Structure of document
- Assumptions on what sources of information are available
- Assumptions on what will and will not change
- Effort for specific tasks. For example:
  - Graphics
  - Tables
  - Reviews

CONCLUSION

When you are a lone writer supporting multiple projects, a simple to use task list can help track what you have and have not done for each project, for each release. This allows you to double-check and make sure you've completed all you planned to do before declaring a project done.

What should this list included? You must decide on the balance that works for you. Use the task lists to track any information that you might want to know later. It's better to track information that you may not need, than to try to figure the information later.

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Darice has been a technical communicator for over 30 years. She graduated with a Bachelor of Science in Electrical Engineering and a minor in technical writing from Clarkson College of Technology. She worked for 18 years at Texas Instruments; 10 years developing military specification manuals, 8 documenting software products and processes. The last 13 years, she has worked at ASSET InterTech, Inc. Her job has included working on everything from marketing documentation, to WWW sites, to user documentation. Currently she maintains over 100 product documents for 3 product lines.

What I Learned from Software Developers

Fei Min Lorente

Technical communicators who work in documentation departments develop work habits based on their fellow writers and editors. As a lone writer, my group members are software developers instead. If you have only dealt with software developers as subject matter experts, you probably have not had a chance to observe their work habits closely, nor hear their opinions about best practices. Being a member of their group has afforded me this opportunity, and it has taught me about many different tools and techniques that make me a more efficient and productive technical communicator. I would like to share some of those lessons with you.

INTRODUCTION

The following sections describe different tools and methods that I have adopted from software developers.

USE A VERSION CONTROL SYSTEM

A version control system keeps track of each draft of your document when you check it into a repository. It records who checked in the file and allows you to store other metadata (information about the information) about the file. You can easily retrieve and (depending on the file type) compare previous versions. You can be notified by email when a file is changed by anyone, and it prevents you from checking in a file if you did not start with the latest version. It has a configuration control feature where you can tag the files to identify them as the versions that comprise a particular release of a product.

This is a common application used by software developers. There are many types to choose from, such as CVS (Concurrent Versions System), Subversion, IBM® Rational® ClearCase® or Microsoft® Visual SourceSafe®. Some are even open source (which means that they are free). If your employer has software developers, chances are that they already have a version control system, and you can simply join them in using it.

It might not be ideal for documentation; for example, if your documentation files are binary, the system may have to store the entire file when you make a change instead of storing just the change. However, it provides far better control than storing files on a server or your hard drive.

DOCUMENT EVERYTHING YOU DO AND HOW YOU DO IT

Software developers are trained to put comments in their code. Perhaps that is why they are more conscientious about documenting everything they do.

Documenting everything you do and how you do it is not only useful to the next person who has to do the same thing (whether they are your co-worker or your successor), it's useful to you. The next time you have to do the same task or remember why you did it that way last time, you will thank yourself for taking the time to document it.

Much of our internal documentation is done on a wiki that everyone in the office can access. A wiki offers an easy interface to provide input, search and access information. It also allows collaborative work in an environment with enough controls (changes are recorded so that you can identify who made the change and roll back the change if necessary) to make the contents trustworthy.

LOOK FOR ANSWERS ON THE INTERNET

Are the SMEs using strange language and odd abbreviations? Are they spelling the same term several different ways? Do you get error messages when running some popular software? Is your publishing system causing you headaches?

Software developers often find solutions by doing an internet search, consulting some of their favourite reference sites, or participating in forums and discussion lists. You can do this, too, although you will probably choose different reference sites and forums from them.

Yes, even an error message can be found on the internet. If it's from a commonly used application, chances are that someone else got that error too, and asked about it on a forum. Most likely, a helpful person answered their question on the same forum, where you can get the answer.

Some of my favourite reference sites are:
- Acronym Finder: http://www.acronymfinder.com/

- MathWorld: http://mathworld.wolfram.com/
- Webopedia, online dictionary for computer and internet terms: http://www.webopedia.com/
- w3schools for learning about web development: http://www.w3schools.com/

ALTERNATIVE TOOLS

Software developers are always looking for something faster, better-designed, less buggy, or free. Given a chance, they won't stick to the company standard. Because of software developers, I have started using the following tools.

Google Chrome

Internet Explorer or Mozilla Firefox are the typical company standards for web browsing, but several of my colleagues have changed their default browser to Chrome. It loads pages faster, and has some convenient features: searching in the address field, and opening a new window by dragging and dropping a tab. You can read plenty of articles about why Chrome is better than the others [1] [2]. However, I wouldn't have considered it if my colleagues weren't using it and giving it good reviews.

Beyond Compare

This tool compares two or more text files side-by-side and allows you to transfer differences from one file to another. Recent versions also compare PDF files. I frequently use it to pinpoint what changed from one version to the next in a file.

Vim

This is the PC version of the infamous UNIX editor called vi. Vim is more user friendly than vi, but still retains most of the powerful editing features. If you have to work in a text file such as XML, some programming code, or a batch file, vim will highlight the key words for you, provide text completion, and even do some basic syntax checking. One of its best features for a technical communicator is its ability to use regular expressions for search and replace activities which takes global changes to a whole new level. (A regular expression is a set of pattern matching rules encoded in a string according to certain syntax rules.)

AUTOMATING TASKS

Anything can be easy to do the first time, but by the tenth time, it gets boring and error-prone. Software developers hate doing repetitive tasks. They would much rather write a script [3] or buy something to automate the job.

While technical communicators are usually fond of graphical user interfaces (GUIs), that kind of interaction does not automate easily. Software developers are always interested in application programming interfaces (APIs) so that they can write a script to automate the task. You might want to check for this feature the next time you invest in a software tool.

Once the script is written, the task is accomplished in less time, more accurately, and more reliably.

Many scripting languages are available and widely used, such as Perl, Tcl/Tk (pronounced "tickle tee kay"), and Python. If you work with software developers, they probably know at least one scripting language. If you don't know one and don't have time to learn, you might be able to ask them for a favour. They can often whip up a script for you in less than an hour, and it will save you many hours of work in the long run.

WORK IN A TEXT FILE INSTEAD OF A GUI

Software developers love text files. Maybe it's a result of working with so much programming code. I gradually came to realize that text files have some advantages over WYSIWYG interfaces:
- They lend themselves better to automated tasks.
- They are more accessible and transferable because you don't have to purchase a specific program to open them.
- If you have to configure something, a text file is easier to copy and modify than a configuration created with a GUI.
- It is much easier to compare two versions of a text file than binary file formats.

I still prefer to work with a GUI; for example, tables are much easier to create and manage in Word or FrameMaker than in text files that use mark-up, such as HTML or a wiki page. But sometimes, converting the contents to a text file is a more efficient option.

USE A SOFTWARE DEVELOPMENT METHODOLOGY

By software development methodology, I'm referring to the process of writing down the requirements and the design, doing the development work, and having regular reviews along the way to ensure that the end product meets the requirements (i.e., testing or verification). [4]

For technical communication projects, I'm suggesting an abbreviated version of the planning documents to suit the size and complexity of the project. A brief description of the requirements and design can help to control project creep, and clearly define the end of your project. Otherwise, you'll end up adding refinements and new features as new ideas come up. The planning documents can be as short as an email; just make sure you can find them again when you need them.

It also helps to have the requirements and design reviewed before you start the development work. Just like an outline ensures that you haven't missed an important idea, these planning documents make sure you are on the right track. They are worth the time and effort compared to restarting the development work.

I usually use the templates designed for a software project and adapt them to my needs (mostly by leaving out a lot of things), but if you'd like a template that is designed for documentation, you can contact Neil Perlin of Hyper/Word Services (nperlin@nperlin.cnc.net). I obtained an online documentation specification template from him when I attended one of his workshops.

CONSIDER THE MAINTENANCE

Software developers know well that most of the resources on a project are not spent on creating it in the first place, but maintaining it. Therefore, their philosophy is to make the maintenance as easy as possible.

Technical communicators should be thinking the same way. It's easy to add a lot of detail and screen captures to a manual, but what happens when the user interface changes? And can you find all the places that are affected by the change?

We are usually so concerned with providing useful information to our readers that we often don't consider how to maintain that information when the product changes. If we can't keep up with the changes, our readers still suffer with inaccurate, inconsistent, or late information in the next release. The trick is to find the balance between providing enough information and keeping it maintainable at the same time.

NAMING CONVENTIONS

As every good software developer knows, file names are important. A consistent and well-considered naming convention can:
- Help you and others find the item that they want
- Make scripting or batch files easier to use on the set of items

The items might be document files and folders, a collection of graphics, or documents on a wiki. If your system of items is sufficiently large or likely to grow, you will avoid frustration later if you can establish a naming convention near the beginning of the system's development, and then stick to it.

CONCLUSION

The application of these tips depends on your working environment, resources, and personal preferences. In any case, I hope that you will consider examining the practices of other professionals in your area to see what can be applied to your own job to improve your job satisfaction.

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Using Low Cost Tools to Increase Your Productivity and Accuracy

Ed Marshall

This talk covers the following topics:

- *Tools to "Let the computer do the working"*
- *Advanced utilities*
- *Keeping your computer safe with shareware tools*
- *Other useful tools*
- *Sources of information about shareware*

TOOLS TO "LET THE COMPUTER DO THE WORKING"

Some of the very useful tasks that you will do often working in the technical writing field include the following:

- Comparing sets of files, versions of files to see what files changed and what the differences are
- Searching and replacing text
- Using advanced text editors to edit content outside of a mainstream authoring tool for a variety of reasons
- Copying large or many files from your location to another location

File/Folder Level Comparison (Differencing Tools)

Two very useful tools are:

- Beyond Compare—Does folder and file-level comparison for both ASCII and binary files. Can detect that ASCII or binary files are different but can only show the differences in ASCII files, not binary files. Highlights the specific characters different between two ASCII files. Has a 30-day free fully functional trial. Beyond Compare is $30 from www.scootersoftware.com/.
- Araxis Merge—Does folder and file level comparisons for both ASCII and binary files. Retail price is $129 from www.araxis.com/merge/index.html.

Search and Replace Tools

- Funduc—Searches and replaces both folders and zip files. Will search and replace ASCII files. Will search binary files but cannot replace by itself. Has plug-ins for Word, Excel, and PowerPoint. Funduc

costs $25 from www.funduc.com. Many other tools are available here also.

- FAR (Find and Replace)—Provides a search and replace tool and help decompiler/comparison tool. Has a two-month free trial. Cost: buyer's choice. FAR is available at www.helpware.net/FAR/.

These tools are very useful for tasks such as:

- Searching for strings, tags, names, product names, glossary terms, variables, etc. in binary files such as Frame/Word
- Replacing product names in ASCII files such as HTML
- Searching e-mail folders for e-mail addresses
- Searching for misplaced files/passwords

Advanced Text Editors

Two very powerful "smart" text editors are:

- Note Tab Pro
- EditPad Pro

Both tools have spell checking. A big plus if you work in a mixed OS environment is that neither tool inserts Windows-style line feed characters in Unix files. They provide auto-save capabilities. You can use them to strip leading/trailing white space and search and replace for information such as pathnames for image files in HTML files.

NoteTab Pro has a wizard for inserting html tags. It comes in three editions: Pro ($30), Light ($5) and Standard ($20). The vendor provides many other tools also. NoteTab is available from www.notetab.com.

Uses for NoteTab Pro:

- Very good for adding HTML/XML tags to text copied to source code files from other file formats
- Powerful HTML wizard—Auto-creates tags for you
- Apply HTML/XML coding to text using the built-in easy to use HTML wizard
- Spell-checking
- Statistics

EditPad Pro has color-coding for custom html tags. JG Soft has other tools such as a PowerGrep tool, Registry editor, and others. Cost: $50. It has a 30-day free trial. A

free Lite version is available. EditPad is available from www.jgsoft.com.

Uses for EditPad Pro:

- Auto indent/tab
- Spell-checking
- Color-coding for custom html tags
- Auto-sorting—Allows you to spot and remove duplicates
- Specifying line length per file type
- Statistics
- Very good for adding/revising text in source code files (C, Java, and C#)

Transferring Files via FTP

Filezilla is open source software to transfer large files from one computer to another. It is easy to use with an intuitive GUI. It also has a powerful Site Manager and transfer queue. It provides the following features:

- Cross-platform. Runs on Windows, Linux, *BSD, Mac OS X and more
- Available in many languages
- Can specify Bookmarks
- Supports transfer of large files greater than 4 GB
- Supports drag and drop
- Supports FTP, FTP over SSL/TLS (FTPS), and SSH File Transfer Protocol (SFTP)

Filezilla is free from http://filezilla-project.org/.

TOOLS OF THE EVIL-DOERS

- Spyware—Uses your computer for another's benefit. Usually, these tools do not self-replicate. Typical tactics include unsolicited pop-up advertisements, stealing personal information (including financial information such as credit card numbers), monitoring browsing activity and sending reports of sites you visit to others for marketing purposes, or sending you to advertising sites when using a browser.
- Spam—Commonly known as "junk e-mail." The bigger problem is that spam can infect your computer to use it as a proxy computer to send out spam messages to other users, especially everyone in your e-mail address book.
- Key loggers—Captures your keystrokes (passwords or account numbers). Use common sense. Note any

new installed programs or devices connected to the USB ports. Enable a good firewall to detect and prevent these from being installed.

- Adware—Displays advertisements, usually without your consent. These often show-up as pop-ups in your browser. It is a good idea to leave the default security settings alone in Internet Explorer, although recent versions of IE are much safer than years ago.
- Phishing—Attempts to acquire your sensitive information by masquerading as a trustworthy person or business in an apparently official electronic communication. Typically done using email or an instant message. Beware spelling/grammar mistakes, or impersonal greetings, such as "Dear Customer."
- Extortionware—Runs a free test to detect infections. Then, it either infects your computer or falsely reports problems and offers to remove them if you buy their product. But, they often only remove the "false positives" after you "pay the ransom."
- Root kits—Controls the operating system at a low level. Can install key loggers and backdoor programs silently to allow spying on your computer activities and take remote control of your computer (also known as "zombie computers").

Best Practices for Keeping Your Computer Safe

- Firewalls—Use only one as they can clash. Windows firewall only restricts incoming Internet traffic, does not restrict outgoing. So, if your computer is infected, people can use your computer as a "zombie" to send out messages, spam, spyware, etc.
- Anti-virus—Use only one as they can clash. Need to keep whatever anti-virus software you use updated.
- Spyware tools—Most experts running several tools as not all tools will catch everything.

Recommended tool suite. Trend Micro Internet Security (www.trendmicro.com) is an excellent set of tools that provides a firewall, anti-virus, and spyware protection. You can but a single-user license for $29 or a 3-user license for $40. This was recommended by a trusted pc repair shop I use. I buy Trend Micro for family members and friends to keep their computers safe.

Tip: If you are running Windows 7, it is a good idea to leave the User Account Control (UAC) set to the default. This means that any program that tries to install on your computer will result in a prompt asking you if you want to allow the install to continue. Being diligent about this can prevent unwanted software from installing on your

computer, especially without your knowledge or consent, which is how many of these tools try to install.

KEEPING YOUR SOFTWARE UPDATED

Secunia Personal Security Inspector is an excellent program to monitor the software installed on your computer and alert you when patches/updates are available. It helps secure your computer from software vulnerabilities. It is highly regarded by experts. It is both easy to use and free from https://psi.secunia.com/.

SECURING WIRELESS NETWORKS

It is a good idea to secure your home wireless network to prevent neighbors/drive-bys from "poaching" into your network.

To secure your home network:

1. Log into your router.

2. Use encryption: WPA2 (Wi-Fi Protected Access) is best. (Usually, seen as WPA-PSK (pre-shared key).

3. Change your computer's settings to use the encryption set in step 2. For detailed instructions, go to www.komando.com/tips/index.aspx?id=1629.

DESKTOP INDEXING/SEARCH UTILITY

Instead of using the Windows Search utility, I recommend using Copernic Desktop Search. Like Windows Search, it searches files, e-mails, videos, pictures, etc. It works in background to index continuously and does not use a lot of CPU time. Copernic Desktop Search is free from www.copernic.com.

TOOLS TO "LET THE COMPUTER DO THE WORKING"

Two very good backup utilities are:

- Acronis True Image—Cost: $50, www.acronis.com

- Backup4All—Cost: $20–$45 (three editions: Lite $20, Standard $30, or Pro $45) Easy to use. www.backup4all

Tip: Do a full backup/image of your computer when you get a new one. Some PC vendors are not shipping system restore disks/OS disks anymore. This gives that security

of a known good backup from when the computer was pristine. Then, once you remove all the demo ware loaded on your pc and have it set up the way you want it, do another full backup/image. Use meaningful names or comments so you know what each backup contains or when it was made!

IMPROVING SYSTEM PERFORMANCE AND RELIABILITY

- Back up regularly to multiple copies.

- Back up data, browser favorites, and e-mail files.

- Use automated backup utilities—Carbonite, Mozy, and iDrive are highly rated automated backup services.

- Use daily backup directories—Create a file named Monday for Monday's work, copy Monday to a file named Tuesday to work on Tuesday, etc., until you check-in to source code control. Then, you can delete the old working folders.

- Reduce the number of shortcuts on your desktop to those you frequently use—Windows Registry has to find all the pointers to your desktop shortcuts on booting, so delete seldom-used shortcuts to shorten boot time.

CD BURNING UTILITIES

- Roxio Creator—Cost: $80, www.roxio.com

- Nero—Cost: $80, www.nero.com

- Ashampoo Burning Studio—Cost: $40, www.ashampoo.com

ADVANCED MAINTENANCE UTILITIES

Several low-cost utilities will help keep your computer running faster by keeping your Registry clean, keeping files as contiguous as possible, and fine-tuning how your computer starts and what programs start when you boot your computer.

- General all-purpose "housecleaning" tool for computers—Cleans temporary internet files, your browser history, cookies, empties the Recycle Bin, deletes temporary files/Windows log files, cleans your Registry and makes backups of it.

  Recommended tool: CrapCleaner, Cost: $20. (Everyone who donates $20/£15/€20 or more will be

e-mailed all releases before they are available to download from www.ccleaner.com/.)

- Registry cleaner—The system registry is one of the core components of Windows; a neglected registry can become bloated with useless information, resulting in performance degradation and may result in strange error messages or crashes.

  Recommended tool: Registry Mechanic, Cost: $30, www.pctools.com

- Disk defragmenter—A badly fragmented hard drive can have a major performance drawback; this is especially true if you have never defragged your drive before (but that also depends on how much usage you get out of your PC).

  Recommended tool: Ashampoo Magic Defrag, Cost: $29, www.ashampoo.com

- Configuring Windows to work for you

  Recommended tool: Tweak UI, Cost: Free windowsxp.mvps.org/tweakui.htm

WEBSITE TOOL

If you want or need to build a website, Yahoo Site Builder is an excellent free tool to prototype, design, and debug your website: http://webhosting.yahoo.com/ps/sb/index.php

It has the following features:

- Easy to use

- Free

- Easy to update

- Not restricted to Yahoo for hosting

I used it to design my website, www.MarshallDocumentationServices.com. My start to finish time was 3 hours!

RECOMMENDED LISTSERVERS AND NEWSLETTERS

- Kim Komando—Produces a daily Cool Site of the Day, Show Tip of the Day, Daily News, and weekly Electronic Newsletter, often gives travel tips, photography tips, etc., www.Komando.com

- Brian Livingston—www.WindowsSecrets.com

- Tourbus—www.InternetTourbus.com

- Infopackets—www.infopackets.com

Other Sources of Information

- Professional magazines—*PC World*, *Consumer Reports*, *SC Magazine*

- Spyware Guide—www.spywareguide.com/index.php

- PC Tools—www.pctools.com

- CNet—http://reviews.cnet.com/software/?tag=ont.sw

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Ed Marshall (ed.marshall@verizon.net) is an independent technical writing consultant and sole proprietor of Marshall Documentation Consulting (www.marshalldocumentationservices.com), with more than 23 years of experience. He specializes in APIs/SDKs (application programming interfaces/software development kits), Web services products, and other types of documentation aimed at developers. Throughout his career, Ed has developed expertise in using tools to "let the computer do the work," such as advanced tools for editing files, comparing files, and searching and replacing text in files. Ed is a popular speaker at a variety of professional development conferences, locally and nationwide. His previous appearances include events sponsored by the Society for Technical Communication (STC), WritersUA, and DocTrain. He is an Associate Fellow of STC.

Managing Your Projects and Yourself:
Personal Observations from a Lone Technical Communicator
Karen E. Mulholland

Abstract:
Anecdotal evidence suggests that in organizations employing only one technical communicator, this person becomes successful by treating the job as a management position.

INTRODUCTION

Lone technical communicators usually report to people who do not understand how technical communicators work, and who are not able to provide day-to-day management of the technical communication business function. Effective self-management is a must for lone technical communicators.

Organizations that employ only one technical communicator are usually fairly small, and in many cases do not have formal processes for getting things done. In such an environment, a technical communicator can thrive by creating lightweight processes and tools to meet deadlines and deliver excellent work in a repeatable way.

As the lone technical communicator in your organization, you will succeed and grow by managing yourself, your work, and others' expectations of you as if you were the department head – which you are.

MANAGING YOURSELF

If you are the only technical communicator in your organization, and you have the responsibility and authority to handle the technical communication business function as well as the process of creating content, you are a de facto manager. Whether anyone else in the organization recognizes this is irrelevant. You are the lone technical communicator in your organization because, at some point, someone believed in your ability to do this job on your own.

Managing yourself is simple but not necessarily easy; it can be summarized as "Act like an adult."

Stay on task. Keep the organization's overarching goals in mind and ask yourself from time to time whether you are working toward them. Seth Godin provided an excellent test in his blog post "Are You Making Something?" – If you are not making something, you are not working.

Assume that others act from good will. This allows you to act with confidence and openness – the key elements in the conversations that get things done. If you do not project confidence and openness, you run the risk of being seen as the real-life counterpart of Tina the brittle technical writer from Scott Adams's Dilbert comic, and becoming layoff fodder.

Keep track of your commitments and to-do items. Your success depends on doing what you say you will do, when you say you will do it.

Own your mistakes. Nothing defuses a bad situation as effectively as acknowledging that you made a mistake: "You're right. I was not tactful in handling that request from the sales team, and my response sent a terrible message. I'll go talk to them and find a way to give them what they need."

Know your weaknesses and work to strengthen those areas. Nobody expects you to be perfect, but people can see where you could improve. Don't wait to be told; find opportunities to develop your skills in the areas where you are not already strong. Typically this involves pushing yourself out of your comfort zone. Set an attainable goal for improvement, achieve it, repeat.

MANAGING YOUR PROJECTS

As the lone technical communicator, you define the tools and processes you need to get the job done. You need simple, repeatable ways to manage all aspects of the business function for which you are responsible.

Style guides and lists of preferred terms are helpful but should not be your top priority when you create your productivity tools; most technical communicators have pretty good style guides in their minds. But it is worth jotting down terms and phrases that you find yourself using inconsistently.

Project plans let you inform others of what you plan to do on each project and what you will need from others. They also show that you are actively managing your work. Publish your project plan on your organization's intranet or collaboration site.

Spreadsheets let you plan and track various aspects of your work. John Hedtke's "Preemptive Project Planning" talk gives excellent advice about using spreadsheets for

scheduling and resource allocation. You can also use them to track updates to individual deliverables or entire libraries, and to manage the technical review process. Spreadsheets offer a lightweight, powerful tool for determining when you are done with a project.

Checklists help you to deliver consistently excellent work. Identify all the hallmarks of excellent work that is ready to be published, and include them in your checklist.

MANAGING OTHERS' EXPECTATIONS OF YOU

When you manage yourself and your work effectively, you change people's perceptions of what a technical communicator can do – or what you can do. People will ask you to do, or to participate in, projects that are outside the scope of what you would normally do. You'll need a strategy for responding. Your strategy can be simple: Evaluate the request, present it to your boss along with your recommendation to do it or not, and let that conversation determine whether you say yes to the person requesting your involvement, or respond with, "You'll have to negotiate with my boss for my time." Let your boss be the one who says no.

CONCLUSION

Success as a lone technical communicator depends on your ability to maintain a positive, professional approach to your work, and to develop and use lightweight, scalable tools and processes to ensure that you deliver consistently excellent work, consistently on time.

REFERENCES

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(2) http://www.hedtke.com/speaking.htm

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Working as a technical communicator for over 15 years, for organizations ranging from Eaton Corporation's Semiconductor Equipment Division to a 12-person start-up company, Karen Mulholland has experienced both failure and success as a lone technical communicator. Karen won both of her ITPC Awards of Excellence as a "department of one" for a company of 50 people.

Putting Your Best Font Forward
Michael R. Opsteegh

A strict focus on content is ingrained in the culture of technical communication, and design is often an afterthought. Many technical communication professionals simply don't have the time, resources, or expertise to make what appear to be superficial changes to the design of our documents, templates, presentations, or web pages. Unfortunately, poor typography and page design can negatively affect your audience' perception of the materials and your company, how easily your audience can read and retain information, or whether your audience even bothers to read the information at all.

Following some basic design principles and understanding how typographical choices affect readability and legibility, technical communicators can create printed materials, online documents, and presentations that people actually want to read.

Comic Sans walks into a bar. The bartender looks up and says "We don't serve your type here."

Advances in computerized desktop publishing have democratized typography and page design. No longer limited to the domain of such experts as career typesetters and designers working with blocks of type at a press, typography and design have moved into the wider public domain of the uninitiated. A generation ago, most people did not know the names of even a handful of typefaces—if any—let alone the scores or hundreds that come preinstalled on our computers. Today, most of us have opinions and preferences when it comes to the fonts we use and even understand a joke about a font like Comic Sans.

The democratization of type has been empowering. As technical communicators, we are able to quickly and easily create user guides, online help, reports, procedures, etc. complete with headings and graphics and all the other essentials afforded by desktop publishing. By the same token, so can grade-school students, administrative assistants, engineers, and anyone else with a basic word-processing application.

Since everyone can now publish from their desktops, the bar has been raised for technical communicators to produce more professional looking documents that don't look like they were created by a high school student using a standard, and often tired, template. Additionally, flashy web pages, magazines, and advertising have raised readers' expectations of aesthetics in typewritten materials. The competition for readers' eyes is fierce in the age of desktop publishing.

By definition, a typeface is the concept of a type design, while a font is the execution of that concept. Often, these terms interchangeably. I will also use these terms interchangeably here.

Additionally, I will use the word "document" as a catch-all term to refer to anything that you may be writing, be it a user guide, online help, annual report, résumé and cover letter, print document, electronic media…you get the idea. The principles outlined here a general and apply to any typewritten material.

IMPORTANCE OF TYPE

Why should technical communicators care about typography when our jobs revolve around transforming technical data into readable and usable information for a specific audience? Typography actually has dramatic effects on readability. You can create perfect copy and supporting charts, graphs, and illustrations, and yet the reader will not be able to use your carefully crafted information if the type is not appropriate, accessible, or inviting.

The concept of making information inviting has been around for ages. As Sam Dragga and Gwendolyn Gong point out in *Editing: The Design of Rhetoric*, one of Aristotle's five canons of rhetoric was delivery. Aristotle's concept of delivery referred to the speaker's facial expressions, gestures, and vocal intonations. To technical communicators, however, delivery, as a rhetorical device, refers to document design, including the format of tables and figures, indentation, and, of course, typography.

Technical communicators must, therefore, possess a basic knowledge of type design to help master the delivery of their documents. For example, you may already subscribe to the principle that sans serif typefaces are easier to read on screen while serif typefaces are easier to read on

paper. This basic tenet is a great starting point but should not be the extent of your knowledge of typography.

Except for certain situations within graphic design, type's main purpose is balancing the readability and legibility of your message. Your type should always be appealing and inviting to the reader. Text consisting of decorative fonts or clashing typefaces turns your reader off. Your use of typography can directly affect whether a potential reader even bothers to look at your document.

Looks aside, bad typography can obscure the meaning or tone of your message. When the message of your résumé, for example, is "hire me," you want your message to be as clear as possible. By the same token, awesomely stunning typography won't land you a job if the content of your résumé doesn't adequately match your skills to the employer's desired qualifications or if your résumé is poorly laid out.

You should devote some time to finessing the type in your manuals, interactive help, web pages, annual reports, proposals, white papers, and whatever else you may be writing. All of your documents and projects should be pleasant to look at and innovative enough to attract and hold your readers' attention. After all, type is all around us on billboards, signs, web pages, cell phones, and television, and your documents are competing against all of these media for your readers' eyes.

THE IMPORTANCE OF WHITE SPACE

The space around letters and words is as important, if not more important, than the shapes of the letters themselves. Just as the most legible type doesn't call attention to itself, the best use of space is inconspicuous. Space is of the utmost importance because readers don't read words letter-by-letter, but rather recognize word shapes. If your letters, words, or lines are set too closely together, the

All work and no play

ALL WORK AND NO

Figure 1. Word shapes play an important role in how we read. Notice that text set in all caps is difficult to read because all the word shapes are the same. (Baskerville Regular)

reader will have difficulty scanning your text and may give up if it's too troublesome.

Poor spacing can also inadvertently cause your reader to misunderstand your text. Graphic designer, Nigel French, relates an amusing anecdote about type with inappropriate spacing in his book, *InDesign Type*. When he was a boy, he saw the sign for a new video store called FLICKERS. The sign was set in all caps, and the letters were spaced so closely together that, from far off, the L and the I looked like a U. While the video store owner may have done this intentionally, you don't want the type in your documents to inadvertently mislead your reader in this way.

TYPE BASICS

Typography, like many art forms, is relatively subjective. Understanding the basics, however, will help you train your eye to appreciate the subtitle qualities of good typography.

The principles that apply to graphic design also apply to typography. Keep in mind that headings and body text should provide sufficient contrast, typographic elements should provide sufficient repetition to aid the reader's ability to quickly navigate your text, your text should be aligned with other elements of the page, and elements of type that belong together should be in relatively close proximity when compared to elements that don't belong together. For a thorough rundown on contrast, repetition, alignment, and proximity, refer to Robin Williams' *The Non-Designer's Design Book*, which should occupy a prominent place in every technical communicator's library.

Key concepts that are specific to typography include x-height, leading, and kerning.

X-Height

The x-height of a typeface is the measurement from the baseline to the median (the height of a lowercase x). You may have noticed that the x-height varies from font to font. The x-height greatly affects the *optical* size of a font, but not the *measured* size. For example, Verdana set at 12 points will look larger than Garamond set at 12 points.

Fonts with larger x-heights require more line spacing, so the reader's eyes can more easily recognize the word

Ophelia Ophelia

Figure 2. X-height varies from font to font. Verdana appears larger than Garamond because it has a greater x-height. (Verdana, Garamond)

shapes. Fonts with larger x-heights are easier to read at small sizes than fonts with small x-heights because the larger x-height creates more space within the letters, thereby enabling readers to see the difference between a c and an e.

Leading

Leading is the space between lines of type. Technically, leading is measured from baseline to baseline. The default leading is approximately 120 percent of the point size of the type. For example, 12-point type would be set with a leading of 14.4 points (written as 12/14.4). The default isn't always appropriate because in addition to type size, you must also consider x-height and line length. I can't offer a formula for determining the amount of line spacing required for comfortable reading; it's a matter of aesthetics. As you consider the proper line spacing, Alex White suggests that you take the following factors into account in his book, *Thinking in Type*:

- *Font Size.* Normal text of 10 to 12 points is generally set with one to two points of line spacing. Smaller fonts require more line spacing to be legible. Likewise, large heading or display type will likely require less leading in proportion to the text size.

- *X-Height.* X-height is the distance between the baseline and median of lowercase letters. The larger the x-height, the more leading is required because the reader needs more space to recognize the word shapes.

- *Line Length.* Longer lines of text require more line space to prevent the eye from reading the same line twice. Lines of 75 characters or more should be double-spaced. Keep your body text between 35 and 70 characters for easy reading.

Depending on your software, leading may be presented differently. For example, InDesign and FrameMaker display leading in terms of total line height (e.g., 12 points or 13.5 points). Microsoft Word displays leading in multiples of the font size (e.g., single line spacing is 1.2 times the font size).

Kerning

Kerning is the space between two characters. Depending on the shapes of the characters, if they look like puzzle pieces that fit together, they may need to be scooched closer together to create a more even text color. By text color, I mean the gray that body text creates on the page when glanced at from afar. Glaring white spaces between characters can distract the reader. Kerning evens out those white spaces. Imagine that you are pouring water of a word, and you want to pour the same amount between each character.

Lysistrata Lysistrata

Figure 3. The text on the left is not kerned, while the text on the right is. The most obvious difference is the L and the Y are sitting closer together in the kerned text on the right, fitted like puzzle pieces. (Optima Regular)

Most software programs can leverage the kerning metrics that are built into fonts; however, not all fonts contain sufficient kerning information and require manual adjustments. Proper kerning is a tedious task, so you may want to focus any manual adjustments on heading or key text.

Kerning isn't enabled by default in Microsoft Word. To kern text in Word, open the Font dialog box and click the Kerning check box on the Character Spacing tab.

READABILITY AND LEGIBILITY

Readability and legibility are very similar terms and are often confused because they seem to mean the same thing. The two terms, however, are related only as much as a sprint is related to a marathon: they both involve running. Readability and legibility both involve the appropriateness and the effectiveness of type.

Readability refers to the type's ability to attract and hold the reader's attention. Readability is what makes us take

Pacific Coast Highway 1 Mile

Figure 4. Readable type is attractive or eye catching, but is not meant for easy or extended reading. You would not set body text or highway signs in a flashy font; save it for display or heading text (Kunstler Script)

notice of text and want to read more. The more interesting the type, however, generally means that it's less legible.

Legibility refers to the ease with which type can be read and the capacity for word shapes to be easily recognized. Legible type must not interrupt the reader or cause his or her eyes to stray.

It's important to understand the differences between readable type and legible type when designing your documents. Your heading type should be highly readable. It must grab the reader's attention, and make the structure of document immediately apparent and familiar. The reader isn't going to spend much time reading heading text, so it's acceptable to sacrifice some small measure of legibility. Once the reader is hooked and knee-deep in your body text, the type should be highly legible, easy to read, and provide no barrier to communication.

TYPE STYLES

There are, perhaps, hundreds of thousands of computerized typefaces to choose from. I have some 800 on my laptop. All of these typefaces can be a bit overwhelming, especially to the untrained eye. Fortunately, you can categorize most typefaces into one of nine groups. Granted, some typefaces will never easily fit into one category or another.

Like fashion, type styles have changed over time. Most type styles are derived from the time or place in which they were developed and gained popularity. Having said that, many typefaces that fit within a certain style may have been created outside of the time or place of origin typically associated with that type style. James Craig's *Designing with Type* categorizes typefaces into the following five type styles:

- *Old Style.* Old Style type is very legible, has minimal contrast between thick and thin lines, rounded brackets where the stokes and serifs meet, and a diagonal stress. The line through the thinnest parts of the O in the figure to the left shows the diagonal stress. (France 1600s.)

- *Transitional.* Transitional type bridged the Old Style and Modern typefaces and had more refined serifs, greater contrast between thick and thin strokes, and moderately diagonal stress. (England 1700s.)

- *Modern.* Modern type has even more contrast between thick and thin strokes, squared brackets where

strokes and serifs meet, and vertical stress. (Italy 1700s.)

- *Slab Serif (Egyptian).* Slab Serifs are characterized by very thick serifs, little or no bracketing, and little or no stress. (United States 1800s.)

- *Sans Serif.* Sans Serif typefaces do not have serifs and typically do not have any stress. (Switzerland 1900s.)

Additional type categories include the following:

- *Humanist.* Humanist faces are influenced by 15th century Italian calligraphic writings and are typically marked by soft angles and subtle contrast between thicks and thins.

- *Script.* Script typefaces are designed to mimic handwriting and calligraphy.

- *Decorative.* Decorative typefaces are designed to add splash to your documents, but should be used sparingly. Outside of bullet characters, decorative type probably has no place in your technical documents.

- *Blackletter.* Currently, blackletter typefaces are reserved for liturgical works, diplomas, or news-

Old Style	**Garamond**
Transitional	**Baskerville**
Modern	**Bodoni**
Slab Serif	**Rockwell**
Sans Serif	**Helvetica**
Humanist	**Gill Sans**
Script	**Swing**
Decorative	**Jokerman**
Blackletter	**Old English Text**

Figure 5. Nine major type categories illustrated.

paper mastheads. While an American would find Blackletter type difficult to read, it was the first moveable type and was widely used in Germany for hundreds of years, but fell out of favor after the Nazi party used it in propaganda.

Typeface styles are evocative. They're reminiscent of the time and place in which they were created because they embody the art and architecture of the time and place of origin. Choose typefaces based on their associated mood and tone and find the ones that suit the tone of your documents.

Understanding the classifications of type styles can help you hone in on those ineffable qualities that make one typeface evoke strength and security and another evoke innovation and leadership.

ABOUT FONTS

A font is the entire collection of characters, punctuation, numerals, and glyphs of a typeface. Traditionally, a font was the collection of characters of a single size of one typeface. With computers, fonts aren't size dependant, and the term is often used to refer to the file that holds the collection of characters.

Finding the right typeface can be time consuming, but it can also be expensive.

Fortunately, many of the software packages that we install on our computers contain collections of fonts that are perfectly suitable for your documents. Such operating systems as Microsoft Windows and Apple Mac OS, as well as such software suites as Microsoft Office and Adobe Creative Suite, contain dozens of fonts. Check out the fonts you already have installed on your computer.

Don't steal fonts. A font file is the culmination of a lot of hard work by a type designer. Fonts are intellectual property, so don't borrow or steal fonts; you don't want any bad juju associated with your work, anyway.

Be careful when downloading free fonts. Although there are many cool-looking fonts available through such web sites as dafont.com, many of these freebies contain only the basic character sets and may not contain all the measurements required for proper kerning.

Additionally, installing a corrupt font file can cause your software applications or operating system to crash. If you're running Mac OS X, you can use the Font Book utility to verify that your font files are not corrupt. If

you're running Windows, there are several commercial font-management utilities you can buy. To avoid substandard fonts, purchase your fonts from such reputable dealers as Adobe, FontShop, Hoefler Frere-Jones, Linotype, or Veer.

If you can, use OpenType fonts. OpenType is the latest standard developed by Adobe and Microsoft. OpenType fonts are cross-platform (meaning a single font file will work on all major operating systems), contain vastly expanded character sets, and contain such advanced typographic features as old-style numbering, real fractions, real small caps, and more ligatures. If you can't find an OpenType font that suits you, use a TrueType font instead.

Additionally, even fonts with the same name but created by different foundries can have different characteristics. For example, versions of Garamond have been created by various type foundries, and from foundry to foundry, the typefaces look basically the same but have many disparate characteristics.

It's okay to mix various weights, like Roman, bold, and italic, of one typeface, but be careful to not accidentally mix two different typefaces with the same name. Your reader will notice if the type appears to be different from section to section. If you work on a team where you share files with other writers, your software may complain if it cannot find the correct Garamond.

CHOOSING TYPE COMBINATIONS

Selecting the perfect typeface for the occasion can be a tedious and unbearable task. Selecting a combination of two or three typefaces that suit the occasion and work well together can be downright frustrating, causing ulcers, loss of sleep, painful headaches, and colorful language.

There are several type families that are diverse enough that you could use one family and still have enough contrast to make your résumé stand out. Two reliable standbys include Gill Sans and Myriad—I know I can always use them when I am in a pinch. The Helvetica type family, too, can be used with an ample degree of contrast by mixing Helvetica Light and Helvetica Black. The best part about sticking to one type family is that you're guaranteed that the x-heights and the length of ascenders and descenders will match.

Let's say that you really want to make your documents to pop with a wider variety than one type family can

offer. You'll need to find an appropriate combination of typefaces. This more of an art than a science, so you'll need to learn to trust your eyes. Here are a few tips to help you out:

- ***Choose typefaces that have similar x-heights and similar lengths of ascenders and descenders.*** Typefaces with higher x-heights look denser on the page than typefaces with small x-heights. Similarly, typefaces with shorter ascenders and descenders will look squatty next to a typeface with taller ascenders and descenders.

- ***Choose typefaces that provide enough contrast to each other to provide the reader with visual cues with which to navigate your résumé.*** This is not a complete contradiction of the first tip. Your typefaces should be similar enough that they look like they belong in the same document, but they should provide enough contrast that the reader can easily spot headings. If your two typefaces look too similar, their slight differences may look like you chose the wrong font by mistake. Often, writers use a serif-sans serif combination to provide sufficient contrast.

- ***Choose a typeface for the body text first.*** Since this is the text with which the reader has the most interaction, this type should be the most legible. Don't choose a body type with diminished legibility because it fits well with your heading type; instead, choose a heading type that goes well with your body type

- ***Ensure that the typeface that provides the greatest contrast to the paper or background is the typeface that you use for key pieces of information.*** The reader's eye will drift to the part of the page with the greatest contrast, so use that typeface for your name, the position you seek, and other vital information like actionable items or warning messages.

These guidelines can be more readily summed up in three words: concordance, contrast, and conflict.

CONCORDANCE, CONTRAST, AND CONFLICT

You can achieve a concordant look by using one type family throughout your document. The concordant look doesn't generally provide a lot of contrast since it relies only on the different weights, like Roman, bold, and italic, to differentiate between the headings and body type. Some type families, however, have wide varieties of weights from thin to semibold, to black or ultrabold.

Within these type families you can present your résumé with sufficient contrast without risking glaring conflict in your type.

Contrast is probably the most widely used type combination in technical communication. Contrast is where typefaces from drastically different families are used (for example, a sans serif heading with a serif body type). When combining typefaces, choose two typefaces that are sufficiently different. The easiest way to do this is to choose two different styles of type.

Avoid conflict. Conflict between typefaces occurs when two typefaces of the same style are used. For example, you would never use two Old Style typefaces together because they are not sufficiently different to provide contrast, nor are they similar enough for concordant look. Your readers' eyes will stop dead in their tracks, and your readers will scratch their heads as they try to figure out if you accidentally selected the wrong font or not.

Contrast is key to combining type. If you're going to choose two typefaces, go wild and choose two that are completely different. If you have to use typefaces that are very similar, emphasize their differences by setting one of the typefaces in all caps, bold, or italic.

CONCLUSION

Great typography and document design will not make up for poorly written or insufficient content. After your content is set, you should invest some time planning which typefaces will suit the tone of your documents. Choose typefaces that represent your company's identity. Use typography to build your brand. Using typefaces across all the communications you have with your readers will show that you have a conscientious eye for detail, and a well developed design acumen.

Provide ample white space, not just in the margins, but between the lines of text. White space will make your documents less intimidating and more inviting to read. Additionally, white space will make your text easier to read. Adjust your line spacing based on the font size, x-height, and line length. Place items that belong together in closer proximity than items that don't. For example, you should insert more leading above your headings than below them so the reader can quickly tell what body text belongs to that heading.

Remember that most people are not going to read your document from beginning to end. Your readers are busy people who are looking for information quickly. Design

Headings

Body type

Captions

Myriad Pro. Myriad Pro Bold, Regular, and Condensed are included with Adobe Creative Suite 5.

Headings

Body type

Captions

Gill Sans MT. Gill Sans MT Bold, Regular, and Condensed are included with Microsoft Office 2010.

Headings

Body type

Captions

Helvetica Neue. Helvetica Neue Condensed Bold, Regular, and Light are included with Apple Mac OS X 10.6.

Headings

Body type

Captions

Franklin Gothic. Franklin Gothic Heavy, Book, and Medium Condensed are included with Microsoft Office 2010.

Headings

Body type

Bell Gothic and Bell MT. Bell Gothic Std Black is included with Adobe Creative Suite 5. Bell MT Regular is included with Microsoft Office 2010.

Headings

Body type

Rockwell and Chaparral Pro. Rockwell Bold is included with Microsoft Office 2010. Chaparral Pro Regular is included with Adobe Creative Suite 5.

Headings

Body type

Gill Sans MT and Adobe Garamond Pro. Gill Sans MT Regular is included with Microsoft Office 2010. Adobe Garamond Pro Regular is included with Adobe Creative Suite 5.

Headings

Body type

Myriad Pro and Adobe Caslon Pro. Myriad Pro Semibold and Adobe Caslon Pro are included with Adobe Creative Suite 5.

Headings

Body type

Bodini and Calibri. Bodini MT Bold and Calibri Regular are included with Microsoft Office 2010.

Headings

Body type

Constantia and Verdana. Constantia Bold is included with Microsoft Office 2010. Verdana Regular is included with Microsoft Windows Vista and Apple Mac OS X 10.6.

Headings

Body type

Copperplate Gothic and Georgia. Copperplate Gothic Bold is included with Microsoft Office 2010. Georgia Regular is included with Microsoft Windows Vista and Apple Mac OS X 10.6.

Headings

Body type

Futura and Adobe Garamond Pro. Futura Medium is included with Apple Mac OS X 10.6. Adobe Garamond Pro Regular is included with Adobe Creative Suite 5.

Figure 6. Sample type combinations that reflect the guidelines outlined in this paper. These tye combinations, like all the other type specimens appearing in this paper are distributed with popular software applications, many of which you may already own. You are welcome to use these type combinations in your own work.

your documents so that there is enough contrast to make their structure immediately apparent.

You can design a great-looking document with the concordance of a single type family; however, ensure that there is enough variation within that type family to provide enough contrast. For example, the Gill Sans and Helvetica type families have great diversity in font weights, from light to ultrabold.

It's more common, however, to find documents that consist of two typefaces of contrasting type styles. For example, it's common to pair serif and sans serif type-faces for body text and headings respectively. While the intention of using two type styles is to maximize contrast between the headings and body text, be sure to choose two typefaces that look like they belong together. Find typefaces with similar x-heights, ascender heights, and widths. Don't use two fonts from the same type style. For example, if you use two different sans serif typefaces, they will not be different enough to provide sufficient contrast, nor will they be similar enough to create a concordance.

If you have trouble choosing typefaces, use the combinations suggested in this paper. Each of the typefaces used here are available with popular software applications. Have some fun and learn to trust your eyes when you're designing your documents.

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Single Sourcing To the Max: HATs Go Mobile

Neil Perlin, Hyper/Word Services

Two well-known HATs (help authoring tools), RoboHelp and Flare, have added mobile to their outputs – one more step in the expansion of single sourcing, with two twists…

Mobile takes traditional authoring practices to new levels of rigor and adds some new practices. This paper looks at what HAT users must do to meet those new or extreme practices to create fast, efficient, cost-effective projects.

But good development practices for mobile go beyond mobile. As technology advances, we may have to support new formats or outputs that we never planned for or even heard of. To do so, we have to define good development practices that work for any outputs. That's the point of this presentation.

OVERVIEW

Single sourcing usually means creating outputs for large-screen devices like desktop and laptop PCs. But mobile output has been on the fringe of tech comm for years and, with the advent of support for mobile-oriented web sites in MadCap Flare and ePub eBooks in Adobe RoboHelp, mobile is creeping into the tech comm mainstream. These new outputs don't cover all mobile options, but they do make it easy for traditional tech comm groups to try mobile without spending a lot of money and time.

However, the addition of mobile as a single source output carries with it two developmental issues and one strategic issue for tech comm.

On the development side:

- We have to use our HATs correctly and rigorously and shed bad habits that we've built up and gotten away with for yours, such as local formatting.
- We may have to start using features we haven't used before to support output to mobile, or other outputs. For example, Flare's "mediums" add efficiency to the task of defining styles for different outputs.

…and on the strategic side:

- Technologies change – RTF was replaced by HTML which was sort of replaced by XML, which may be replaced by HTML 5, etc. To meet that change, we have to design and develop our projects in such a way that they can easily adapt to outputs that we hadn't planned on, perhaps didn't even exist, when we began the project. In other words, can we take the good practices required for mobile, today's extreme single sourcing, and extend them to other extreme outputs, including those that don't exist yet? In other words, can we "future proof" out work?

Why Mobile at All? Why Now?

Mobile has been with us since '98 when Microsoft rolled out Windows CE, or even earlier when Apple introduced Newton. Yet all these efforts died due to technical and market problems. So why does mobile seem to be taking off now? I'll suggest a few reasons, starting with culture:

- Society is becoming increasingly mobile in general.
- Some tasks are better done in their actual location rather than having to wait for a return to the office
- Your users may be shifting from a stationary style of information access – e.g. desktops and laptops – to a mobile style and you need to adapt accordingly.
- Going mobile may offer a marketing or sales benefit as a brand differentiator – e.g. we're mobile but our competitors aren't – therefore we're cool."

I'll add three developmental reasons:

- Mobile interfaces today are vastly more inviting than earlier versions.
- There are more and better apps to choose from. For example, on the business side, we can choose from a multitude of business card scanners, date books, QR code scanners, and so on.
- The development environment is better than what it was only a few years ago. And new tools even hide the coding entirely, letting business users create their own apps. (Two examples are Google App Inventor (http://appinventor.googlelabs.com/about/) and, on a commercial side, MobiFlex (http://mobiflex.me/). In the interests of disclosure, I'll note that I'm certified in and train on app development for MobiFlex.)

In brief, it's easier to build increasingly attractive apps that fit into an increasingly accepting culture.

SOME THINGS TO CONSIDER…

There are many issues involved in defining and adopting good, "future-proofed" development practices for mobile and others, but they fall into five major categories:

- Mobile architecture.
- Development philosophy.
- Programming.
- Information design.
- Business.

The rest of this paper introduces these categories. Use the discussion as a starting point for your own analyses.

Mobile Architecture

The term "mobile" gets used very casually, but what does it mean and what effect does the definition have? For this discussion, I'll suggest three main mobile "architectures":

- **eBooks** – Books on the screen in ePub (for Barnes & Noble's Nook), Amazon's Kindle format (based on a MobiPocket standard) and others. For a summary, see http://en.wikipedia.org/wiki/Comparison_of_e-book_formats.
  The term "eBook" implies a device but there are also software-based eBook readers for PCs, tablets, and smartphones like the Adobe Digital Editions reader (http://www.adobe.com/products/digitaleditions/) and an ePub plug-in for Firefox. So it's important to specify what we mean when referring to "ebooks". eBooks are convenient, but there's a lot of debate as to whether physical readers will be replaced by software-based readers or general purpose tablets like Apple's iPad.
- **Sites** – These may be web sites planned for mobile or just standard web sites viewed on mobile devices. Sites often don't take full advantage of the features of particular mobile devices. However, they're fairly easy to create for a varied set of devices because they run on the small number of mobile browsers that tend to be consistent across multiple devices.
- **Apps** – These are the applications we tend to think of, like Angry Birds and CamCard. They run on the mobile devices and can take full advantage of the devices' features. However, the many devices with many variations means fragmentation can be a major issue when creating "true" apps. So given a market with many different devices in use, can you develop for all the devices or must you focus on a subset and, if so, which one?

For tech comm, architecture is a concern because it affects which tool you use. For example, Flare 7 supports mobile sites but not eBooks, but RoboHelp supports ePub-based eBooks. And neither of these tools supports true native apps. So you have to buy the right tool. (To complicate matters, the MobiFlex tool can use Google Docs spread-sheets as a data repository for an app. This means it may be possible to write scripts for RoboHelp or Flare that lets those tools send content to or from a spreadsheet, thus letting those tools serve as homebrew data portals for mobile app development.)

Development Philosophy

Development philosophy is basically the set of principles that guide your work and dictate specific steps to follow. In this context, here are three philosophical principles to follow.

- Remember our main competitor – the web in general and Google specifically. Local applications will be with us for years but they're increasingly a dead end. By way of illustration, ask yourself where you look first when you need information about using a piece of software. If your first answer is Google, that may be your users' first answer too.
- Think open source and standards compliance. Avoid or move away from proprietary formats and towards formats based on open standards like HTML or XML. And stay in compliance with standards – don't hack around them. Non-standard material is likely to need manual correction in the future, driving up time and cost.
- Keep up. Be sure you understand old issues, like the difference between RoboHelp for Word and RoboHelp HTML. And be sure you understand new issues like why to use MOTW (Mark of the Web) or add a DOCTYPE declaration in a topic.

Programming and Coding

Some of the programming and coding recommendations fall out of the philosophical principles mentioned above. Follow standards – use authoring tools correctly; avoid the temptation to try to make a tool do something it wasn't designed for – be sure you understand your tools (like the RoboHelp for Word vs. RoboHelp HTML point above), outputs (what's the difference between WebHelp and Web Help), technologies (what is strict vs. quirks mode in a browser and why does it matter), and so on. More specifically, several recommendations for CSS (style sheets):

- Keep any CSS simple; if you work in code, avoid the temptation to use complex features because they're cool. The more complex a CSS, the harder it is to debug and maintain.
- Document the CSS, especially if it uses any unusual features. Don't assume your successor will know what you did, or that you'll remember.
- Use CSSs for character styles like bold. Ideally, put *all* your styles in the CSS. That will let you hide the text formatting toolbar on your HAT's interface and get rid of the temptation to do local formatting. Flare and RoboHelp let us add characters styles to a CSS.
- Review any CSS periodically to clean it up – get rid of duplicate styles or styles you're no longer using. (But be careful about deleting styles in a CSS used in multiple projects. Just because a style isn't used in your project doesn't mean it's not used in another one.)
- Validate your CSS to compare its cleanliness against proper (W3C) syntax. There's an excellent validator at http://jigsaw.w3.org/css-validator and a mobile-oriented validator at http://validator.w3.org/mobile/. You don't have to pay attention to every issue that a validator flags, but knowing what issues are in your

CSS will give you a gauge for deciding which issues you have to fix and which ones you can ignore.

- Check what browsers your users have in order to see what version of CSS they support and thus what CSS features you can use. You don't want to design any material that uses a particular set of style features only to find that those features don't work correctly on many of your users' mobile devices. There are many places to find information about CSS; start at http://webdesign.about.com/od/css3/a/differences-css2-css3.htm. You can also find a somewhat overwhelming list of browsers and the CSS features they support at www.webdevout.net/browser-support-css.

- Think about switching from absolute to relative size units in your CSS. In other words, consider moving from points, which are a convenient and easy-to-understand unit but one that doesn't resize on browsers, to relative units like % or ems that specify an element's size relative to another element and let the browser handle the actual sizing work.

- If you use Flare, consider using mediums. Mediums are based on the Media Types in the CSS standard (http://www.w3.org/TR/CSS2/media.html). A medium is simply an alternate set of properties for a style in one style sheet. For example, say you need to create online and hard-copy outputs and want to use blue for the heading 1 online but black for the hard-copy. Normally, you'd have to create and maintain two CSSs in this situation. With mediums, however, you can create one CSS for both outputs and simply specify that if the output is online, use blue for the heading 1 but black if the output is hard-copy. This way, you're only maintaining one CSS with a few variations.

- Get rid of local formatting. Any formatting done via the text formatting toolbar is generally inconsistent and difficult to process when trying to automatically create different outputs. Correcting local formatting in legacy projects is an awful job – tedious, boring, and hard to automate. Yet it should be done if you plan to re-use the content.

- Use table CSSs. They provide the same benefit as regular CSSs – consistent appearance and efficient development and maintenance.

Information Design

There are many definitions for "information design." For this paper, I'll define it as a standard set of designs for a specific set of information types. In other words, for each type of material you create – such as concept, task, reference, and troubleshooting – define a standard structure for each type and use it to create a template for each type which you can add to your HAT interface.

Once you create the templates, make it a rule that authors no longer simply create a new topic and start writing.

Instead, they create a new topic by deciding on the type of topic they're creating, selecting that template, and *then* starting to write. The result is greater consistency, which makes it easier for authors to create and for users to read and understand. Plus, you can apply a CSS to a template. In this case, topics created based on such templates not only get the structure provided by the template but the formatting provided by the attached CSS.

Business

My points so far have four goals:
- Develop efficiently.
- Develop correctly.
- Develop consistently.
- In order to future-proof our work.

But there's a larger goal here that has to be factored into any decisions we make – whatever we do has to solve a business problem in a way that supports our company's business strategy. If that doesn't motivate anything else we do, any cost-benefit analysis will lead to our work being outsourced. In an era of advancing and interesting technologies, that would be a shame.

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Neil has 32 years experience in technical communication, with 26 in training, consulting, and development for various online formats and tools including WinHelp, HTML Help, JavaHelp, WebHelp, CE Help, Doc-To-Help, RoboHelp, Flare, and many now known only in legend. Neil is a columnist for Intercom, a frequent speaker for STC chapters and regional and annual conferences, and other conferences and professional groups. He is a member of STC's Boston chapter, started and ran the chapter's EDoc SIG from 1993 to 1996, created and manages the Beyond the Bleeding Edge stem at STC's annual conference, represented STC for the W3C (WorldWide Web Consortium) for three years in the early 2000s, and is a 2010 STC Fellow.

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Proving Our Value to Coworkers, Managers, and Executives
Paula Robertson

In general, technical communicators are used to dealing with, writing, editing, and designing someone else's content to tell someone else's message. We are equally used to being undervalued as professionals for the work that we do. Why is the fact that we can *(possess the capability to) write and edit someone else's message—a fact that is obvious to us—so lost on those we associate with in the work arena who are not fellow writers?*

- *Internal customers, such as project managers, might begrudge the extra time and expense to include a professional writer on their projects. "Anybody can write," right? "What benefit is it to me or my project to involve the writer/editor in the team at an early phase?"*
- *The recalcitrant engineer or developer thinks, "Why do I need a technical writer/editor? What benefit is it to have an editorial review of my writing at all?"*
- *Managers and executives might only be interested in the numbers that you are already required to report, but do they understand the full significance of those numbers?*

These attitudes are incredibly frustrating, but rather than complain and commiserate, we can advocate our own cause. While we continue to produce the quality content or message of someone else's ownership, we can also develop our own message of persuasion.

A RECENT EXAMPLE

I have been a technical communicator for almost 16 years, with additional years of previous experience in graphic design and layout. My work has been mainly in the area of Information Technology (IT) or software documentation. Then in 2008, I accepted a contract with the U.S. Army Corps of Engineers. I was thrown in the midst of a variety of technical disciplines I had not worked with before, to be the Technical Writer/Editor for military base infrastructure reports, area development plans, and civil works planning studies.

Although I had to scramble to research and learn a bit of each of their diverse vocabularies and concepts, I was not intimidated by the situation. It was quite interesting to learn about hydrology/hydraulics; economics; natural resources; hazardous, toxic, and radioactive waste regulations; urban planning; electrical engineering; historic and cultural resources; geographical information systems; recreation planning; and civil engineering. For example, I now know more than you'd ever want to know about what lies beneath a sanitary sewer manhole cover.

Lone Writer Challenges, or "I Get No Respect"

In the Fort Worth District Corps of Engineers Planning Branch, I worked with a group of highly educated, experienced professionals who were all experts in their disciplines. But my signature bore no credentials after my name. Who was I to edit their professional writing? While some of the authors I worked with welcomed my input, others merely tolerated it because their Section Chiefs or project managers told them they had to. In the case of one engineer, working with him was a competition to see who was the more obstinate. He doubted my ability to improve on his presentation of the technical content in a consistent, usable report format to benefit his military customer. One economist informed me that she was proud of her writing abilities, took great care in her writing, and did not need an editor. Regardless, I see the editor's role as that of a teacher, but the nonprofessional writer as willing student is rare.

Another obstacle I faced in this job as lone writer/editor is that contracting is project-based by nature. You do the specific job you've been hired to do. Sometimes you are extended to work on other projects, but at the termination of the contract, you move on. The contractor is not meant to develop a role or function within an organization. But when the conscientious contractor has been extended into the fourth six-month term as I was, you have become invested in the work and the workplace. You naturally want to do more than churn out projects. To contribute at your highest level, the service you provide needs to be considered an integral part of the general work flow, as well as a benefit that can add value outside of a specific project's structure.

I strongly believe that the technical communicator (writer or editor) should be considered part of the project team, consulted early in the project cycle, and included in communications and meetings when appropriate. But to achieve a project team's buy-in of that concept often requires education if not cajoling by the writer/editor. The lone writer's battle for team status was no different for me in this situation than it had been in the software development world. No matter how many times I asked project managers to include me on e-mail and meeting invitations, I was rarely included. They just were not used to working with an editor and were not convinced that they needed one.

When All Else Fails, Escalate

I enlisted the support of my Section Chief/manager to mandate that all projects should include me in their status reporting at the least and that all external documents should go through my review. More than once, he asked the Planners and project managers to contact me to discuss their documentation needs and reserve time on my schedule. How many calls do you think I received in response to his requests? None.

In frustration I approached my manager again. I suggested that perhaps the Planners didn't take me seriously because I was "just a contractor," a second class citizen in the Civilian Army. For example, the label "Contractor" was part of my name in my company e-mail address, and my cubicle had no nameplate after a year and a half. I felt that I had no authority to approach Planners/PMs to solicit business or educate them on the services I could provide. But my manager said that *I* was the only one who thought of myself that way. He didn't think any of his Planning Section team considered me to be less than equal. It was all in *my* head.

When All Else Fails, Initiate

So with his blessing, I took it upon myself to assume authority in my editing role. I began to think about how to educate those who I had not worked with yet, as well as those I had.

- How to win their trust and respect, and help them understand that my role was to help them produce the best quality documentation and make them look good to their customers in the process.

- How to explain in a non-threatening way exactly what I could do for them and how we could work together.

I researched the topic of *value*, how to prove one's worth as a technical communicator. Because this challenge is common in our profession, I found a number of good resources and writings that helped me brainstorm an approach. From this research, I identified and initiated the following specific tasks as part of a strategy to prove my and my profession's value to my coworkers, managers, and executives:

- Called a meeting of all the Civil Works Planners to discuss how we could streamline the planning study report creation, including creating a standard template, and how and when I could best contribute to the lengthy, Federally mandated report process.

- Introduced the concept of a style and standards guide that we could all use for our writing and editing.

- Developed marketing collateral for the Technical Editing services I provided.

TOOLS FOR PERSUASION

For marketing collateral, I created two documents to use as handouts to my target customers—the coworkers whose writing I edited. In both pieces, I cited references, which included sources pertinent to or respected by my target audience of experts. I also took the initiative to write an article about one of the projects I'd worked on with the Environmental Section and submit it for publication in *Public Works Digest*.

Brochure

The first handout is a high-level brochure or flyer-type piece, which presents the case for technical editing. It is a one-page, two-sided summary titled, "Working with the Technical Editor, A Value Proposition." The purpose of the piece was to answer the questions:

- Why use a Technical Editor?

- What benefit is it to me or my project to involve the editor in the team at an early phase?

- What benefit is it to have an editorial review at all?

In its first edition, this piece includes a description of the work group as experts and how the editor's expertise is complimentary to theirs. It lists the benefits that professional editing can provide, even to experts. It includes illustrations that contrast the consequences of engaging the editor early versus late in the documentation process. It includes some tips for writers, and finally, it relates the editing function to the corporate goals.

List of Services

The other piece of collateral is like a menu of service options. This lengthier, more in-depth piece describes the levels of edit, how the editing process works, and the author's role in the process. It also includes testimonials for my work from satisfied customers.

Periodical Article

Public Works Digest, published by the U.S. Army Installation Management Command (IMCOM) in cooperation with the U.S. Army Corps of Engineers, "covers news and information for the professionals who keep installations going." To help advertise the kind of projects that the Fort Worth District experts can perform, I wrote an article about one phase of the Fort Sam Houston Sanitary Sewer Evaluation Survey, for which I had created the report. The project was a lengthy engineering study on the installation's wastewater infrastructure, completed by the Fort Worth District under contract to the Fort Sam Houston Directorate of Public Works. I wrote the article (on my own time) to demonstrate another way that the technical editor could add value, by helping to market the district's services to outside parties.

Results

My Branch Chief (my boss's boss) was quite receptive to the brochure. He offered suggestions that improved the effectiveness of its message. He was so impressed with the brochure that he showed it to his manager, the Division Chief. The Division Chief in turn presented it to the District Commander as an example of another professional service that the Planning Branch could provide. I think I succeeded in getting my managers' and executives' attention, at least.

My marketing campaign and quest to prove my professional value were a work in progress when my contract ended after two years. I share this experience with colleagues in hopes that it will inspire your own ideas for proving your value to your non-writer coworkers, non-writer managers, and fiscally minded company executives.

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Cultivating the Healthy Client-Contractor Relationship
Teresa S. Stover

Repeat business and referrals are the lifeblood for technical communications contractors and consultants. To build a thriving technical communications consulting practice or to be constantly in demand as a contractor, every project needs to be considered an audition for the next one.

Successful technical communicators know how to set the stage for success on a new project. They establish and maintain a solid working relationship with the new client. They work to ensure that their value added to the customer continues to increase throughout the project lifecycle. They professionally close out the contract and look to the future, ensuring their clients will call them back for future work, and refer them to others as among the best in the business.

SET THE STAGE FOR SUCCESS

As a technical communications contractor or consultant, your degree of success with a particular client can be predicted by the knowledge gathered and preparation done at the proposal stage, even before the contract is signed.

Such due diligence includes:

- Knowing the scope of work.
- Knowing the project parameters (audience, deadline, tools, team, technical support, editorial support, graphics support, process).
- Determining whether the scope and parameters match the contract term; and whether the expectations are realistic.
- Executing a signed contract before work begins. The contract should include the scope of work, contract term, requirements, payment, ownership, nondisclosure, independent contractor clauses, and more.
- Taking advantage of your "orientation period" in the first few days (or weeks) of your new contract and asking as many "dumb questions" as possible.

WORK LIKE A PRO

You build a stellar reputation as a professional technical communicator by doing high-quality work, meeting your deadlines, and being a partner in helping meet your client's goals.

Key elements to success on the project are:

- Knowing your work, your subject matter, the tools, and the process.
- Adhering to high levels of quality, including accuracy, completeness, standards, and style.
- Fulfilling commitments and meeting your deadlines.
- Reporting status.
- Balancing the need for strong independent work and being a flexible team player.
- Developing good working relationships.
- Keeping the right people informed.
- Anticipating and dealing with problems, and developing workable solutions.
- Discerning when to suggest changes and when to just do it.
- Making your client look good, being sensitive to your client's business goals.

CLOSE OUT YOUR CONTRACT

Use the short period as the contract comes to a close to establish continuity in relationships and market for future projects.

While closing out your contract, be sure that you are:

- Tying up loose ends.
- Conducting a final meeting with your client for a debrief, evaluation, and a discussion of future projects.
- Obtaining permission to use items for your portfolio or mentions on your website.
- Asking for referrals or references.
- Distributing thank-you cards and business cards.

GET REPEAT BUSINESS

After you've moved on to the next projects with other clients, be sure to keep the channels open for future opportunities with previous clients. Do this by:

- Staying in touch – the best alternative to cold calls.
- Keeping a calendar of when projects from previous clients are scheduled for staffing.
- Following up on the next project.
- Repeat business and referrals are typically the only performance review a technical communications contractor or consultant gets.

Repeat business is rewarding because you're developing long-term relationships in a profession that's often characterized by quick-turnaround tight-deadline requirements. With repeat business, your clients are a known quantity and it becomes a pleasure periodically returning to the same companies and the same people. Even better, you can get to the point where you are doing less marketing and gaining more business from referrals.

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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.

Hands-on Research Courses and Distance Education Classes

Michael J. Albers

Teaching graduate level research classes via distance education poses a set of difficulties over a face-to-face class. The issues of correcting student misconceptions and giving practical experience is much harder since the student ends up working alone and the instructor cannot provide immediate feedback. This can result in misunderstood material becoming accepted as correct. This paper discusses lessons learned from teaching both a usability course and a research methods course to master's level students in fully online courses.

INTRODUCTION

Research methods classes are by definition a hands-on experience in data collection and analysis. They are best performed with the instructor close by to provide immediate feedback and to be available for any questions. However, neither of these are available when teaching a research methods class via distance education. In addition, few students in technical communication have had any exposure to doing hands-on research, with the exception of some early undergraduate classes such as introduction biology. As such, it presents the instructor with a difficult class to effectively teach.

UNDERSTANDING RESEARCH

Students have a hard time grasping that research is about finding answers, not about knowing them. They have a long academic experience where they were given answers and expected to recite them on a test. In a research course, this gets split into being told how to do research (fitting the "here are the answers" model), but then also being told to come up with a new topic (the "you must find an answer" model). It can be difficult for them to wrap their heads around doing something when they don't know what the result will be.

The concepts of qualitative and quantitative research must be presented in multiple ways with extensive use of examples so they clearly grasp the differences. I've used the following assignments:

- Evaluation of all of the articles in three consecutive issues of a journal. The student

had to determine what type of research it was and what methods were used.

- Writing up definitions of the terms such as reliable and quasi-experiment (they were also told the definitions had to be in their own words and not a cut & paste). While this may seem trivial, it makes the student clearly state what they understand the terms to mean and allows the instructor to identify any problem areas.

A student's view of how to write a literature review will probably have to change. The literature review written in most classes is a sweeping overview of the topic, which is what a stand-alone literature review does. However, in a research article, the literature review must focus on identifying a gap in the literature, which means teaching the students to learn to read for what isn't there as opposed to learning the content. This really needs to be addressed at a program level with some courses teaching the literature review as an overview and others teaching it as defining gaps.

Students need to learn about qualitative and quantitative research based on observation and recording user actions. Especially in the quantitative area, too many fall back on poorly designed surveys without learning how difficult it is to design a good survey. They also can equate quantitative research with survey, without realizing that surveys are only one type of quantitative research. Areas such as usability testing require watching people interacting with a system or information. The course emphasis must be on watching people and not on asking them about the interaction, since what people do and what they say are often very different.

ASSIGNMENT DESIGN

The assignments themselves should be the same as you would give to a face-to-face class, but the class interaction needs to change.

Define a clear research question before any writing starts. Inexperienced students will have very broad statements or try to cover too much. For example, define what makes an online course highly navigable and how the course content relates to grades and course satisfaction. This example contains multiple studies. Expect that it will require several email exchanges with the student to get them to narrow the topic down. (It's

also important to keep them from just saying "well, I'll come with a new topic. A topic which will be as ill-defined as the first one.) They want to do something sweeping and ignore how their project can end up being one sentence in someone else's literature review. I make them write a statement that could be used in a literature review that is citing their research.

It's also important to make the student realize that defining the research question is one of the hardest parts of a study and always requires multiple rounds. They can fall into a trap of seeing it as a couple of sentences to be fully figured out later. This can be especially difficult with quantitative studies since most technical communication students are not used to thinking in terms of measuring things and will attempt to measure soft items such as satisfaction, which cannot be directly measured.

The research question should be original, just like the work they will be required to do for a thesis. It can be easy to fall into picking a study and saying they want to redo it. At the graduate level, this type of thinking must be countered. They need to learn to read the literature and identify the gaps in the knowledge.

Use small groups which act as support groups while they develop their research projects. Each student produces their own work, but the discussion interaction provides good insights into the problems they are having. The answers they give in a full class discussion tend to be sweeping general statements, but their real questions about how to do the project comes out in the small groups. As an instructor, you need to monitor all of the groups. You also can send daily (or frequent) summary statements to the entire class about questions and answers which came up in a group, on the assumption that other class members have the same question.

Require peer review of early draft sections of the document. Provide the students with defined and detailed criteria for the review. The reviews should take place as each section of a document is written. For example, after writing the introduction or the literature review, that section must be sent to the other students in their small group for peer review. The sectional peer review makes the student schedule their work on the project rather than trying to write the entire text at once. Also, it gives them early feedback if they are off-track with a project. Finally, it gives them exposure to other work to use for self-evaluation of their own.

Develop in stages rather having the student submit a completed study. Do not allow submitting the entire document for the initial review. They will have many errors both small and serious in defining their research

question, creating hypothesizes, and in developing their methods sections. These need to be identified and corrected before they student continues with the project. This presents a good teachable moment as it occurs before they collect data.

Daily email with one comment that gives the student something to think about with regard to the project without overwhelming them. The textbook and supporting articles provide an overabundance of information which can give the student difficulty in separating out what is relevant to their study and what is not. An email focused on one topic lets them integrate that information into their developing mental model without interference from other topics.

Stress the design, not the results. It is very easy for students to believe they need high quality results; results which they simply can't obtain during a semester long course. Also, a high quality study requires more participants that would be available. On the other hand, after the first couple of subjects, the data collection becomes routine and the instructional value decreases. Working with 2-3 subjects results in low reliably in the analysis, but still gives the student experience in data collection and analysis.

CONCLUSION

Teaching research methods classes via distance education are difficult because the asynchronous nature of the course makes it easy for the student develop misunderstandings and makes it hard for the instructor to realize these misunderstandings exist. A well designed course requires working in even more baby-sized baby steps than the same course in a traditional classroom.

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From Student Menu to Professional Technical Communication

Valerie M. Ball

Preparing students for employer expectations can be a challenge, but a technical-communication course with a menu of assignments and student-determined scheduling replicates activities in a professional workplace. In a memo that doubles as an initiation of a performance review, students identify goals, selected assignments, and deadlines. The instructor notes errors on submissions with check marks and comments in the margins and numerical evaluations of unacceptable, acceptable, and excellent, which add up to points for letter grades. Through revision(s), students can improve scores. Some of the assignments include business correspondence, performance reviews, instructions, recommendation reports, software/equipment reviews, presentations, and employment-seeking packages.

SIMULTANEOUS STUDENT AND EMPLOYER FULFILLMENT

Both students and employers expect that an undergraduate degree prepares students adequately for employment in the discipline of the degree. This expectation generally finds satisfaction in theoretical knowledge of the discipline; through internships and externships prior to graduation, students often gain valuable insights into the "hands-on" practice of their discipline.

However, the technical communication portion of student knowledge can flounder when a new hire with a freshly inked bachelor's degree encounters a myriad of communication requirements within the workplace. These unexpected and unrehearsed requirements may include **professional** emails, initiation of performance reviews, adherence to specifications in various employer-mandated reports, intermediate to advanced skills in Microsoft Word (or other word-processing software), and professional-level, peer reviews of communications from colleagues. Most college-level writing courses provide students with the skills to meet these challenges, but few, if any, courses provide employment-related situations that may also require a student to set a term-length schedule.

This contribution to the Academic Special Interest Group's progression in "Global and Local Issues in Technical Communication Instruction" provides a suggested course with a menu of assignments and a student-selected schedule.

CONCEPT OF WRITING COURSE

At least since 2008, the Oregon Institute of Technology (OIT) in Klamath Falls, Oregon, has supported a variation of a menu of assignments and student-determined scheduling to fulfill requirements for a 300-level course in technical writing. OIT offers accredited undergraduate degrees in various engineering and health-science disciplines as well as communication, psychology, management, and biology. Some engineering departments also offer accredited master's degrees.

Many OIT engineering and other technical departments join the Communication Department in the requirement that majors must pass the WRI 327 (advanced technical writing) course to graduate.

 OIT instructors of WRI 327 follow the menu and course policies that are shared in this document. Individual instructors, though, can choose textbooks, ancillary materials, and teaching methodologies and deliveries. Instructors may also interpret situations to fulfill the intent of assignments. For the most part, though, all students experience a markedly similar course.

The balance of this document in the *Summit Proceedings* includes course policies and teaching materials that are based on handouts for the Academic SIG progression at the 2011 STC Summit. Educators can adapt these policies and handouts to any local and global situations that involve instruction in technical communication.

TEACHING MATERIALS

When a second-level heading contains "[handout]" at the end of the line, the material that follows is that which students receive as paper or electronic communication. Further explanations about the handout may appear in square brackets ([ ]) after the heading.

For electronic files of teaching materials, questions, suggestions, recommendations, or any other reasonable query, contact Valerie M. Ball (valerie.ball@oit.edu), Assistant Professor, Communication Department, Oregon Institute of Technology, Klamath Falls, Oregon.

Common Policies for WRI 327 [handout]

[The common policies are available to students as separate documents or as part of an instructor's syllabus. Most instructors adhere to the grading criteria and the policies of due dates for submissions. Some instructors change the points to letters or other numerical values.]

Introduction and Schedule for 10-Week Course

WRI 327 is a seminar writing course; members of the class discuss writing and revising, revise each other's material, participate in peer reviews and other types of workshops, and raise questions. However, it is helpful to spend some class activity in more structured ways that address core areas for all students. These core areas include business correspondence, performance reviews, proposals, and instructions. Other useful areas are presentation graphics, employment packages, recommendation reports, analyses/reviews, and formatting skills (*i.e.*, use of Microsoft Word and PowerPoint). By Week 2, students should select core areas on which they will report and then lead seminar discussion (5–10 minutes). Student choices determine team placements; teams of 2–4 students lead seminars. A successful seminar presentation can include student work for class editing.

Schedule for Submissions of Assignments

Monday of Week 2: all students submit the assignment schedule and goals of the first part of "2. Performance Review" (refer to "Menu of Assignments [handout]" and "2. Performance Review (S—1) REQUIRED" in this document for details). Include original submission topics and dates as well as dates for rewrites. Staple, glue, or tape a copy of the memo in the assignment folder(s). Making an extra copy for home study areas is a useful reminder. This memo is part of the required assignment "2. Performance Review."

Please try to adhere to the schedule. A student who deviates from the schedule needs to write and submit a memo to the instructor to explain the reason(s) why. Be honest—even though a hangover is not really a good excuse! Include a revised schedule with the memo and submit it with the next scheduled assignment.

Friday of Week 9: all students submit their last assignment or rewrite at beginning of class.

Wednesday of Week 10: at beginning of class, all students submit "2. Performance Review," completed with a review of student performance regarding assignment schedule and goals.

Other Schedule Uses for Class

Students are also welcome to use a class forum to review and edit their work electronically by overhead projection. Arrange this session at least 1 class period before review.

By Week 2, the class needs to reach a consensus upon a specific day of the week for in-class peer reviews.

Grading Criteria

Unacceptable Paper
- Fails to solve the problem it is supposed to solve
- Information is unreliable, invalid, "tainted"
- Significant information is not provided; writer has inaccurately estimated audience
- Organization is poor; readers cannot use (or follow) it
- Many mechanical errors
- Format problems

Acceptable Paper
- Directed toward a problem and contributes to solution of it
- Information is sound, reliable, valid
- Leaves out no pertinent data or steps; all information is important
- Follows conventions of organization; information is easily accessible to readers
- Essentially free from common errors of grammar, mechanics, usage
- Follows format specifications

Excellent Paper
- Excels in at least some areas of utility, accuracy, completeness, organization, and correctness
- Has clear focus, avoids peripheral information, contains no choppy and awkward constructions, avoids wordiness
- Captures and holds interest of reader to enhance transfer of information (boring reports are not excellent)
- Readers can remember contents of assignment after finishing document

Points for Grades

Criteria
Except for assignments 1, 2, 5, 6, 7, or 13, students may submit either a short or long version of any assignment (for details, refer to WRI 327 "Menu of Assignments," updated 1-03-2011). A short paper is < 3 typewritten pages, double-spaced—exclusive of any graphics or ancillary material. Instructors evaluate papers as one of these three criteria: excellent, acceptable, unacceptable.

Assignments earn points as follows:

Assignment	Points
Long excellent paper	4
Long acceptable paper	2
Short excellent paper	2
Short acceptable paper	1
Unacceptable paper (either long or short)	0
Formal Report (excellent)	6
Formal Report (acceptable)	3

Final grades follow this scale:
A = 16 points   C = 10 points
B = 13 points   D = 8 points

Unexcused absences, tardiness/early leaving in periods > 10 minutes, and/or lack of class participation in multiples of three lower the final grade by 10 percent for each multiple.

Students are also responsible to follow policies and specifications in the course syllabus, the WRI 327 Menu of Assignments, and oral instructions.

Individual Writing Assignments

Within the guidelines from WRI 327 "Menu of Assignments," students select their own assignments and, to a lesser extent, their own schedules of due dates. Students may select from areas within their comfort zones, areas in which they need practice, or areas that are pertinent to their future professions and careers. While "double-dipping" with assignments from concurrent classes or employment is acceptable, recycling old materials from previous classes or employment is not. For accurate evaluation of their work, students must include a copy of the guidelines from the concurrent class or employment situation if they choose to "double-dip."

Paper Submissions

Students submit each paper/hardcopy assignment in a folder (preferably not plastic) with pockets. The student's name should be clearly legible on the upper right corner of the outside of the folder. By typing in an electronic file or by hand-writing legibly and neatly in ink on a paper copy, complete the WRI 327 "Planning Sheet" prior to each assignment; include the original completed Planning Sheet with each submission. Use the due date of the assignment on the Planning Sheet.

At the beginning of the class period, submit only one assignment at a time, either original or revision. I shall return each item at the second class-meeting after submission. At that time, the student may submit another assignment. EXAMPLE: In a class that meets three times per week, suppose the student turns in an assignment during class on a Monday. The instructor will return the graded submission on the following Friday, at which time the student may submit another assignment. If the student turns in an assignment on a Friday, the return day is the following Wednesday.

Revisions/Rewrites

After submitting four assignments, students may rewrite and resubmit any assignment as many times as their schedules permit and in accordance with specifications of due dates. When submitting a revision, add the new submitted due date to the original planning sheet and label it "Revision." Include the original assignment and any succeeding revisions with each rewrite.

Planning Sheet [handout]

[Duplexed, printed Planning Sheets are available on pastel pink paper. Prior to working on an assignment, a student completes a Planning Sheet in ink and later submits it with the individual assignment. The Planning Sheet is also available as an MS Word file for typed/emailed work.]

Writer:
Assignment:
Audience/Reader (person/group who will use the information):
1. Technical level (education, knowledge of subject, experience):
2. Position (job title and/or relationship to writer):
3. Attitude toward subject:
4. Other factors:
Purpose:
What does the writer hope to accomplish?
Why will the reader read the information?
What should the reader know or be able to do after reading? (may add more bullets)
•
•
Content and Plan:
Sources:
Available aids (visuals, tables):

Menu of Assignments [handout]
(updated 1/3/2011)

The Menu of Assignments is divided into two categories: required and optional assignments. Each assignment is followed by the length options (short and/or long) and a number indicating whether you may write more than one document of the same type.
Use this key to plan your project schedule:
L   Long assignment
S   Short assignment
L/S   Long or short assignment (your choice)
1   May write one document of this type
2   May write two documents of this type

Often, technical writing includes graphics that may be tables, charts, illustrations, or some other visual communication. To be "acceptable," assignments 2, 4, 8, 9, 11, 12, and 14 (company evaluation portion) require graphics. Assignments 16 and 17 may also require graphics to be acceptable.

Audience: A technical audience is the intended recipient. Students who do not write to a technical audience must justify a different audience in the Planning Sheet.

Complete both 1 and 2 in Required Assignments.

A. Required Assignments

1. Business Correspondence (S—2) REQUIRED
Write three business letters that meet the following criteria:
- Identify real situations.
- Address a different situation in each letter.
- Compose at least one letter in direct organization.
- Compose at least one letter in indirect organization.
- Use at least two different letter formats.
- Do not include memos or employment-related letters.

Rewrite the preceding business letters as email correspondence. Create an email format with "to," "from," "date," and "subject line." Change the content and paragraphs of the letters to be appropriate for email.

2. Performance Review (S—1) REQUIRED
In the memo that you write at the beginning of the term regarding assignments and schedule, list course and personal goals as well as the procedures to attain those goals, which may include library and online research, special training, readings from textbook or related documentation. During Dead Week, assess your progress according to your goals in the first memo and evaluate your performance.

Choose between either "3. Proposal" or "4. Instructions" as a required option.

3. Proposal (L/S—1) REQUIRED OPTION, or choose "4. Instructions"
Your school, major department, or work has a particular problem or need, and you have been asked to submit a proposal. Outline your solution to the problem. Discuss why your proposal should be selected to implement the solution. Provide a budget, project schedule, and personnel requirements. Junior/Senior Project proposals do not fulfill this assignment (see assignment 13).

4. Instructions (L/S—1) REQUIRED OPTION, or choose "3. Proposal"
Write instructions explaining how to operate a specific type of equipment or write instructions explaining how to conduct a procedure related to your major area of study or work. Your target audience is a professional who is using the equipment or conducting the procedure for the first time.
You may rewrite existing instructions related to your major to improve them. If you do this, include a copy of the original instructions as an appendix.
If you select this assignment, consider a companion assignment (see assignment 17) in which you conduct a usability test and write a report evaluating the instructions. Include your field notes as an attachment or appendix.

B. Optional Assignments

5. Informative Publication (S—1)
You're a secretary of a society, club, or organization. Using word processing or desktop publishing software, design a poster, flyer, pamphlet, or mail-out to publicize an event or series of events for your group. "Event" may indicate anything from a routine business meeting to a special social event to a multi-day convention.
The Planning Sheet for this assignment must clearly specify, among other things, means of circulation of the material.
Your document must display your grasp of computer-generated graphics, use of color, overall design, and integration of graphics with text. You may not use pre-fabricated templates.

6. Library-Based Information: Abstract (S—1)
Prepare a 100- to 150-word informative abstract of a medium length technical article (2000+ words) in your field or in the area of technical writing published within the last six months. Include a citation in the form appropriate to your field. Attach a photocopy of the article. On the photocopy, underline key sentences and note the organizational structure of the article (narration,

description, comparison/contrast, cause/effect, definition, process, persuasion, classification).

7. *Library-Based Information: Annotated Bibliography (S—1)*

Your boss has to present a paper, and she has asked you to provide an annotated working bibliography for her. Check the appropriate indices/databases thoroughly and prepare a current bibliography. Include a minimum of ten sources.

8. *Trip Report (L/S—2)*

Your organization has sent you to a conference, workshop, seminar or site visit, and you have just returned. Your boss wants a trip report summarizing relevant information you gathered while away. Be sure to include your itinerary, major activities, contacts, and expenses.

9. *Software Review (L/S—2)*

Write a review of a current software package that has been released within the last 12 months. Look at several published, academically appropriate reviews before you write your own; you must submit copies of three of these published reviews with this assignment.

10. *Website Review (L/S—2)*

Select 2 or 3 Websites in a particular area (corporate, education, medical, and government) and develop specific criteria for effective Web page design. Using these criteria, write an assessment comparing/contrasting these sites. Be sure to include URLs.

11. *Technical Publication (L/S—2)*

One of your projects has turned out well. Your boss thinks it has possibilities for publication in a technical magazine. Write the article and abide by the journal's guidelines for authors. Include a copy of the guidelines (often listed on the table of contents page). If you cannot find such guidelines, include a one page analysis of typical articles, audience, content, and style plus a copy of one or two articles.

12. *Recommendation Report (L/S—2)*

Recommendation reports can address many needs. Such reports generally present data on the alternatives, interpret the data, draw conclusions, and recommend the best choice. The careful selection of ample, supporting proof is part of the composition process for this kind of document; students must support their work with specific, relevant details. A repeat assignment must be a different choice from the first.

a. Equipment or Procedures: You have been asked to evaluate three or more brands of equipment OR three or more procedures to be followed in your workplace. Tie your evaluation into a particular

application for a specific company or agency. Employ at least three criteria.

b. Branch Office: Your company is considering opening a branch office in a specific geographical area (for example, the Pacific Northwest or Southwest) and is reviewing three cities. Carefully analyze the specific needs of your company (an accounting firm has different needs than an engineering firm). Some possible factors might include available commercial space, local competitors, transportation, climate, educational opportunities, work force, and other applicable conditions.

c. Externship: You are planning for your externship in a specific geographical area (for example, the Pacific Northwest or Southwest) and are considering three cities. You have been assigned to gather pertinent data to aid in the decision. Carefully consider your specific needs.

d. Student Choice: **Submit a memo** by the last class of the **second week** of the term explaining your topic, why you chose it, and a brief description of the proposed document.

13. *Formal Report (L—1)*

Submit a formal proposal, recommendation report, feasibility study, or project report. Include a cover memo or letter of transmittal, title page, a table of contents, a list of illustrations, an informative abstract, a bibliography/list of references (at least six different sources), and appropriate internal documentation. This document should be substantial.

Students in courses requiring such reports may satisfy two instructors with one report. Do not attempt this assignment unless you're required to do a long paper this quarter. **Submit a memo** by the last class of the **second week** of the term explaining your topic and plan.

14. *Employment Package (L—1)*

Prepare an employment package, which includes a formal job application letter for a real opening to a specific firm, medical facility, or organization; a current résumé; and a company evaluation. Your résumé can be hardcopy or online. If online, include the URL. Complete the evaluation prior to the letter and résumé. For the evaluation, gather information from the library, Career Services Office, Internet, and/or interviews. Include a general description of the company, recent business or research trends that might affect you, and how you might fit into the company. Use at least three or four unrelated sources (i.e., not all from the company itself) in this portion of the assignment. The company evaluation should also include graphics; at least one of the graphics must be a student-generated table. Use the appropriate format within your major to cite data and/or graphics.

15. Presentation Graphics (S/L—1)

Prepare a set of presentation graphics and a formal outline for a presentation that you will give in a class this term. Senior design reviews are perfect for this assignment. Feel free to experiment with other types of visual aids, including flip charts, posters, computer screen shows, CDs, or videos to more effectively communicate your ideas. **Submit a memo** by the last class of the **second week** of the term to recommend a time and date for your presentation.

16. Team Project (L/S—1)

With another class member, write a document on a current aspect of your major field of study or on a mutual field of interest. Each writer should contribute equally to both text and graphics, and each will receive the same grade for the document. Choose among 3, 4, 12, 13, and 17 for this assignment. **Submit a memo** by the last class of the **second week** of the term explaining your topic, why you chose it, a brief description of the proposed document, and each team member's role in the project.

17. Open Assignment (L/S—2)

This is your opportunity to gain experience writing something that does not fit any other category. Examples include usability testing reports, progress reports, case studies, and lab reports.

Another possibility is to find a free proposal from a government or commercial Website. Follow all directions in the proposal. Include the actual proposal as an appendix.

Submit a memo by the last class of the **second week** of the term explaining your topic, why you chose it, and a brief description of the proposed document.

CONCLUSION

All readers are welcome to adapt this course in advanced technical writing—its descriptions, policies, and training materials—to suit any individual institution of higher education, any variety of disciplines, and any local or global situation.

At all levels, the objective of education should reside in the freedom of unfettered exchanges of ideas and methods. Unfettered readers, in turn, are welcome to contact author Valerie M. Ball at the addresses available at the end of this document.

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An Instructional Designer is … and I Use …

Dr. Jackie Damrau, Fellow

Does your job title indicate specifically what you do? For many of us, what our companies choose to identify us as is not indicative of what we really are or do. For example, my company calls me a Knowledge Engineering Analyst, yet I do technical writing, instructional design, workshop/training facilitation, business process modeling, and system administration.

I did this progression topic at the Atlanta, GA conference in May 2009 and reported on it in the Instructional Design & Learning SIG's newsletter, IDeaLs, Summer 2009 issue (pp. 6–7). That article is republished here to give you an idea of what was collected then.

My progression this year will expand on this topic.

INTRODUCTION

Job titles are often misnomers for what we actually do in our professional careers. For the 2009 STC Technical Summit held in May in Atlanta, Georgia, I conducted my own study about instructional design. The purpose of my progression session was to have participants share their views and opinions on three basic questions:

1. I am a … (my job title is …, yet I do instructional design)
2. I use these skills and tools …
3. What I want to know/learn/share about instructional design

The participants attending the four 25-minute sessions enjoyed the openness and the opportunity to network with others to discuss current issues they are experiencing in their jobs. Many went away with loads of information to help them in rethinking their approach, knowing at least one person they can call for help/advice, and an enjoyment that they are not the only ones that have/are experiencing situations.

So, let's get to the participant contributions. The next three sections of this article will provide the participant input received during the progression. I encourage you to add your own views and thoughts to this.

Question 1: I am a

- Consultant
- Content Engineer
- Content Manager

- Document(ation) Specialist
- Global Project Coordinator
- Instructional Designer
- Instructional Writer
- Knowledge Engineering Analyst
- Manager, Instructional Design
- Project Manager, Instructional Design
- Senior Development Specialist
- Senior Instructional Designer
- Student
- Technical Communicator
- Technical Documentation Specialist
- Technical Publications Lead
- Technical Publications Manager
- Technical Writer
- Training & Technical Communication Specialist
- Training Specialist

Question 2: I use these skills and tools

- Attorneys
- Batch files to single source graphics from online to print
- Brownies or treats
- Design Skills
- Distill Information
- Graphics
- Interview Techniques
- Negotiating
- Organizational Skills
- Project Management Skills
- Psychic Ability
- Research
- Scriptwriting
- Social Engineering
- Storyboarding
- Testing (QA or Computer Services)
- Use Cases
- Writing Skills
- Software Tools (see table, next page)

Question 3: I want to know or learn about instructional design

- Adding Value
- Collaborating with others without being pushy
- Compliance Training
- Content Management Systems (CMS)
- How to do a process in a short timeframe
- How to enter the field of instructional design

- How to get a design approved
- How to jump from an old document to a new training opportunity
- How to move to another vertical area
- Paper Prototyping
- Role-based Learning
- Usability
- Want to write and use more interactivity in courseware
- What am I missing without a degree (technical writer to instructional designer)
- Write Better Storyboards

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Jackie Damrau has more than 20 years of technical communication experience. She is a Fellow and member of the STC Puget Sound chapter and the Instructional Design & Learning SIG, and general manager of the STC International Summit Awards. She serves as the Book Review Editor for Technical Communication.

WHAT DO I CONCLUDE FROM THIS?

I conclude that individuals want to know so much about instructional design. The IDL SIG has the opportunity to address these areas by sharing with others through our discussion list, quarterly newsletter, Web seminars, and our soon-to-be-revamped Web site.

Please share your input and experiences!

Software Product	Category	Vendor	URL
Acrobat	Document Exchange	Adobe	http://www.adobe.com/products/acrobat/?promoid=BPDDU
Arbortext Epic Editor	XML Authoring	PTC	http://www.ptc.com/products/arbortext-editor
Articulate	Electronic Learning Authoring Tool	Articulate	http://www.articulate.com/
AuthorIT	Component Content Management System	Author-it	http://www.author-it.com/
Breeze Presenter	Web Conferencing	Adobe	http://www.adobe.com/resources/breeze/presenter/
Camtasia Studio	Screen Video Capture	TechSmith	http://www.techsmith.com/camtasia.asp
Captivate	Electronic Learning Authoring Tool	Adobe	http://www.adobe.com/products/captivate/?promoid=DINSI
DynaType	Multilingual Soft Universal Keyboard	GVMobile	http://www.gvmobile.com/dynatype/
Filezilla	File Transfer Protocol client	FileZilla Project Organization	http://filezilla-project.org/
FrameMaker	Desktop Publishing	Adobe	http://www.adobe.com/products/framemaker/
Illustrator	Drawing & Illustration	Adobe	http://www.adobe.com/products/illustrator/
InDesign	Desktop Publishing	Adobe	http://www.adobe.com/products/indesign/family/
Keynote	Presentation	Apple Inc.	http://www.apple.com/iwork/keynote/
MS Office Excel	Spreadsheet	Microsoft	http://office.microsoft.com/en-us/excel/FX100487621033.aspx
MS Office PowerPoint	Presentation	Microsoft	http://office.microsoft.com/en-us/powerpoint/FX100487761033.aspx
MS Office Project	Project Management Planning	Microsoft	http://office.microsoft.com/en-us/project/FX100487771033.aspx
MS Office Publisher	Desktop Publishing	Microsoft	http://office.microsoft.com/en-us/publisher/FX100487821033.aspx
MS Office Visio	Process Mapping	Microsoft	http://office.microsoft.com/en-us/visio/FX100487861033.aspx
MS Office Word	Word Processing	Microsoft	http://office.microsoft.com/en-us/word/FX100487981033.aspx
MS Windows SharePoint	Collaboration & Document Management	Microsoft	http://office.microsoft.com/en-us/project/FX100487771033.aspx
PaintShop Pro	Graphics Editor (raster-based)	Corel	http://www.corel.com/servlet/Satellite/us/en/Product/1184951547051
Perception	Assessment Management System	Questionmark	http://www.questionmark.com/us/perception/index.aspx
PhotoShop	Graphics Editor (vector-based)	Adobe	http://www.adobe.com/products/photoshop/family/
QuarkXPress	Desktop Publishing	Quark	http://8.quark.com/
Scene7 (OnDemand)	Web-based Publishing	Adobe	http://www.scene7.com/solutions/index.asp
Snag-It	Screencasting	TechSmith	http://www.techsmith.com/screen-capture.asp
Team Foundation Server	Content Management System	Microsoft	http://msdn.microsoft.com/en-us/teamsystem/default.aspx
Webworks	Component Content Management System	Quadralay Corporation	http://www.webworks.com/Products/

How Academics Can Involve Practitioners in Educating Students

Ann Jennings, PhD

A survey I conducted in 2010 reveals the habits and wishes of technical communication practitioners in regard to student-related activities. University and college faculty members may wish to take advantage of this information to arrange interactions between their students and the practitioners who are willing to donate time and expertise for the education of the students and the growth of the profession.

INTRODUCTION

The STC-sponsored survey that I conducted in 2010 attracted answers from 480 practitioners and 87 fulltime and part-time faculty members at colleges and universities. These individuals displayed significant interest in activities that bring practitioners and students together.

The primary research interests of academics

The survey reveals practitioners' perspectives regarding numerous opportunities for student-related activities, including the topics most frequently researched by academics:

- industry internships for students (Alred 2001; Coggin 1989; Henze 2006; Little 1993; Munger 2006; Rehling 2000; Savage and Seible 2010; Smith 2003; St. Amant 2003)
- practitioner scrutiny of student portfolios (Dillon 1997; Thomas and McShane 2007)
- practitioner participation on boards that influence academic professional writing programs (Dillon 1997; Sides 1998; Yee 1994)

The primary activities of practitioners

The three types of practitioner-student interaction listed above overlap in spirit, but not necessarily in fact, the interests and experiences of practitioners. In descending order of frequency, the student-related activities of practitioners who responded to my survey are mentoring students, making presentations to classes and STC student chapters, serving as part-time faculty members, staffing booths at career fairs, judging students' technical communication portfolios, serving on advisory boards, mentoring STC student chapters, and judging technical writing or poster contests.

Practitioners who would like to engage in student-related activities in the future declared an interest in similar types of activities. In descending order, they are mentoring students, becoming involved with internships, making presentations to students in classes or at STC student chapter meetings, and teaching technical communication courses part-time or fulltime.

The benefits of student interactions with practitioners

Practitioners answered survey questions regarding the value of student-related activities sponsored by organizations. According to practitioners, the top-ranked benefit to students is learning skills and techniques in current use, followed by gaining knowledge of industry or organizational best practices, and learning how to interact with professionals in a professional setting. In rank order, other benefits to students are encouragement to enter the profession, potential receipt of an offer of fulltime employment, and help in completing their education.

Academic respondents also answered survey questions about benefits to students. The top-ranked benefit was learning how to interact with professionals in a professional setting. The second-ranked and subsequent benefits were learning skills and techniques in current use, gaining knowledge of industry or organizational best practices, and potentially receiving an offer of fulltime employment. These answers closely resemble those of practitioners.

Barriers to interaction with students

Although much interaction between practitioners and students occurs, some practitioners have stopped such activities. Chief among the reasons for stopping are the lack of time and the cessation of invitations to interact with students. Other reasons included cessation of events that formerly brought practitioners and students together, departure of their academic contact from the university or college, student disinterest, the cessation of certain courses, a move by the practitioner to a new job or location, and the fact that their interaction with students had been a one-time event.

When asked why they had not started student-related activities in which they were interested, practitioners cited first, lack of time, and then lack of contacts at an educational institution, and lack of company interest.

What academics can do

A faculty member who wants to start, broaden, or revive activities that bring together practitioners and students can take several steps. I devised these steps based on the results of my survey and on my extensive experience in establishing practitioner-student activities.

1. While considering the needs of your technical communication program, the accessibility of an STC chapter, and the availability of corporate or other employers, select potential activities from the lists above.
2. Contact colleagues who have arranged practitioner-student events, and learn from the successes and failures of those colleagues.
3. Contact practitioners who have a history of interacting with your students. Apply to practitioners the sales truism that the most likely customer is a repeat customer: the most likely practitioner to interact with students is a practitioner who has interacted before.
4. Acknowledge that practitioners may be acting on their own and may not be able to obtain corporate backing.
5. Devise student-related activities which suit that circumstance.
6. Recognize that when you schedule events in the middle of the day, practitioners may have to use personal vacation time to attend.
7. Minimize the preparation time and effort that a practitioner or an employer must devote to participating in activities designed for students.
8. Thank practitioners and employers lavishly for their efforts on behalf of students.

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Blending the Classroom Experience with Online Tools

Maralee Sautter

At Portland State University (PSU), instructors use Blackboard to teach online classes. Additionally, they can use it as an add-on to their classroom teaching. This case study briefly examines how the instructor engages students in the classroom, and then uses Blackboard and other online tools to enhance the learning experience and social exchange outside the classroom for technical writing classes. Questions, ideas, and experiences will be exchanged after the brief presentation.

Introduction

Teaching can be very fulfilling for the instructor who enjoys lecturing and sharing knowledge of the subject at hand. However, students become bored when an overzealous instructor uses lecturing as the only form of teaching.

On the other end of the spectrum, the online, Web-based learning scenario provides no physical connection to the instructor or other students in the virtual classroom. This experience also can prevent learning due to isolation.

"Blended learning is the thoughtful fusion of face-to-face and online learning experiences" (Garrison and Vaughan, 2008, p. 5), and it is the combination of classroom and online learning that can create the optimal experience—the best of both worlds—for teachers and students alike. It is this blending of classroom and online learning that is the focus of this paper.

Classroom Learning

At Portland State University, most instructors teach in the classroom, particularly in the English and Writing Department, where it is common to use the standard technique of lecturing. Classes are conducted for full periods where instructors meet for an hour or two hours, two or three times a week. Lecturing is the common method of delivery in these classrooms, and final tests are often taken during exam week in the classroom setting.

There are some advantages to synchronous learning; mainly the interaction of instructors to students, and students to students. This type of bonding encourages social interaction not only in the classroom, but outside. Disadvantages of classroom learning are in the time spent commuting to class and how students may be able to learn fundamentals on their own without spending time in the classroom.

Online Learning

A limited number of online classes are offered in the PSU English and Writing Department through Blackboard, but those that are offered in technical writing were the first to adopt the online methodology. There are certain advantages to the asynchronous learning experience, since students can learn at their own pace, do not have to spend time in the classroom or travel to the university, and do not have to listen at length to lecturing instructors.

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However, the online, virtual classroom does have some disadvantages. One tradeoff for instructors and students alike is the slower response time due the waiting period of online communication. Another is the social disconnect between participants, since names mean nothing without some type of relational experience.

Blackboard: One Online Tool

Blackboard is a Web-based, online tool offered at many universities throughout the United States, and beyond its borders. Some advantages of this tool include:

- Discussion – used for private or class discussion forums; inspires critical thinking, allows the posting of opinions and sharing of information, and encourages communication between peers
- Chat rooms – used to meet with students at prescheduled times; students can, through the instructor, set up private rooms to chat with other students
- Group email – used to email students and instructors from the class roster exclusively
- General postings – used by instructors to post slides, lectures, and make general announcements

Other Online Tools

With the advent of Web 2.0 and the sharing of information, the Internet has provided users with many opportunities to participate in social exchange without meeting face-to-face. Students find social media and online technology second nature, and they communicate easily using these alternative forms of online tools.

A *few* of these tools that can be used with or without Blackboard include:

- Yahoo groups – used for group email, posting files, calendar events, and so forth
- Google docs – used to post documents to a group; good for editing and final versions of documents
- Skype – used for free conference calls; useful for groups
- Blogs (Blogger or Twitter) – used to post opinions or conversations
- YouTube – used to post free videos

Conclusion

While there are advantages to face-to-face learning in the classroom, and online learning through a tool like Blackboard, the blending of these two methods can create an enhanced learning experience for students when the right combination of classroom instruction and appropriate online tools are applied.

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Maralee Sautter has been a technical communicator for over 11 years. She has worked as a contractor, consultant, and staff writer for many high-tech and Fortune 500 firms in the greater Portland Area. She also teaches technical writing classes at Portland State University as a part-time adjunct faculty member. Maralee currently works as a Sr. Instructional Designer at UTi Worldwide. She is also the Co- Manager of the Instructional Design and Learning SIG, is the current Webmaster and past President of Willamette Valley Chapter.

3

Ethical Perspectives on Teaching, Training, and Learning Across International and Intercultural Boundaries

By Dan Voss and Sarah Baca

This paper explores the ethics of teaching and training as well as studying and learning across international and intercultural boundaries. It considers two aspects of a complex and sometimes controversial subject that can involve ethical conflicts, explains how increased cultural awareness can help avoid or resolve such conflicts, and discusses the benefits of teaching intercultural communication, both in academe and in industry.

Fairness, tolerance, equal opportunity. These are certainly core values in any free and democratic society. But when one attempts to bring these values to bear upon certain circumstances commonly encountered in teaching, training, and learning across international and intercultural boundaries, the results are not nearly as clear-cut as one might imagine.

This paper explores two aspects of the subject that are fraught with ethical "gray tones." The first concerns academic and ethical issues that can arise when teaching English-second-language (ESL) students, as well in academic projects in which ESL students work in teams with students for whom English is their first language.

The second explores the concept of ethnocentrism and how it can, if not handled with understanding and self-awareness, undermine tolerance—with adverse consequences to teaching, training, and learning.

The third part of the paper shows how the awareness that accrues from a culturally sensitive approach to teaching, training, and learning can not only avoid or resolve potential ethical conflicts but can also significantly enhance the teaching and learning process.

Finally, the paper looks at the overall advantages of teaching intercultural communication, both within academe and in industry.

ESL: TOLERANCE VS FAIRNESS?

Consider this hypothetical situation … and consider it well, because it is anything but hypothetical.

A college professor in San Diego is teaching a graduate-level course in marketing. One of her students is on a student visa from Southeast Asia. He is fluent in his native Vietnamese language and also in French, but his command of English, particularly written English, is extremely limited.

While the professor's school is a fully accredited English-speaking university, it has no requirement to demonstrate basic proficiency in English as a prerequisite for enrollment in either the undergraduate or graduate programs. The student in question, Chang Tsi, has done a remarkable job of getting through to the graduate level.

But that doesn't help the professor as she reads Chang's research paper for a third time. The research is legitimate and the sources properly attributed. But every part of the paper that is not an attributed quote or close paraphrase is, in essence, practically unreadable due to the proliferation of errors in grammar, syntax, and mechanics. There is no way she can reasonably give this paper a passing grade, not with any fairness to the other students in the class. But what about Chang? He didn't cheat; he clearly did his best.

How can she handle this situation in a manner that is academically equitable and which still gives Chang a chance to succeed on the assignment (and thus in the course)?

Many professors in American colleges and universities are facing this situation more and more due to the influx of ESL students, both from abroad and also from American minority ethnic groups, particularly Hispanics and Latinos for whom Spanish is their first language and African-Americans whose linguistic patterns reflect ebonics.

Moreover, the issue of academic equity in assigning grades to ESL students in an English-speaking university has been compounded by "grade inflation," which has, over the past few decades, effectively "shrunk" the grading scale from the traditional A to F to more like A to B-, C+ at worst. Indeed, in grad school, a C these days is tantamount
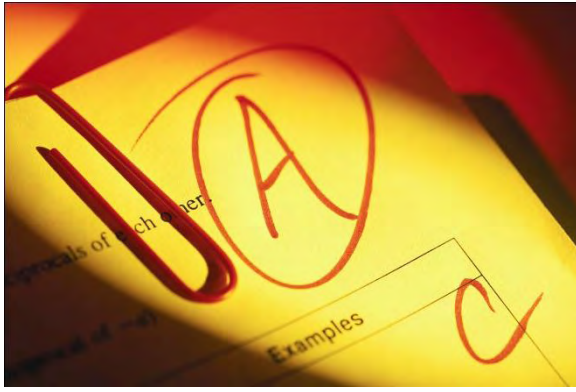
Figure 1. Thanks to "grade inflation," the traditional A to F scale has shrunk to A to C. Indeed, many universities do not give credit for grades below a C.

to an F (Figure 1). So what is Chang's professor to do? Give him a "courtesy C" for effort? That won't cut it for his scholarship, so given his economic circumstances, it may as well be an F.

The situation gets even harder for a professor who teaches English, whether it be basic freshman composition, literature, or business communication. It is impossible to teach a student with limited capability in English how to speak or write fluently within the confines of a semester course. So does the professor consign such a student to failure? Or does he/she modify the grading scale, accept extra credit work, do whatever is necessary to allow ESL students to at least emerge with a B? And, if so, what message does this send to these students' professors down the road? A grade of B in an English writing class ought to mean the student can produce a readable paper. What grade did Chang get in his freshman composition class? B? And, if so, how?

There are many workarounds: assistance from the college writing lab, professional tutoring, extra-credit work on special assignments … and these can be viable if the ESL student at least has basic proficiency in the language (say, seventh or eighth grade level in reading and writing, for example).

But when the student, however bright he/she may be, is still on a second or third-grade level in English, then the only reasonable solution is to stop the problem before it starts—by making acceptance into the degree program contingent upon passing a basic competency test in English.

In the interest of fairness and opportunity, along with the imposition of such a requirement should come remedial courses (not for credit) geared specifically towards achieving a minimum level of proficiency in English to ensure academic success in college.

In the end, such a requirement would not only upgrade the English literacy of graduating classes, it would also benefit the ESL students as well. The assumption being they are in an English-speaking university by choice and for a reason, it then logically follows that they are most likely pursuing a career for which fluency in English is, if not essential, certainly advantageous.

As an adjunct instructor for 33 years, one of the authors has seen repeated instances where ESL students who were able to "muddle through" to a degree in an English-speaking university without ever mastering the language were severely disadvantaged when it came to the competitive job market. And even if they managed to get hired, they experienced limited career advancement due to their unresolved issues with English. Would not such students have been well-served by having had to meet the language issue head-on before ever gaining their subject matter expertise and their degrees?

A Student's Perspective

The disparity in fluency between ESL students and native-English-speaking students has ethical implications from the learning side as well as the instructional side of the academic environment.

I have had the pleasure of working in many groups over my years of school attendance. Some of these groups worked together better than others, of course, but none of them were made easier by another student's lack of proficiency with the English language. It is always difficult to find that balance between making the end product the best it can be while not offending any of your teammates.

An Administrative Perspective

Dr. Tom Janke, Central and South Florida Regional Director for Webster University based in Orlando, FL, has both a Ph.D. and a law degree, along with 35 years' experience with Webster, and thus is exceptionally well qualified to comment on the unique legal and ethical issues associated with

evaluating the writing of ESL students at an undergraduate and graduate level.

"Webster's Central Florida campuses are among the most ethnically diverse of all its campuses worldwide," Dr. Janke said. "This diversity enriches the classroom environment for both students and faculty. However, since Webster is an English-speaking American university, our performance standards for all students require proficiency in written and oral communication in English."

"ESL students do have to pass an entry-level screening, but professors still confront basic competency issues with English, particularly in writing," Dr. Janke continued. "Such issues with writing are not limited to ESL students, of course. However, it is human nature for a professor to feel compassion towards an international student who is working diligently in a course but has a 'language problem.'"

"Still, we must not allow compassion to prevent us from assessing every student's performance objectively and equitably against the same academic standards," he cautions. "If we cut an ESL student 'slack' in grading a paper, we are not only being unfair to other students, we are actually short-changing the ESL student as well."

"When we admit a student to Webster University, we are, in essence, 'contracting' with that student to provide an education that brings him or her to a defined academic standard in an area of subject matter expertise," Dr. Janke explained. "In every major course of study, that standard includes competency in American English. If we graduate a student who does not meet these standards, we have, in essence, breached our contract."

"It does, of course, behoove us to provide students with language difficulties resources with which to improve their skills," he added. "We offer several such resources, including an online writing center, elective courses in business communication, and various other tools for remediation."

"We can—and do—*encourage* students with writing problems to avail themselves of these resources, but we cannot *force* them to do so," he concluded. "If they choose not to and they fail to meet our academic standards, then they will be evaluated accordingly."

Thus, in dealing with observable communication *skills* such as grammar and syntax, academic parity demands everyone's work be evaluated on the same basis. But what about legitimate cultural differences in communication styles? That leads us to the thorny issue of ethnocentrism vs. the traditional rhetorical verity of adjusting one's message, medium, and communication style to one's audience.

ETHNOCENTRISM OR EQUAL OPPORTUNITY?

Ethnocentrism refers to the belief that one's own culture is inherently superior to any other. To some extent, it is "hard-wired" into members of all cultures. While ethnocentrism is not intrinsically prejudicial in nature, absent self-awareness of this basic human tendency, it can definitely *lead* to prejudice.

On the other hand, a central rhetorical tenet of effective communication is to understand and adjust to one's audience.

Take, for example, the case of a brilliant Asian-American engineer whose career was being limited by his diffidence as a communicator, particularly in the context of sometimes heated meetings about design problems. One of the authors had this student in a company in-service training class on oral presentations. Practice exercises in making presentations surfaced the engineer's ultra-soft-spoken speaking style, as well as his aversion to direct eye contact—both legitimate cultural differences in communication.

Given the commitment of most major U.S. corporations to enlightened attitudes on diversity, wouldn't it ethically behoove the attendees at those raucous design meetings to accommodate the soft-spoken engineer?

Well, yes, obviously it would. But knowing human nature to be what it is, as trainer of the class on oral presentations, the writer encouraged the Asian-American engineer to accommodate the communication style of the majority rather than expect them to do the opposite—more simply put, to speak up rather than wait to be called upon. This definitely took the engineer to the edge of his comfort zone, but when he persisted in modifying his oral communication style, the results were dramatic—not

only in formal oral presentations but also in getting his valuable comments to be heard in design meetings.

Hofstede, who studied over 90,000 people in 66 countries, found that the cultures differed along four primary dimensions:

1. Individualism/Collective Index (IDV), which focuses on self-orientation

2. Power Distance Index (PDI), which focuses on authority orientation

3. Uncertainty Avoidance Index (UAI), which focuses on risk orientation; and

4. Masculinity/Femininity Index (MAS), which focuses on assertiveness and achievement.

(Keegan & Green, 2011, p. 121)

Each culture scores differently on each of these dimensions.

In cultures that score higher on the individualist index (such as the United States) "each member of society is primarily concerned with his or her own interest and those of the immediate family" (p. 121). "In collectivist cultures, all of society's members are integrated into cohesive in-groups … Low individualism is characteristic of Japan and other Asian culture patterns" (p. 121).

Power distance is "the extent to which the less powerful members of a society accept—even expect—power to be distributed unequally" (p. 121).

"Uncertainty avoidance is the extent to which the members of a society are uncomfortable with unclear, ambiguous, or unstructured situations. Members of uncertainty avoiding cultures may resort to aggressive, emotional, intolerant behavior; they are characterized by a belief in absolute truth (p. 122).

"Masculinity, the fourth dimension, describes a society in which men are expected to be assertive, competitive, and concerned with material success, and women fulfill the role of nurturer and are concerned with issues such as the welfare of the children. Femininity, by contrast, describes a society in which the social roles of men and women overlap, with neither gender exhibiting overly ambitious or competitive behavior" (pgs. 121–122). It can be easy for the "majority" to simply impose their own preferences in communications style upon others, but there are times it is more appropriate to adjust their style to others.

LEVERAGING DIVERSITY

Although in the case of the Asian-American engineer, the most fruitful solution appears to be for the member of the minority culture to make the adjustment in communication style, that is hardly an across-the-board "formula" for getting the most out of a diverse employee or student population.

Indeed, bringing diverse problem-solving approaches to bear on difficult issues enables a work group to come up with innovative solutions that might not otherwise be possible.

Lockheed Martin's formal training program on diversity reflects the corporation's commitment to the business benefits as well as the ethical value of encouraging tolerance and cross-cultural communication. The company's scenario-based annual ethics training module includes "Diversity Dialogues" that focus employees on diversity, illustrating both how tolerance is not only ethical but productive and how intolerance is not only unethical but counter-productive.

A Student's Perspective

It is not only in industry that work groups can benefit from diversity; the same holds true in the academic classroom as well.

Take, for example, two students with dramatically different positions on the individualism/collective index. One student might be presented with the problem and only consider how he or she might solve it alone. By working with a student whose culture is higher on the collective index, the first student might be encouraged to work more cooperatively, resulting in a higher quality product.

TEACHING INTERCULTURAL COMMUNICATION

Given the clear academic and business benefits of overcoming ethnocentrism and leveraging diversity, it logically follows that intercultural communication should have a place both in the curriculum of a college degree program (technical communication in

particular) and in-service training programs within industry.

A Student's Perspective

Intercultural communication is an integral part of the curriculum in the technical communication degree program at the University of Central Florida.

A representative from the Office of Diversity Initiatives came to speak to our Documentation & Client Based Collaboration class. We all sat back in our chairs, expecting to be bored and to hear the same things we had heard a million times. We were very surprised to learn several little ways that we inadvertently allow culturally offensive terms to creep into our daily conversation.

One of the resources handed out gave a list of racially offensive words and phrases. One that was rather surprising to me was "Schmuck common usage: A person who is contemptible or deceitful. Origin: Yiddish word (shmok) for penis." (www.teachingtolerance.org). This is a phrase that I personally used quite frequently, so this really surprised me.

Figure 2. Intercultural Communication Poster

As a part of the course, we also created a poster. In the poster, we integrated the different communication styles across four distinct cultures. This project helped us recognize that some things which are not offensive to us might be offensive to another because of the differences in our cultural backgrounds.

Turning from academe back to industry, Lockheed Martin's commitment to enhancing intercultural

communication is not limited to the Diversity Dialogues in the formal ethics training program.

The company's in-service training program includes such as "Intercultural and Multi-National Business Communication: Getting a Competitive Edge in the Global Marketplace," the course description for which reads as follows:

This course will increase your awareness of the verbal and non-verbal intricacies of intercultural and multinational communication, enabling you to become a more effective communicator in the international business marketplace.

The course guide also includes informal "lunch-and-learn" sessions where members of different cultures exchange ideas on how best to communicate across cultures. Picture, if you would, the Asian-American engineer whose case was discussed earlier explaining to a hard-driving business development manager how she might modify her communication style to be more effective in a media briefing at a trade show in Seoul or Singapore. Talk about intercultural business synergy!

In summary, education across cultures requires some challenging adjustments on both sides of the instructional equation: teaching and learning. And whether it is in an industry or academic environment, effective intercultural communication requires cultural sensitivity—in particular, an awareness of ethnocentrism that enables a communicator to "drive defensively" in this sometimes emotionally charged arena. But as difficult as the ethical challenges may be at times, the payoffs for meeting the challenges and achieving a genuinely diverse and harmonious working, teaching, and learning environment are even greater.

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Acquiring Technology: First Steps

Richard L. Hamilton

Depending on who you ask, technology projects are either very difficult or impossible to complete successfully. Scott Ambler (Ambler, 2007), reported failure rates for "traditional" and Agile software development projects as 37% and 28% respectively, and his numbers are more optimistic than some.

Projects that depend on software are complex and can fail in a seemingly infinite number of ways. This paper, a companion to the author's presentation in the Management Progression at the STC Summit 2011, looks at initiating the process of acquiring technology and suggests ways to improve your odds of succeeding. The content is derived from the author's book, Managing Writers: A Real-World Guide to Managing Technical Documentation (Hamilton, 2009).

DEFINING THE PROBLEM

The first step is to consider your underlying motivation for change. What specifically are you trying to accomplish? If you want to improve the quality of your product, are you trying to improve accuracy, completeness, writing quality, searchability, or visual appearance. If you want to improve productivity, are you trying to shorten production cycles, remove overhead, speed localization, reduce headcount, or something else?

Be specific. If you are trying to shorten production cycles, specify how much shorter you need them to be and what the benefit will be if you shorten them by that amount. If you are trying to improve accuracy, then by how much and how are you going to measure progress.

Be specific about *what* you want the end result to be, but avoid defining *how* you are going to get there. This is tricky; it is very tempting to state something like: "all of our documentation content will be authored in XML." That defines an end result, but it does not define a tangible improvement (some would say it defines a step backwards). Even though it reads like a *what* statement, it is really a *how* statement, and even worse, it does not offer a reason for doing this.

A good problem statement identifies and quantifies the problem, establishes a goal, and describes how and when progress will be measured. It says nothing about how the objective will be reached. In fact, it does not even demand a technology solution. Maybe simple awareness of the problem and better communication are all you need.

DEFINING THE REQUIREMENTS

The requirements specification is the next important step in the process. It takes you further down the road towards a solution by defining a more detailed set of objectives. This is also the point at which you begin to narrow in on the kind of solution you need, even though you still are not choosing technology.

This step is critical. Many projects fail because the requirements specification was either skipped or botched. Here are a few guidelines to keep in mind:

- **Document your requirements:** You will need to present your requirements to your management, vendors, writers, and other affected parties. Formally documenting requirements will force you to give this part of the process serious consideration.

- **Start with what you need, not what you want:** Carefully consider whether a feature is something that you need; that is, does it support an existing essential process or will it address a clear problem? If not, then it is probably a *want,* not a *need*. You will probably run into a few pet features that someone will insist are needs, and it can be difficult to put those features in the want category, but if you don't, you will end up with a laundry list of needs and have trouble assigning priorities.

- **Document the reason for every requirement:** There should be an anticipated benefit for every requirement you list. If you can attach a dollar benefit, great, but even if you cannot attach dollars, you need to have a good reason for every requirement.

- **Prioritize your requirements:** You can't always get what you *want*, but if you know what you *need*, and can prioritize those needs, then you can make the tough choices.

  Prioritize requirements as an ordered list. This will let you compare any two requirements and know which is more important. This means avoiding priority buckets like: "Must Have," "High Want," "Nice to Have," and so forth. If you use buckets, you will end up with too many "Must Have" features. Buckets are fine for a management summary presentation, but only after you've created a prioritized list.

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- **Do some outside research:** No matter what you are trying to do, the odds are that someone has tried to do it before. Get on the web, look at what others are doing, and make some friends. It will not take long to get a sense of which requirements are feasible and which are pipe dreams.

- **Do your work in the open:** The more closed the requirements gathering phase is, the harder it will be to get people to buy in to the result. And, the fewer people you have looking into the requirements, the more likely it is that you will either leave out something important or give something unimportant too high a priority.

Gathering input

Defining requirements should be interactive. It is tempting to hide out in a cave with a few like-minded people and pound out an idyllic version of the world as *you* would like it to be. If you have ever tried to run a wide-open process for gathering requirements, you know that a closed process is faster and more efficient. As soon as you open up the process, you will be inundated with proposed requirements, each one absolutely essential to the very existence of the person who proposed it.

While the natural tendency will be to hide out, don't; instead embrace the onslaught. An open process for gathering requirements does not mean everyone gets exactly what they think they want. Instead, it gives everyone a voice in the process and a chance to hear everyone else's voice. You then can take that onslaught of ideas and create a specification that reflects the needs of your user base and can be implemented on budget and on schedule.

The best way to manage all this input is to focus your attention – and the attention of everyone giving you input – on what you need, why you need it, and what the priority is for each thing you need. Do not just ask people for wish-lists, make them work with you to prioritize needs.

Defining use cases

What we are doing here is decomposing a set of very high level objectives, like "Reduce duplication of content by 32%," into a set of requirements for technology, typically software, that will give you the tools you need to achieve those objectives. But, you are not just defining a set of features; you are building a complete picture of how you are going to meet your objectives.

Use Cases provide one way to build this picture. According to Wikipedia, "Use cases describe the interaction between a primary actor – the initiator of the interaction – and the system itself, represented as a sequence of

simple steps." When well defined, they can act as the requirements for your system; that is, if the technology you adopt enables actors to complete the interactions defined in your use cases, then that system should meet your requirements.

WRITING THE SPECIFICATION

A Google search for "Requirements Specification Template" yields over 10,000 hits. Rather than providing yet another template here, what follows is an annotated outline that covers the most important elements of a Requirements Specification. You can turn this into a template, or you can look at some of the ones available on line and pick one that matches your exact needs.

Introduction

This section introduces the document and serves as an Executive Summary. Once someone has read this section, he or she should have a high level understanding of what the objectives are, why the project is necessary, who will be affected, what the scope of the project is, and what the benefits are. Major sub-sections include:

- **Purpose/High Level Objectives/Scope:** What are you trying to do? Why are you bothering? What is the scope of the project (what activities and people will be affected)?

- **Conventions/Terminology:** The usual compendium of typographical conventions and specialized terminology. If you have a lot of terminology, add a glossary at the end.

- **Audience:** Who is the audience for the specification? This will normally include the people who will build, deploy, and maintain the system; the people who will use the system; and the people who will fund it.

- **References:** Standard reference section, though again, if it gets big, stow it at the back as a bibliography.

Overall description

This section takes things a step deeper, but keeps the discussion at a broad system-wide level. Once someone reads this section, he or she should understand the project objectives, how the proposed technology will fit into the current environment, what the assumptions, constraints and dependencies are, and what the approximate budget is. Major sub-sections include:

- **Objectives:** This section defines the overall objectives for the project. It should include an expanded de-

scription of the problem you are trying to solve, as well as the more detailed objectives that would define a good solution.

- **Environment:** This defines anything relevant about the environment the new technology will exist within. It might include a definition of the technologies that have an interface with the new technology, the software and hardware environment, and possibly also the organizational environment, if that is relevant.

- **Assumptions/Constraints/Dependencies:** You may need separate sections for each of these three. They are pretty much self-explanatory, with the one caveat that it is generally better to state an obvious assumption, constraint, or dependency than to assume it will be understood. The only safe assumption you can make is that any assumption, constraint, or dependency that you leave out because it is too obvious will come back to bite you.

- **Budget:** What are you willing/able to pay, both in dollars and in staff time. In some cases, you may not be able to complete this until you have a better idea of your needs, and you may want to omit this information when you share it with some parties, for example vendors, but, it is important to know and document how much you can spend.

Use cases

Not all requirements specifications identify use cases; some methodologies do not use them at all and others document them separately. There are at least as many templates for use cases as there are for requirements specifications, but the most widely quoted templates seem to be those derived from the work of Alistair Cockburn. You probably will not go wrong if you use his template or one derived from it, and if you get deeply into use cases, you should check out his book on the topic, *Writing Effective Use Cases* (Cockburn, 2000).

Functional requirements

A list of requirements is an alternate way of defining what you want in a system. If your use cases are specific and well defined, then they may serve well as requirements. But, if not, you may need a set of functional requirements.

Non-functional requirements

These are requirements that are peripheral to the functionality of the system. This does not mean that they are unimportant. Examples include: Documentation, Performance, Environment, Security, Localization, Software Quality, User Interface, Legal, and Budget.

SUMMARY

These first three steps are just the beginning, but they form a strong base. If you define your problem, define a set of requirements needed to solve that problem, and document those requirements clearly, you will have a better start than most projects.

As you move into later phases of your project, the work you do up front will help keep you pointed in the right direction and will form a valuable reference as you work with consultants, vendors, management, and your team.

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Documentation in a Collaborative World: What We've Learned

Larry Kunz

Two recent trends, commonly known as agile *and* Web 2.0*, have brought fundamental changes in the way technical communication projects are planned and managed.*

By trying new methodologies and by engaging in dialog, members of the technical communication community are discovering best practices that will help us make the most of these trends We're and also learning more about what we still don't know—so that the dialog can continue.

WHAT IS AGILE?

Agile, or "Just in Time" development, began as a software methodology but is likely to gain acceptance in other industries as well. Emphasizing flexibility and responsiveness to customer requirements, agile is characterized by short product cycles, made up of *sprints*, and frequent product updates.

Products and documentation are often shipped before being thoroughly tested and edited, a practice that is based on two assumptions: customers are eager to get the new materials as quickly as possible, and any errors or bugs can be fixed easily in the next update.

WHAT IS WEB 2.0?

Web 2.0 refers to applications that facilitate collaboration and information sharing, often involving customers along with in-house writers, subject-matter experts (SMEs), marketers, and support personnel. While traditional websites represent a one-way communication channel— the site owner broadcasts content to readers—Web 2.0 establishes a two-way channel in which the "crowd" or "community" contributes content as well.

In Web 2.0, traditional product documentation is augmented by things like blogs, forum posts, and user comments. With the surfeit of new documentation sources comes the need to organize and prioritize the content—a task known as *content curation*. Organizations are beginning to develop *content strategies* to provide an overall framework for the

development, presentation, and governance of their customer-facing content.

HOW ARE AGILE AND WEB 2.0 AFFECTING OUR WORLD?

As a result of both agile and Web 2.0, technical communicators are experiencing shorter cycles for developing content, and documents are published and republished more frequently. It's a two-edged sword: while we can quickly respond to customer requirements and fix problems in the documentation, we also have to adjust to a "good enough to ship" mindset that says a document can be published before it's been fully edited or even before all technical updates have been included.

A new role for the doc plan

From a project manager's standpoint, the documentation plan (or doc plan)—which traditionally provides a detailed description of deliverables and workflow—can no longer function as the authoritative guide to a project. Instead, the doc plan becomes subordinate to the content strategy[1], which defines overarching principles and provides general guidance but doesn't get down to the level of detail that a traditional doc plan does.

Other challenges

As I demonstrated in my presentation at the 2010 STC Summit, *Managing Documentation Projects in a Collaborative World*[2], agile and Web 2.0 bring several challenges to technical communicators:

- Technical reviews are often ad hoc and very limited in scope.

- Pre-existing or legacy information is easy to overlook, increasing the risk that outdated material is included in the final documentation.

- Editors have less time to edit documents, and they frequently have to do piecemeal edits rather than seeing the documentation as a unified whole.

- Translation is harder to schedule because of shorter development cycles, and translators, like editors, often don't see the documentation as a unified whole.

Over the past year I've monitored, and in many cases initiated, conversations within the technical communication community in hopes of answering these questions. Conversations have taken place in several social media including blogs written by others and by me, "water cooler" chats conducted by the STC Technical Editing SIG, and conversations on Twitter. These conversations are helping move the profession toward a set of best practices for dealing with agile and Web 2.0.

BEST PRACTICES

When considering the daunting prospect of managing projects in the constantly changing world of agile, I'm both amused and reassured by Stephen Gracey's wry observation that it's really no different from managing traditional projects: "Agile and Scrum accept the ultimate truth that no system can be controlled or predicted as long as human beings are involved."[3]

Tools and processes for effective collaboration

In a collaborative authoring environment, it's essential to have tools and workflows that facilitate the process rather than creating barriers to participation. Ideally, the process you set up will make it easy for contributors to provide feedback, communicate with SMEs, and review the documentation.

For collaborative or community-based writing to work, we need tools that make it easy to for SMEs, customers, and other non-professional writers to contribute content while simultaneously giving the writing professionals a way to assimilate the content into their documentation without needing to do a great deal of reformatting. Two kinds of tools are rapidly gaining acceptance:

- Wikis enable groups of contributors to create and update documents using a simple and well-understood set of formatting tags.

- Several text editors now enable contributors to write content in WYSIWYG (what you see is what you get) fashion while storing the content in a structured format like DITA. They can also be integrated with the company style guide to enforce correct spelling, terminology, and mechanics.

Better, more frequent communication with SMEs

A participant in one of the editors' water cooler chats made a simple but profound statement: "Agile is about

communication." She went on to say, "I think that's what saves the editing process."

Stuart Bargon of Atlassian, a company that's an innovator in collaborative documentation, shared a few pointers for working effectively on agile teams:[4]

- Using the development team's bug-tracking system to track documentation issues enables more efficient collaboration between writers and SMEs. Atlassian's Sarah Maddox describes an innovative way in which her documentation team uses JIRA.[5]

- "Get rid of the lag": develop and review documentation during the sprint, not in the next sprint. The developers are focused on the topics at hand, which results in better reviews, and the writers don't feel like they're always lagging behind.

- Insist that the developer teams finish all of the user stories in a sprint. Otherwise it's impossible to complete the documentation.

Bargon and his colleagues also discussed the idea of including the documentation in the "definition of done" for each sprint, and they found that there are pros and cons. While it would make the developers more aware of what the writers need to do their jobs, they might resent having additional work to do before the item could be marked completed.

Mary Connor[6] also recommends keeping the documentation synchronized with development activities during each sprint. Software must be coded, tested, and documented before the sprint can be considered done. Connor admits, however, that this practice isn't perfect from the writing team's point of view: the team tends to be very busy at the end of sprints, and less busy while they wait for things to stabilize during the early stages of code development.

Connor also recommends setting up "continuous, automated builds" of the documentation so that developers can review the documentation in a nearly-final format and so that the documentation can be shipped to customers on short notice.

Improving documentation reviews

Here's some good news: many writers report that reviews go better in agile because subject-matter experts are reviewing documentation that pertains to the exact same code they're currently working on. Reviews can be quicker and less formal, especially when the writers are full participants in the scrum meetings. A writer, for example, can talk with an SME and then update the documentation so that the SME can review the changes that same day.

The trick is managing these reviews, informal as they are, to make sure that all relevant material is reviewed with nothing being overlooked. Another difficulty arises in arranging for comprehensive reviews, which are needed to ensure that nothing is missing and that material carried over from the previous release is still accurate and appropriate. Connor recommends doing these comprehensive reviews during the final sprints, which are usually devoted to activities like regression testing and final bug fixes.

Book sprints

For the ultimate in both short development cycles and writer-SME collaboration, a few organizations have tried book sprints. These are carefully planned events in which a group of invitees, writers and SMEs, meet together and collaborate to write a technical book in a short period of time—typically a few days to a week.

Anne Gentle and Sarah Maddox both have participated in and written about book sprints, and they describe their experiences in an interview with Michele Marques.[7]

No one has yet tried book sprints for conventional documentation projects. Still, Gentle's and Maddox's experiences teach us a few principles for effective writer-SME collaboration when short development cycles are needed:

- Detailed planning and a clear mission statement are essential.

- Getting the right mix of people is important.

- Remember the human aspects: the group works more effectively when a few amusements and diversions are built in.

Updating the localization process

In November 2010 I took part in a virtual conference at proz.com titled "Agile and Localization." Participants proffered a number of recommendations for translating content on agile projects. I believe that many of these recommendations apply equally well to user-generated content in a Web 2.0 setting.

Break up the translation into multiple deliveries, rather than submitting the whole job at once. The schedule for the deliveries, and the contents of each delivery, can coincide with agile sprints–except that you should hold off on delivering content that's likely to change in subsequent sprints. Although this approach—breaking the translation process into chunks—is fairly novel, Richard Hamilton argues convincingly that it's the right approach for any project—agile or not.[8]

Train the writers in the principles of reuse and single-sourcing, so that the overall volume of translated content is reduced. You'll also need to train the writers to resist the temptation to change content that's already been sent to translation. The team has to embrace the idea that content, once sent to translation, is final. (Reassure writers by reminding them that publishing cycles are shorter, so there's never a long wait to get changes into the published documentation.)

Sim-ship (delivering both English content and translated content to customers at the same time) is possible if the development team:

- Devotes the last few sprints to bug-fixing rather than developing new features, thus allowing time for translation to occur after the documentation is stable

- Selects a subset of languages, and a subset of document deliverables, for sim-ship—with the expectation that less critical languages and deliverables can wait until later

MANAGING AND CURATING CONTENT

User-generated content is raw material in need of refinement. Someone needs to organize it, integrate it with other content, and decide what to emphasize and deemphasize. This process is often referred to as content curation, using the metaphor of a curator in a museum. Ideally, there's a clear definition of who performs these activities, and they're performed under the rubric of the organization's overarching content strategy.

Ahava Leibtag[9] outlines the kinds of guidance that a content strategy must provide for user-generated content:

- Encouraging people to write content: Should the site require registration and login? (That requires a little more work administratively, but it also facilitates interaction as well as ranking of users according to how popular their contributions are.) Should the site support multiple languages?

- Roles and workflow for handling content as it's submitted: What gatekeeping, if any, is applied to submissions? Do you vet all submissions, or do you publish them immediately–perhaps in an informal medium like a support bulletin—and then move them into the "official" documentation later, after you have a chance to fix problems? When questions of appropriateness arise, who has the authority to answer them?

- Managing the content after it's published: How do you handle content that undermines your company's brand image or marketing messages? What kind of

legal problems might arise, and who will police the site for those problems? When is it time to archive or delete the content?

In any event, as Kristina Halvorson points out, the content strategy will prove inadequate if it doesn't address this fundamental question: what's our objective for publishing this content in the first place?[10]

Changes to the editing process

Editors are adapting. During a water cooler chat, one editor commented on the need to edit content that's "somewhat fictional" during the early stages of a sprint. The content will need to be edited again later, but the early edits still play a vital role by ensuring that organization, terminology, and other issues are addressed before the content has a chance to evolve.

Editors handle the issue of fragmentation—of having to edit topics rather than whole documents—by scheduling early editorial reviews of outlines.

Finally, as is the case with translation, the writing teams try to "lock down" the content as much as possible.

The content management system

A discussion among members of the Content Strategy group (contentstrategy@googlegroups.com) in February 2011 revealed some key things to look for in a content management system. Systems are available that can:

- Accommodate frequent editing and rework and are flexible enough to publish the documentation package for internal consumption even when incomplete—in other words, when links are broken or files are missing. This is essential for agile projects.

- Support simultaneous updates on the same file, so that two people—a writer and SME, or a writer and editor—can collaborate in real time. When one person makes updates in the file, the other person can see the updates and modify them.

- Synchronize with text editors that separate content from form—for example, accepting input in a WYSIWYG format but storing the content in XML or DITA.

Web analytics

Web analytics can help you answer questions about your documentation website:

- What are my visitors most interested in?

- Which portions of the documentation succeed? Which do not?

- Which contributors of user-generated content have the most influence?

Rachel Potts[11] defines web analytics as "the use of data such as the number of people viewing pages on a website, how they get to those pages and what they do next, with a view to improving the website in some way." Because web analytics grew up primarily around marketing websites, Potts notes, it can be hard to apply the measurements in a technical communication context.

For example, does a high bounce rate (percentage of visitors who enter the site and then leave) mean that people are leaving your site in frustration or that they're leaving because they quickly found the information they were seeking?

Some measurements, however, aren't hard to interpret. If you have pages that nobody visits, for example, the pages either aren't useful or are hard to find. Either way, you have a problem that needs to be fixed. Similarly, analyze the search terms that visitors are using most often and see whether the search results are guiding them to content that's relevant and informative.

Both Potts and Anne Gentle[12] emphasize that the key to fruitful web analysis is knowing how every page on your site is supposed to be used. You can compare the intended usage with actual usage, identify the disparities, make adjustments, and then track trends to see whether more adjustments are needed.

All of this takes time. Don't expect to start using web analytics and get instant answers to all of your questions.

Issues and controversies

The discipline of content curation is in its infancy. There are debates over what to call it, over how best to do it, over how much of it (if any) can be done by software rather than by human curators, and even over whether it's truly a new discipline or simply "what we've been doing all along." As the amount of content continues to increase, I expect that content curation will be recognized as a legitimate discipline and that standards and best practices will evolve.

Agile's "good enough to ship" mindset is a stumbling block to writers and editors who have always insisted on high standards of editorial quality. While it can be hard to reconcile these two viewpoints, evidence suggests that many customers prefer getting their content fast to having it be perfect.

WHERE WE GO FROM HERE

By staying abreast of emerging best practices and staying knowledgeable about the tools available to support them, we can take advantage of agile and Web 2.0 to move closer to our goal of providing information that's accurate, timely, and relevant.

I look forward to another year of conversation within the profession as we continue to address the challenges of providing documentation in a collaborative world.

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Generating Consistent Documentation Estimates

Sebastien Quintas

For many technical writers, creating an estimate for a documentation project can be a difficult task. Within Fiserv's Large Bank Solutions division, the documentation department defined a process and created an estimating tool that enables individual writers to generate reliable and consistent estimates for the same project, provided that they had the same information.

The following is a brief overview of the process and tool that is in use by the department. The Generating Consistent Documentation Estimates session will describe both the process and the tool in greater detail, as well as provide a demonstration.

WHY ESTIMATE?

The primary purpose of estimation is not to predict a project's outcome; it is to determine whether a project's targeted release date is realistic enough to allow the project to be controlled to meet it. Problems can arise when the difference between a project's target date and the schedule of effort needed to reach the date becomes too large. Should the difference become too large, you may no longer be able control the project to a successful conclusion by making minor adjustments to the project's scope. Because of this, consistently accurate estimates are crucial when you embark on a new project.

In addition to allowing you to predict realistic delivery dates, accurate and consistent documentation estimates allow you to:
- Track a project's status by comparing planned milestones against actual progress.
- Improve overall quality by eliminating stress-related mistakes due to unmanageable deadlines.
- Forecast costs. Accurate estimates help support accurate budgets.
- Identify risks within a project's plan. A well-estimated project can help you identify whether you need additional documentation resources to meet a project's targeted release date.
- Increase credibility. Inaccurate estimates can build mistrust within a project team, and may reflect poorly on you or your department.

Within Fiserv's Large Bank Solutions division, the documentation department did not have a reliable process for providing estimates to project management. Each technical writer generated different estimates according to a different methodology (some based their estimates on past experiences, others on gut reactions). At times, the estimates that came out of the department were neither accurate nor useful, which proved to be problematic.

DEFINING A BETTER PROCESS

In early 2008, the department formed an action team that was determined to define a process by which each individual member could generate identical estimates for the same project. The team knew they wanted a tool that would help them generate estimates using a pre-determined estimated time to completion (ETC) for specific tasks within a typical project. To accomplish this, the team identified the following requirements:

Identify standard documentation tasks. Within a typical project, there are a number of tasks that can occur. The team wanted to identify those tasks, catalog them, and organize them in a logical manner for future incorporation into an estimating tool.

Define the characteristics of the identified tasks that can affect an estimate. Once the team identified the standard tasks, they defined and documented the functions within the tasks that might cause an estimate to increase or decrease (for example, the description for a small and simple field that is displayed on a screen would require less time to document than a larger, more complex field that would need additional explanation). They determined that a task's size (small, medium, and large) and complexity (simple, intermediate, and complex) would be the defining characteristics when assigning an ETC to a task.

Establish a standard ETC for each identified task. The team then assigned hour-based numbers to each identified task and its defined characteristics by creating a table with the task's complexity for the columns and size for the rows of the table. The below table contains an example.

	Simple	Intermediate	Complex
Small	1	2	4
Medium	3	4	5
Large	4	5	8

By placing the estimates into a table, an estimating tool can more easily make use of the data.

Establish a method to express variance in a level of effort. The team identified that successive instances of a task might not take as long as the first instance. For example, if you are creating a table from scratch, adding a row and completing the required fields will take less time the second time around because you have already defined the table's layout.

CREATING AN ESTIMATING TOOL

Once the team identified standard tasks, defined the tasks' characteristics, and established metrics surrounding those task characteristics, they needed to create a tool that could generate estimates using the collected data. There are currently a number of estimating tools available on the market today; however, they almost all exclusively handle estimates from a software development point of view. The estimates generated by these tools are based on lines of code, rather than more abstract concepts required by documentation projects (such as tasks). Because of this, the team decided to develop their own tool using existing resources available to them.

Using Microsoft Excel and an elaborate set of Visual Basic macros, the team created the Documentation Estimating Tool. Since its inception, the tool has grown increasingly more robust, and is now capable of dynamically generating estimates based on user input, creating reports for project management, tracking a writer's actual progress against generated estimates, connecting to a central database of stored ETCs to update estimates as metrics continually improve, and logging usage for project archives and potential audits.

The tool's improvement is an ongoing process. As writers in the department complete projects that used estimates from the tool, they are able to review their estimates against actual logged hours and refine the data as needed. With time, the tool becomes increasingly more accurate thanks to the contributions from writers within the department.

IMPLEMENTING A SIMILAR PROCESS AT YOUR ORGANIZATION

Should you decide to implement a similar estimating process for documentation projects at your organization, there are a number of factors you might need to consider:

- Management – An estimating process requires time and resources, which depending on your organization, might require approval from management through a formal business case.
- Process – Analyze your current estimating process to determine what requires improvement, and to gather metrics to measure improvements over time.
- Content – Review your content to determine common tasks, and if there are any tasks with a fixed initial effort, but a decreasing subsequent effort.
- Technology – Evaluate existing estimating tools available on the market today, and defining a process for how the defined estimates in the tool are calculated and updated over time.
- Implementation – Consider how you might need to train other members on your team on how to use the new process, and who is responsible for administering the tool.

Within Fiserv's Large Bank Solutions division, it took over two years of ongoing improvements in order to get the Documentation Estimating Tool to where it is today. Implementing a similar tool at your organization may or may not take as long. While the initial effort required to define and roll out a new process can be substantial, the benefits from consistently generating accurate estimates for documentation projects are significant.

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Successful Strategies for Continuous Improvement
Marta Rauch

Successful information development teams continually adapt processes and products in addition to producing deliverables on time and within budget. Although challenging, such adaptations are necessary to maintain a competitive advantage in today's global marketplace.

To meet these challenges, our department of 40 employees, including information developers, tools experts, editors, and managers, implemented an Initiatives program that ensures continuous improvement to processes, products, and skill sets for the department and individual contributors while increasing customer satisfaction.

INTRODUCTION

This paper describes how our department used its Initiatives program to adapt to challenges such as new requirements for scheduling, deliverables, and localization—while continuously delivering high-quality product documentation deliverables. We implemented XML, content management, and automation to shorten development time and lower the cost of production; word-reduction to cut localization costs; and a Customer Partnering program to ensure global customer satisfaction.

This type of Initiatives program can be applied at other companies, and can include a wide variety of projects that address business needs and add value to the organization. In this paper, we describe three successful initiatives, the challenges they addressed, and the solutions they provided.

INITIATIVE #1: PRODUCTION PROCESS IMPROVEMENTS

Challenge: Less time, more deliverables.
Solution: Convert to XML, implement content management, and automate production processes

To improve the production process, we split the tasks into several smaller initiatives:
- Templates and style sheets
- FrameMaker-to-XML conversion
- Content management
- Standard file names, directories
- Automation
- Quality testing
- Arbortext Editor training
- Troubleshooting, FAQ

- XML User's Guide, best practices

Writers chose the initiatives they wanted to work on, and rotated into the project as time allowed with their regularly scheduled deliverables. Teams tracked their status on the department's internal wiki pages to provide visibility into the progress of each initiative.

Improvements from our production process initiative include:
- Reduced time and cost for multiple output formats
- Production and formatting time down 47%
- Troubleshooting time down 85%
- Faster production; in one day, scripts rendered 300 translated files to generate 453 localized deliverables (321 help systems, 132 PDF guides)

INITIATIVE #2: TRANSLATION PROCESS IMPROVEMENTS

Challenge: Reduce translation time and cost
Solution: Reduce words in the source

To improve the translation process, we split the tasks into several smaller initiatives, including a common glossary for products and documentation, and word reduction of source files.

To produce a common glossary, one writer on each product team led terminology reviews, enlisting participation from product managers, testers, developers, trainers, and customer support. This eliminated redundancies and discrepancies between similar terms. The result was a unified product glossary that saved translation costs because it was translated once and published universally across products and documents.

To reduce words, a team of writers and editors researched word-reduction methods, and developed techniques to trim excess words without removing necessary content.

In 2006, our department estimated the following savings for word-reducing *one* of our 300-page documents, which had an average of 240 words per page, for 13 languages.

% Words Reduced in One Guide	Estimated Savings per Language	Estimated Savings for All Languages
10%	$2,880	$37,440

% Words Reduced in One Guide	Estimated Savings per Language	Estimated Savings for All Languages
20%	$5,760	$74,880
30%	$8,640	$112,320
40%	$11,520	$149,760
50%	$14,400	$187,200

(Note that these dollar figures are rough estimates. Actual savings depend on factors such as the degree to which translation memory is used, whether the document is receiving its first or second translation, and the nature of the reduction.)

Clearly, it pays to reduce words. Exponential economies of scale can be achieved by applying the savings for one document across several translated products, documentation sets, and languages.

Improvements from our translation initiative include:
- Translation cost savings of 24% for each of the 13 languages we translated to at the time
- Faster translation, faster to market
- Improved usability
- Stretched budget further, allowing us to translate to many new languages; this led to sales in new geographies and increased corporate revenue

INITIATIVE #3: CUSTOMER PARTNERING

Challenge: Better understanding of customers to enhance user experience
**Solution:** Customer partnering initiative

To meet the challenge of understanding internal and external customer requirements, our department uses several methods to gather information and conduct user analysis. For example, we interact with customers on our online technical forums and social networks, including LinkedIn, Facebook, and Twitter. We also review customer comments and ratings of our documentation, and use web analytics to track usage on our online libraries. In addition, we collaborate with customer-facing groups such as training and technical support, provide surveys and questionnaires, visit customer sites to watch how people use our products, and conduct focus groups and usability tests.

To enhance user experience, we implemented a Customer Partnering initiative. To do this, we first created an implementation plan. We worked with product management, sales, training, and customer support to select

customers who represented an appropriate mix of companies, industries, products, and version levels. We contacted these customers, conducted surveys to gain more information, and invited selected customers to join our customer partnering group and participate in our meetings.

To prepare for the first meeting, we designed focused, task-oriented activities for customers, and invited participants to a web conference. During the meeting, we presented documentation prototypes to get early feedback, which enabled us to incorporate customer input early in the development cycle. To enhance feedback during brainstorming sessions, we used Tony Buzan's iMindMap tool. After each meeting, we analyzed input to determine action items and sent follow-up communications to customers.

Figure 1: Brainstorning with Tony Buzan's Mind Map
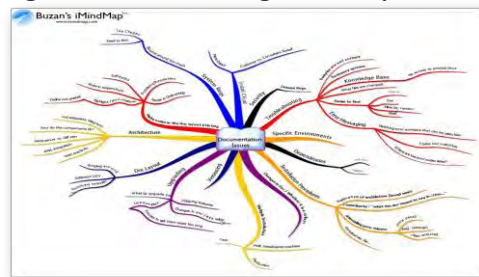
Meeting topics have provided feedback on a wide variety of topics, including:
- Our social media strategies
- Our online documentation forums
- Our conversion to Kindle-compatible .MOBI files that make files available for Kindle, and can also be used on iPad, tablets, and smart phones such as Android and iPhone.

Figure 2: Feedback on Social Media

Figure 3: Feedback on Kindle-Compatible .MOBI Files

Through the Customer Partnering initiative, we now have a more comprehensive understanding of our customer

requirements. This enables us to refine the way we meet customer needs.

We're also gratified that customers appreciate the Customer Partnering program, for example, noting that it is "very worthwhile" and "a good use of an hour per month." One customer with a large installation of our products reported that, "we appreciate the effort that goes into this program, since documentation tends to be not as well addressed with most software vendors. This [Customer Partnering program] is very unique, and we feel it is beneficial."

Improvements from our Customer Partnering initiative include:
- Greater customer insight
- Early feedback on prototypes
- Satisfied customers
- Reduced tech support calls
- Competitive advantage
- Greater license revenue
- Increased sales

SUMMARY

The initiative program described in this paper enables our department to adapt effectively to changing project requirements while delivering high-quality documentation on time and within budget. The initiative program enables continuous improvement, allowing us to continually enhance products and processes.

This type of an initiative program can be implemented successfully at other companies. Doing so can strengthen your products and processes and maximize your ability to meet project challenges and provide high-quality customer solutions. Implementing continuous improvement increases quality over time. This can give your team a competitive advantage in today's market, and help you meet challenges of the future.

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Managing Change with an Initiatives Program

Marta Rauch

Effective information development managers continually adopt processes that help them maintain a competitive advantage in the global marketplace. However, it can be a struggle to meet customer needs while grappling with shorter development cycles, reduced time to market, and tighter budgets.

To meet these challenges, the management team of our 40-member department developed an Initiatives program that ensures continuous improvement to processes, products, and skill sets for the department and individual contributors while increasing customer satisfaction.

This paper provides example of initiatives, and describes best practices to help you implement a similar program for your own department.

ABOUT INITIATIVES

Initiatives are an effective way to adapt to project management challenges. They allow our department to address business needs, resulting in:
- Reduced costs
- Increased efficiency
- Improvements in customer satisfaction
- Increased revenue
- Communities of practice and idea-sharing
- Increased team spirit and morale
- Increased respect for the department
- Added value to the organization

INITATIVE EXAMPLES

Our team has completed many successful initiatives through our Initiatives program, such as:
- Converting documentation to Kindle-compatible .MOBI files to make it available for Kindle (files can also be viewed on tablets such as iPad, and smart phones such as Android and iPhone)
- Enhancing accessibility
- Implementing social media networks for documentation on LinkedIn, Twitter, and Facebook

Figure 1: Kindle-Compatible .MOBI File Initiative

Figure 2: Social Network Initiative

This paper focuses on the following three initiatives:
- Moving to XML and implementing content management and automation
- Implementing word-reduction
- Creating a Customer Partnering program

Initiative #1: XML, Content Management, and Automation

Challenge: Less time, more deliverables.
Solution: Convert to XML, implement content management, and automate production processes

We split this initiative into several smaller initiatives:
- Templates and style sheets
- FrameMaker-to-XML conversion
- Content management
- Standard file names, directories
- Quality testing
- Inhouse Arbortext Editor training, troubleshooting, FAQ, customized XML User's Guide, best practices
- Automation

Improvements from this initiative include:
- Reduced time and cost for multiple output formats
- Production and formatting time down 47%
- Troubleshooting time down 85%
- Faster production; in one day, scripts rendered 300 translated files to generate 453 localized deliverables (321 help systems, 132 PDF guides)

Initiative #2: Word Reduction

Challenge: Reduce translation time and cost
Solution: Reduce words in the source

To improve the translation process, we implemented several initiatives, including a common glossary for products and documentation, and word reduction of source files.

The common glossary initiative saved translation costs because terms could be translated once and published universally across products and documents.

The word reduction initiative also yielded positive results:
- Translation cost savings of 24% for each of the 13 languages we translated to at the time
- Faster translation, faster to market
- Improved usability
- Budget stretched further, allowing us to translate to new languages; this led to sales in new geographies and increased corporate revenue

Initiative #3: Customer Partnering

Challenge: Better understanding of customers to enhance user experience
Solution: Customer partnering initiative

To enhance user experience, we implemented a Customer Partnering initiative that is based on the participatory design model developed by JoAnn Hackos.

Our meetings with customers provide focused, task-oriented activities during web conferences. During meetings, we present documentation prototypes to get early feedback, enabling us to incorporate customer input early in the development cycle. To enhance feedback during brainstorming sessions, we use Tony Buzan's iMindMap tool. After each meeting, we analyze input to determine action items and send follow-up communications to customers.

Figure 3: Brainstorning with Tony Buzan's Mind Map
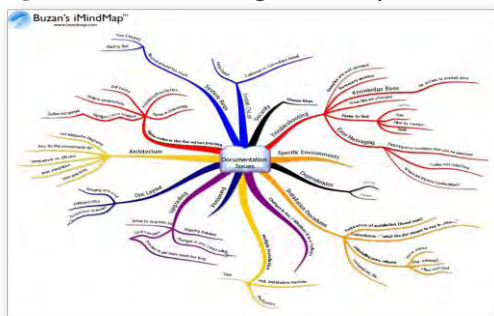
INITIATIVE RESULTS

The three initiatives described in this paper provided measurable value to the company:
- XML, content management, and automation:
  - ✓ Increased productivity
  - ✓ Decreased time and costs
- Customer Partnering program:
  - ✓ Increased quality, customer satisfaction, and revenue
  - ✓ Decreased technical support calls and costs
- Word reduction:
  - ✓ Increased the number of languages and revenue
  - ✓ Reduced time and costs

INITIATIVE BEST PRACTICES

The following best practices are based on our department's successful Initiatives program. They enable us to institute operational innovations to overcome many of the obstacles typically faced by information development teams.

These practices can be implemented in any company. They are especially suitable to information development departments at Level Four or Five in the Information Process Maturity Model (IPMM) described in JoAnn Hackos's *Information Development: Managing Your Documentation Projects, Portfolio, and People*.

Initiative best practices include the following:
- Department members contribute ideas for initiatives based on varied sources, such as knowledge of the communication field, research, direct experience, exchanges with other information developers, and input from training, support, customers, and product development teams.
- Managers select initiatives that address business needs, and prioritize initiatives according to strategic factors such as the value to the company, ease of completion, direct and indirect costs, cost avoidance (CA), and return on investment (ROI).
- Department members list initiatives in SMART goals measured through management by objective.
- Department members maintain their primary focus on product deliverables, and participate in initiatives as schedules allow. Varied product development cycles permit flexible staffing for initiative tasks.
- Department members are aware of business goals, and focus on achieving those goals.
- Managers monitor initiative progress to ensure adherence to business goals.
- Managers collect metrics, and analyze data to validate effectiveness of initiatives.
- Project management information is tracked on internal wikis, including project plans, schedules, milestones, meeting agendas, minutes, and action items.
- Managers and other department members communicate initiative successes through wikis, team meetings, lunchtime brown bag seminars, and exchanges with other departments, such as training,

support, product assurance, product development, and product management.

INITIATIVE KEY POINTS

Implementing an initiative program offers information development managers:

- An effective way to adapt to project management challenges
- The opportunity to create communities of practice focused on continuous improvement
- A tool to reduce costs, improve customer satisfaction, and increase revenue

SUMMARY

Our management team uses the initiative program described in this paper to overcome challenges and deliver high-quality documentation on time and within budget.

The initiative program also creates communities of practice (CoP) by giving writers the opportunity to collaborate with a wide group of peers, thus strengthening relationships and supporting team building.

We invite you to implement a similar Initiatives program in your own department. Using the best practices described in this paper will help maximize your team's ability to meet project challenges and provide customer solutions. It can also raise the quality of your department's deliverables, and add demonstrated value to the corporation. A successful Initiatives program can give you a competitive advantage in today's marketplace, and strengthen the ability of your team to meet future challenges.

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Cultivating a Culture of Collaboration
Charlotte Robidoux and Rebekka Andersen

Doing business in a global marketplace demands virtual collaboration. Sharing topics in a content management system requires writers to collaborate virtually. What does collaboration mean in technical writing organizations? To answer this question, we surveyed models of collaboration, especially one developed by Morten Hansen in Collaboration: How Leaders Avoid the Traps, Create Unity, and Reap Big Results. *In this article, we examine how Hansen's methodology can support the process of building and implementing a collaborative writing strategy, one that supports successful single sourcing solutions. We explore the benefits of collaboration, why barriers occur, and how to overcome those barriers. We also provide useful tools and strategies to help teams reach their collaborative potential.*

WHY IS COLLABORATION IMPORTANT?

In his book, *Collaboration: How Leaders Avoid the Traps, Create Unity, and Reap Big Results*, Morten Hansen appeals to the business world precisely because the benefits of collaboration are measurable in the following areas:

- Innovation
- Creative problem solving
- Operational efficiency
- Agility
- Sales and supportability
- Customer satisfaction

Hansen provides compelling examples that point to the benefits of integrating people across different business areas and technologies to create or leverage innovations from existing ideas. He refers specifically to measurable results at Procter & Gamble, Wells Fargo, and Apple (pp. 33-35). For instance, Proctor & Gamble leveraged 13 products to market 24 brands using collaboration strategies; each brand generated at least 1 billion in annual sales. This example highlights the measurable value of collaboration in business settings.

In an intensively competitive global marketplace, organizations must respond to customer needs. Increasingly, customers access product information-- including product descriptions, documentation, and reviews—anywhere, anytime, and on any device. As the demand for information increases, writing teams are challenged to deliver quality content quickly through ever-expanding distribution channels. Delivering on-demand content requires automation to ensure consistency and translation efficiency. Single sourcing solutions allow organizations to produce the topic-based, modular information that customers seek. But for organizations to do this work successfully, individuals must learn how to work together to develop and deliver content.

WHAT IS COLLABORATION?

Collaboration is about people working together to achieve goals. But what does working together really mean? What does it take to make this happen?

Of the different definitions of collaboration that we reviewed, we found that Hansen's definition best gets at what collaboration really is and why it is so difficult to do well. For 15 years, Hansen conducted research on collaboration in a wide range of companies, including Hewlett-Packard, searching for answers to the question, "What is the difference between good and bad collaboration?" His research led him to define collaboration as a discipline: "The leadership practice of properly assessing when to collaborate (and when not to) and instilling in people both the willingness and the ability to collaborate when required" (p. 15).

Three concepts are central to Hansen's definition of disciplined collaboration: leadership, motivation, and ability. Cultivating a culture of collaboration requires leaders—from the executive level down to the department manager level—to lead the collaboration effort. And that means motivating people to want to collaborate and equipping them with the ability to do so.

- Motivation is about instilling in people feelings of being valued and necessary, connected, set up for success, and part of a larger purpose.
- Ability is about enabling collaboration through the right resources and tools, communication channels, process structures, and training.

Leading the collaborative effort does not mean simply telling people that they must collaborate or creating a mission statement that says that the organization values collaboration. These all-too-common practices do not motivate people, and they certainly do not provide people the support they need to collaborate successfully.

To cultivate a culture of collaboration, leaders need to model the kind of collaborative culture that they envision by establishing a management framework that not only values and rewards collaboration but also offers training, tools, and processes in support of this kind of interactive work. For example, if a leader wants writers to develop shared content, then she needs to set specific performance targets that can be measured to determine the level of collaboration carried out by the team.

WHAT MAKES COLLABORATION DIFFICULT?

Collaboration is essential to achieving results in today's business climate. But collaboration is not easy and runs counter to management practices. Collaboration is not something leaders can just ask or expect people to do. It is a disciplined practice that requires know-how. Most people have never been taught how to collaborate successfully. In higher education, for example, the emphasis is on individual performance—on proving one's individual knowledge and capabilities; as a result, most graduates enter the workforce not understanding what it means to collaborate, why they should collaborate, or how to collaborate. This experience then creates a culture that is not prepared for collaboration, which is the reason why cultivating a culture of collaboration is so critical; it's an adaptation that leaders in education and in business need to lead.

In their book, *Virtual Collaborative Writing in the Workplace: Computer-Mediated Communication Technologies and Processes*, Beth Hewett and Charlotte Robidoux attribute many of the collaboration challenges in single sourcing environments to this general lack of know-how:

> To the extent that individuals typically are more accustomed to producing whole texts rather than smaller pieces of content, many writers do not understand how to contribute efficiently to jointly developed written materials. Furthermore, many geographically distributed writing teams lack guidance and experience on how to coordinate complex activities across space and time. (p. xxiii)

A collaborative writing strategy must go beyond plans for *what* writers, or others contributing to the development of information, are expected to do; the strategy must also include plans for *how* writers will be enabled to successfully achieve business goals (see Overcoming Collaboration Barriers). Understanding what the *how* component should entail, though, means understanding organizational obstacles to collaboration-- obstacles that must be overcome if writers are to be

motivated to want to collaborate and equipped with the ability to do so. Primary organizational obstacles include modern management, silos, and competition; an information transfer approach to communication; and cultural factors.

Modern Management, Silos, and Competition

As Hansen's research indicates, modern management often discourages rather than encourages collaboration insofar as performance management practices in the workplace reward individualism. That is, business environments openly thrive on competition at various levels in the organization, from business area silos and functional units to individual employees. Performance objectives often guide individuals to work at cross purposes. Even when working on a team, each contributor often has a separate set of targets that induce competition.

For technical writers, the individual focus is hard to avoid since the practice of writing is normally a solitary activity. But when writing practices are automated, writers must transcend the inclination to work alone and own whole documents. Yet if the management framework in which they work does not endorse a collaborative culture, writers will have little reason to change their writing behavior. Thus to establish a collaborative culture, leaders must re-examine and redesign their performance management practices.

Information Transfer Approach to Communication

In addition to modern management, silos, and competition, an information transfer approach to communication in organizations accounts for why business areas are often self-reliant and why groups tend to hoard information, have difficulties finding information, and have weak connections with others in the organization (see Collaboration Barriers).

An information transfer approach to communication focuses on the one-way transmission of a message from sender to receiver, often through various communication channels, and assumes that the meaning transmitted is the meaning received--that the message means the same for the sender as it does for the receiver. This approach presupposes that if a message is well written and transmitted with reasonable accuracy from sender to receiver that the receiver will be able to apply that information successfully to her problem-solving activities (see Figure 1).
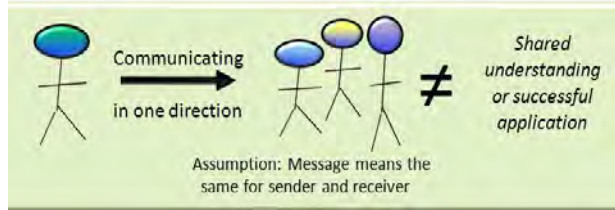
Figure 1: Information Transfer Approach to Communication

The information transfer approach to communication has faced much scrutiny from communication and social science experts (see, for example, Brown & Duguid, 2000; Doheny-Farina, 1992; and Rogers, 2003), as it fails to account for how individuals come to understand what the transmitted information might mean in terms of the social context in which it is to be used. Stephen Doheny-Farina argues that an information transfer approach to communication "separates knowledge from communication" and assumes that communication means "sending information through channels" and sending facts to receivers--when receivers successfully possess the facts, communication is successful" (p. 8). The problem with this view, however, is that it "does not explain how information comes to mean something to a participant in communication activities, nor does it tell why people have difficulty communicating with one another" (p. 9).

In single sourcing environments, people representing different business areas must work together to achieve common content goals. These goals are difficult if not impossible to achieve, however, in organizations that primarily depend on an information transfer approach to communication.

Studies show that communication channels that facilitate synchronous, interactive communication, such as video conferencing and face-to-face meetings, are inherently more effective than asynchronous, one-way communication channels, such as email and webinars, in helping individuals of different groups and expertise come to shared understandings of meaning. Synchronous, interactive communication channels allow for "a negotiation and sharing of perspectives, values, language, knowledge, and so forth" as opposed to exchanges of objectified pieces of information through technological channels (Doheny-Farina, p. 10).

Organizations developing a collaborative writing strategy need to implement synchronous, interactive communication channels that support innovation, provide shared access to information, and facilitate interaction, knowledge acquisition, and learning. These channels, thoughtfully implemented, can increase

people's motivation to collaborate and their ability to so do successfully.

Cultural Factors

Implementing communication channels that facilitate interaction, knowledge acquisition, and learning are not going to automatically result in successful collaboration, just like developing a shared vision alone is not going to automatically result in a collaborative culture. Leaders also have to be mindful of cultural factors that may hinder successful collaboration (see Figure 2).
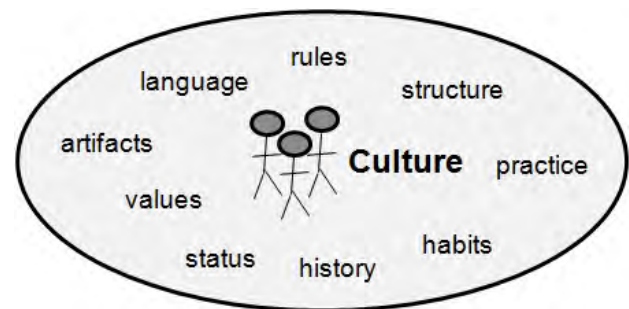

Figure 2: Cultural Factors That May Hinder Successful Collaboration

Technical documentation, engineering, training, marketing—these groups represent some of the common cultures that must work together in a content management system (CMS). Each culture shares a language, history, value system, structure, and set of rules, practices, and artifacts unique to that culture. These cultural factors define each culture and influence how members of each culture interpret new information.

When a technical documentation team is adopting a new CMS, for example, team members' individual and collective interpretation of the new system will be influenced by the language, rules, habits of practice, and tools with which the members are already familiar. Members who are resistant to collaborating in the system may be resistant not because they lack motivation to collaborate but because the system is a far departure from long-ingrained habits of practice. Learning new habits of practice takes time and requires the right resources and tools, communication channels, process structures, and training.

Just as cultural factors can hinder successful collaboration within a team, so too can they hinder successful collaboration between teams. When two widely differing cultures, such as a technical documentation team and an engineering team, attempt to collaborate, cultural factors tend to be the biggest barriers to successful collaboration. Because the two

cultures in effect speak a different language; share different values, practices, and roles; and draw on different problem-solving strategies, the two cultures often struggle to come to shared understandings of meaning. Without a common ground on which the two cultures can understand each other—that is, without a shared vocabulary and opportunities to come to shared understandings of meaning through highly interactive negotiations—the two cultures will struggle to collaborate successfully.

COLLABORATION BARRIERS

Organizations accustomed to competition, independence, and information transfer approaches to communication are likely to encounter multiple collaboration barriers. According to Hansen, the first two barriers, *hoarding* and *innovation*, pertain to motivation. And the second two, *search* and *knowledge transfer*, involve ability.

Hoarding

This barrier results because individuals have little incentive to share their time, data, or resources. Performance goals often encourage hoarders to operate this way. The characteristics of hoarding in writers include a reluctance to give up control and a reliance on one's own way of doing things. These characteristics are symptoms of the following:

- **Competition and perfectionism**. Places emphasis on owning books and controlling words.
- **Being too busy**. Invites someone to just do it "my way," especially in the face of meeting release deadlines.
- **Fear of losing power**. Centers around control or ownership of a book.

Because writers follow a natural tendency inherent in the writing process—to work alone—leaders need to implement management strategies that encourage writers to share ideas, coordinate activities, and coauthor topics. When people don not know what others are up to or thinking, they tend fear the worst and hoard information as a kind of self-preservation behavior.

Innovation

Business areas that have been siloed for a long time often lack incentive to innovate with other groups (Hansen calls this barrier the "not-invented-here" barrier). Business areas tend to believe that ideas developed within the group are the best whereas ideas developed outside the group are suspect. Such an insular culture,

according to Hansen, can lead to a "We're better than they are" and "Need to fix our own problems" attitude, as well as a fear of exposing weaknesses. This attitude and fear prevents groups from wanting to collaborate with other groups within the organization. Innovation is also discouraged when groups rely on information transfer approaches to communication, as one-way communication means that people are not participating in the kinds of interactions and negotiations necessary to innovate.

Consider, for example, the case of an HVAC manufacturing company at which Rebekka worked as a technical editor. The technical documentation group felt like a scapegoat in the organization, as they were frequently blamed for late releases and for slowing up projects. When the documentation group received the go ahead to move to single sourcing with a CMS, the group was afraid that the engineers, who received frequent recognition for their achievements, would not support the initiative if the benefits were not immediately evident to them.

Because the documentation group was new to single sourcing with a CMS and had a lot to learn, the group decided to go at single sourcing and evaluating a CMS on their own, first, before getting buy-in from engineering or product management. The group did not want other departments to discredit its proposal before it had a chance to prove that it was a good idea. This belief that ideas developed within the group were best deterred the group from innovating with other groups in the organization. Because the group was afraid of exposing its weaknesses, it resisted inviting other groups to help problem solve.

Search

The search barrier, in many ways, is a symptom of the information age. Even so, as the number of communication channels grow so does the amount of information. Businesses that make use of myriad communication channels invite employees to sort through overwhelming amounts of data. The need to find the right information to write documentation can result in hours and even days lost hunting down the right details.

The need to find information suggests a lack of sharing information or working together. Search problems that affect writers are related to the following:

- Knowing where to begin looking for content.
- Refraining from spontaneous conversations about where to locate information.
- Lacking the right connections and established processes for working collaboratively.

A struggle to find the right information might point to an underlying problem with information transfer or one-way communication. How information is delivered makes a difference to individuals who may lack a predetermine interpretation of product or services being developed. Distributing more information in various forms is not the answer. Rather, leaders must seek more opportunities for interactivity (consider a team that relies on email communication versus an interactive wiki that includes essential information, resources, and contact information).

Knowledge Transfer

The terms *information* and *knowledge* are often used interchangeably. But these terms represent different levels of understanding, expertise, experience, and know-how. Information is a message that contains meaning; information helps people understand more "about" something. Knowledge is the ability to judiciously apply that "about" understanding in practice. In their well-known book, *Working Knowledge: How Organizations Manage What They Know*, Davenport and Prusak define knowledge as "a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information" (p. 5). Because a person develops knowledge about a practice, technology, or other entity over a long period of time, that knowledge cannot be easily transferred.

Knowledge transfer, like information transfer, is a major barrier to collaboration. This barrier results when people from different business areas need to work together but do not know how to do so; they lack critical how-to knowledge. According to Hansen, "This transfer problem is not about motivations but about abilities: people can be highly motivated to work together, but they find it difficult to do so" (p. 60). Knowledge transfer problems can occur for the following reasons:

- **Tacit knowledge is hard to convey**. Some people know a lot about how things work, why they work the way that they do, and who to talk to about what. These people have gained tacit knowledge about the organization over many years. Transferring this knowledge is difficult to do without sufficient support and resources.
- **No common framework for working together.** People do not share common visions, values, processes, or tools. They don't, according to Hansen, have "an understanding of each other's working habits, subtle ways of articulating something, a liking of each other, and an appreciation for each other's moods" (p. 62). They thus struggle to work together.

- **Weak rapport for knowledge transfer**. When people in an organization don't know each other, they find it difficult to transfer knowledge. They have not developed a learned sense of how to communicate with each other, how to phrase questions and comments, or how to interpret each other's nonverbal, verbal, or written signals. Strong, interpersonal relationships are necessary for knowledge transfer.
- **No process structure to enable know-how**. People might be motivated to share knowledge, but if they don't know how to do so or if they lack the right tools with which to do so, knowledge transfer is not likely to occur. People need to be enabled to share knowledge (see Implementing Enablers for a list of knowledge transfer enablers).

OVERCOMING COLLABORATION BARRIERS

A cultural change is required when organizations transition from individually-owned documents stored on PCs to shared content modules stored in a shared repository. This change requires leaders to recognize that different barriers to collaboration require different solutions, or what Hansen calls "levers." These solutions include implementing a unifying vision, T-shaped management, a network of alliances, and collaboration enablers.

Unifying Vision

An organization chooses to create vision statements for a number of reasons, one of which entails making the entity more focused and thus successful. Indeed, some studies indicate that companies with a clear vision are more effective. That said, many employees share the experience that a stated vision does little to motivate them. How to make a vision compelling, while not an easy task, is an important one, especially if organizations seek improved collaboration. Hansen describes the motivational power of a well-crafted vision, namely, JFK's challenge to send a man to the moon and bring him back safely (p. 79).

A powerful vision, like an effective tag line, can permeate attitudes and shape behaviors; "going green" is a simple example of how words and phrases can mobilize collective behavior. Understanding the reason why a course of action is important can make it easier to recall the words that embody a vision. The quest for a collaborative culture thus begins with a leader committed to establishing a framework that engages the

organization and motivates individuals to collaborate. This unifying purpose functions as a kind of connective tissue that spurs collaboration inside an organization, outside and across other organizations, and even with customers. The process of creating a vision always begins with a compelling set of questions:

- Why is your organization's work valuable?
- What qualities would describe future success in your organization?
- How can collaboration enable this success?
- What results are difficult to achieve without collaboration?
- What words and phrases encapsulate your future success?
- What words create an image of what you're trying to achieve?
- What words and phrases are lasting and inspiring?
- Can the organization see the future success as attainable?

A unifying vision is central to any organization that seeks advancement—that sees the possibility of transforming itself in the future. A vision is essential for any organization committed to the results that collaboration makes possible. Because writing organizations need collaboration to create shared content, managers will enable transformation by establishing a vision that serves as a basis for guiding the team.

Practicing T-Shaped Management

Hansen refers to the second lever of motivation as "T-shaped management." The driving force behind this management framework is the emphasis placed both on individual accountability and on collaborative performance. Four work styles define his model:

A T-shaped management structure enables leaders to combine the performance objectives with goals for collaborating. Establishing this framework requires the following components:

- Build a top-down strategy and strong leadership engagement and support
- Create performance plans (individual & collaborative)
- Reward T-shaped behaviors for existing staff and when hiring
- Set goals for collaborating
- Provide leadership coaching
- Conduct 360˚ reviews
- Measure and track progress

In practice, a T-shaped performer could be measured on the number and quality of co-authored topics delivered on time for a product release rather than on owning, updating, and delivering a document. Additionally, measures can be defined around how effectively a writer supports specific roles that benefit the whole organization.

Valuing information developers who are accountable both for their individual and their shared contributions is central to creating a collaborative culture. That is, describing the importance of collaboration without implementing a performance management structure to drive interactive work behaviors will do little to change the culture. Instead, leaders who want collaboration to characterize their business areas need to offset both the individualism that typifies the modern management culture and the tendency to see writing strictly as a solitary activity.

Building a Network of Alliances

This lever is about establishing diverse, strategic, and extensive top-down and bottom-up connections across the organization. When people are well-connected— when individuals have established relationships with other individuals within their unit and across business areas—they are more motivated and better enabled to collaborate.

This lever speaks specifically to the search and knowledge transfer barriers. Finding information and people who have the right knowledge is harder in bigger companies. Where do you look? Who do you ask? What kind of response can you expect? Well-connected people better enable knowledge transfer—tacit knowledge is hard to convey or codify. When people don't know each other, they're less likely to ask for the information they need and more likely to complete a task on their own with whatever information they can find on their own. This does not lead to innovation and results.
In cultivating a culture of collaboration, leaders need to develop a structure for connecting people. This structure might include regular social events, social media, informal intra- and inter-unit meetings, who's who maps or diagrams, an interactive knowledge base, or inter-unit focus groups (also referred to as communities of practice).

Implementing Enablers

This lever relates to equipping people with the tools and know-how necessary for successful collaboration. We refer to this grouping as the "enablers" lever, which seemed absent from much research that we reviewed on collaboration and collaborative writing. Enablers,

however, are critical to cultivating a culture of collaboration.

Enablers not only facilitate knowledge acquisition and learning, but also guide teams in problem solving. In addition, they help structure team member interactions. Enablers, such as process scripts and interactive web conference software, keep everyone focused on the task at hand, and they help team members know who is doing what, when, how, where, and why (Lowry, Nunamaker, Curtis, & Lowry, 2005). Figure 3 shows different types of enablers:

- **Training**. New processes, methodologies, and tools should be supported with hands-on, interactive, guided, and tailored training.
- **Tools**. These should facilitate interactive communication and knowledge transfer—some tool enablers include knowledge bases, interactive communication channels, instant messaging, web conference software, and content management systems.
- **Guides**. Team members need direction—guides such as process scripts, vision statements, meeting agendas, style guides, and who's who maps or diagrams help equip team members for successful collaboration.
- **Meetings**. Successful collaboration requires team members to meet often—highly interactive, structured meetings that are goal driven and that facilitate consensus building help teams achieve goals more efficiently and effectively.

Figure 3: Enablers Lever: Equipping People with Know-How through Training, Tools, Guides, and Meetings

A particularly effective enabler for teams is a knowledge base—a centralized, open access repository of all of the resources teams need for effective collaboration, can be. A knowledge base can facilitate interaction and encourage discussion. It might include process scripts, who's who maps and personal introductions, and frequently asked questions. It might also include status updates, best practices, tips, and ideas. The knowledge base serves as knowledge management tool, facilitates learning and knowledge acquisition, and codifies tacit knowledge.

In cultivating a culture of collaboration, leaders need to implement enablers that equip team members with the know-how necessary to achieve business goals in collaborative environments.

ASSESSING YOUR CULTURE AND AREAS TO IMPROVE

Attempting to make collaboration improvements without assessing the elements needing improvement can be counterproductive. If your team is having difficulty learning to collaborate, consider some self-assessment tools to help you understand the impediments. For example, if motivation is an issue, the corrective measures will be different from those used to address ability-based problems as defined by Hansen.

As T-shaped management principles suggest, writing teams need to be proficient at knowing when to collaborate and when to work independently. Just as a sports team's performance depends on individual skill combined with coordinated interactions, writing teams need to acquire a comparable kind of proficiency. But doing so must begin with the assessment process. Table 1 describes some of the tools available to help writing teams evaluate their ability to collaborate effectively.

Determining what assessment protocol to use depends on your organization and the level of detail or dimensions you want to capture through the inventory. The value of a self-assessment is that it provides leaders with constructive baseline information that they can use to create collaborative transformations.

The assessment of a team at HP exemplifies how the assessment process can help leaders focus on meaningful improvements. With the help of students at U.C. Berkeley under the direction of Hansen, HP administered Hansen's survey in an organization consisting of business analysts, product consultants, information developers, and instructional designers. The results of the study indicated that while there were some motivational obstacles to address, the major issues at hand concerned the collaborative ability of the organization as whole. Specifically, the team struggled most with search problems followed by difficulty conveying complex ideas and transferring knowledge from one subgroup to another.

Table 1: Tools for Evaluating Collaboration

Assessment tool	Description
Omni Institute profile of collaboration http://www.omni.org//instruments.aspx	Measures collaboration effectiveness in terms of: • Context • Structure • Team members • Results of interactive performance
Collaboration: What Makes It Work Wilder Collaboration Factors Inventory http://wilderresearch.org/tools/cfi/index.php	Measures collaboration factors: • Environment • Membership • Process and structure • Communication • Purpose • Resources
Morten Hansen's survey http://www.thecollaborationbook.com/s2.php	Measures barriers: • Hoarding • Not invented here • Search problems • Transferring information

The results of the study helped the HP team develop a strategy focused on collaboration enablers: improving team member relationships, building online networks, reorganizing and classifying information, and implementing more effective processes, tools, and technologies that support effective collaboration. The HP team also discovered, through analyzing the survey results, that team members needed help determining when collaboration would be most effective. Team members needed protocols for when to work independently, when to work interactively, and how to coordinate handing off tasks to one another.

MAPPING YOUR PLAN

Assessing existing collaboration practices is the first step of mapping a plan for successful collaboration. The Cisco Collaboration Framework recommends a three-stage process for creating a culture of collaboration. In addition to assessing existing practices, what Cisco terms the investigation stage, Cisco proposes two additional stages:

• Performance. Efforts shift from an organic and opportunistic approach to collaboration to a more structured and prescriptive approach to collaboration.

• Transformative. Collaboration is used to reinvent the organization.

Creating a literal map of what your organization can do in each of these stages helps team members see the overall collaboration plan and the progress. Figure 4 offers an example of a collaboration road map.

In addition to creating a collaboration road map, we recommend an action plan that includes the following components:

• Action Steps: *What will be done?*
• Leadership: *Who will lead?*
• Timeline: *By when?*
• Resources: *Those available? Those needed?*
• Other Roadblocks: *Who might resist? How?*
• Communications *Stakeholders? Modes? Frequency?*

UNDERSTANDING COLLABORATIVE WRITING

Some would argue that assigning more than one individual to similar work products can be inefficient. Productivity can be compromised if assignments are not clear, structured, or coordinated. However, when leaders implement disciplined collaboration, the benefits can be substantial, even in a field, like writing, that seems less suitable to group effort.

Not only do researchers indicate that repeatable, structured processes can promote productivity (Lowry, Nunamaker, Curtis, & Lowry, 2005), but also practitioners report efficiency gains among writing teams collaborating in a content repositories. While the effort involved in cultivating collaborative writing efficiency is extensive, the effort involved is not a reason to avoid collaborating. Teams increasingly are pursuing content management system solutions precisely because they want to do more with less—to produce high quality content more efficiently with fewer resources. Disciplined collaboration can make this kind of transformation possible.
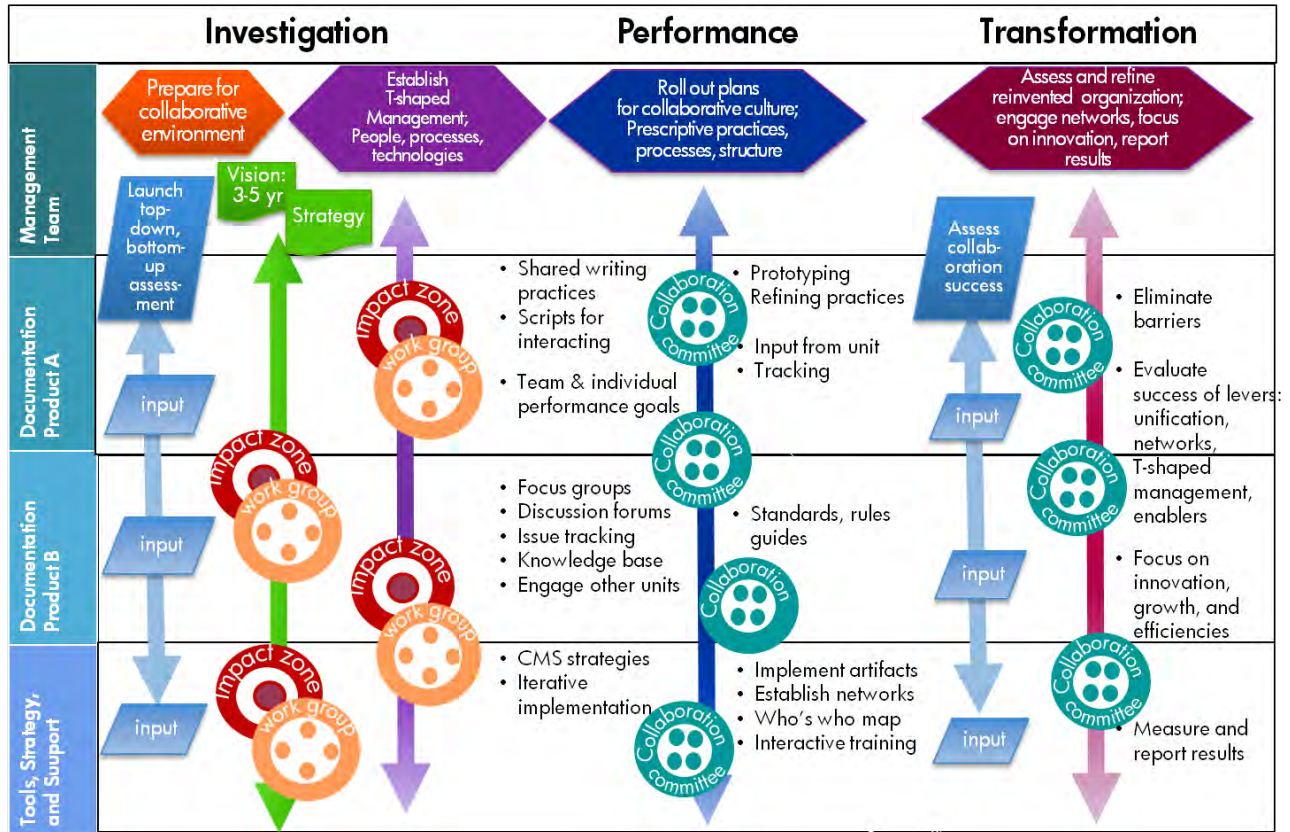
Figure 4: Collaboration Road Map

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strategies for organizing global and local formats

Ronald L Stone

technical communicators can serve the needs of users of technical content more effectively when guided by a good understanding both of the users and on how information can be organized for them. a focus on best practices for working with formats will involve some discussion of audience and information analyses. analyses of audience and information are presented as a basic means of informing efforts to ensure documentation quality.

INTRODUCTION

this presentation reflects recent efforts to apply two types of analysis that are important for the design or development of technical content with reference to global or local communications: audience analysis and information analysis. during this consideration, communicators are reminded that notions of audience and information are continually being transformed by new developments on many different fronts. some examples of new developments include new technologies and new media, in addition to uses of new developments by more users. at any rate, communicators can serve the needs of users of technical content more effectively when guided by a good understanding both of the users and on how information can be organized for them.

toward this goal summaries of some recent studies are described in the following sections.

approaches to analyzing audience

Swenson *et al* describe an audience-driven approach to developing a web site for a medical company (Swenson, Constantinides, & Gurak, 2002). Freeman and Spyridakis describe a study of how reader judgments of the credibility of online health information might be affected by the provision of certain features of online content, such as contact information. (Freeman & Syridakis, 2004).

Carliner reviews notions of design with consideration for various approaches to understanding notions of audience (Carliner, 2000). user-centered design can also be considered as an approach for understanding a concept of audience in terms of user.

approaches to analyzing information

Carliner then reviews recent definitions of information design toward presenting a three-part model of information design that involves a focus on Physical, Cognitive, and Affective concerns. on each level of focus; information is considered with reference to particular audience issues of a user to find, to understand, and to be motivated by content (p 564).

approaches to analytical design

Edward Tufte reviews and explains many examples of analytical design; often in terms of principles of effective communication (Tufte, 2001).

approaches to conceptualizing formats

a concept of format can also be useful with regard to analyzing and developing technical content. toward this notions of 'format' may be regarded to hold many similarities with approaches to characterizing notions of 'genre' (Swales, 1990). however a focus on information design might suggest that a notion of format might serve as a useful tool for analyzing technical constraints on the 'content, positioning, and form' (p 52) of a genre.

approaches to organizing content

one of the ideas from classical rhetorical study is the notion of 'first principle' (Aristotle & Kennedy, 1991), concepts of which can serve the organization of content (Stone, 1996), a fundamental consideration for a communicator.

a few standards resources

here is a quick list of a few of the sources for standards used by technical communicators: w3.org, iso.org, bipm.org, nist.gov, ieee.org, and so forth.

CONCLUSION

there are many ways that approaches to analyzing audience and information can improve or enhance the

development of quality technical content. for a particular communication scenario, there are many opportunities by which a communicator can determine or identify some good or best practices for developing technical content. analyses of audience and information are presented as a basic means of informing efforts to ensure documentation quality.

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From Distress to De-Stress:
A Cross-Generational Formula for Managing Stress in the Workplace

By Dan Voss and Sarah Baca

This paper takes a cross-generational look at five methods by which managers can help control stress in the workplace—beginning with their own! These stress relievers include judicious use of humor; a psychological approach known as rational emotive therapy, or RET; taking ownership of stress; picking one's battles; and being kind to oneself.

Ten minutes to eight. The final customer review of your proposal for a lucrative new contract that could pull your company out of Chapter 11 starts in ten minutes. At 3 a.m., you and your team had triple-checked the PowerPoint presentation, loaded it onto the computer in the mahogany-paneled executive conference room, tested the overhead projector, and everything went fine.

Your business case is solid; your support materials are excellent, all laid out on the table and displayed in posters on easels around the room. All it will take to close the deal is a slam-dunk multimedia presentation, and that is only a click away. Except when you hit the button for the overhead project, no friendly little green light winks at you from the overhead. No whir of a fan. The screen remains dark, its ominous inky face mocking you. Nothing. Nada. Dead.

Know the feeling?

Stress.

It comes in many different packages, but it is part of everyone's life. Technical communicators get their fair share. Vast tomes have been written, entire courses of study developed, full wings of libraries at psychiatric institutions filled with techniques to manage stress. But they all shoot awry. Here and now, in the *Proceedings* to the 58th International STC Conference, the writers humbly place before you the

world's first fully warranted, money-back guaranteed, tried and tested, combat-proven arsenal of foolproof strategies for stress management in technical communication—the incomparable world-famous patent-pending five-pronged cross-generational formula for managing stress in the workplace.

It is often argued in a throw-down between generations, which would prevail—the idealism and energy of youth or the guile and treachery of age. Well, dear reader, in this case you will have the benefit of both. We have taken age and experience, added youth and enthusiasm, stirred well, baked at 350º for an hour, and voilà—a five-step formula for managing stress in the workplace.

Our thesis: if we as managers hope to control stress in the workplace, we must start with ourselves. Stress in the workplace is a highly contagious condition, and managers are often the primary carriers. Ask any employee.

LAUGHTER … THE BEST MEDICINE

It's straight from the Bible:

A merry heart does good like a medicine: but a broken spirit dries the bones.
Proverbs 17:22

Slightly less positively expressed:

"Around this place, if you can't laugh, you'll cry."

What place? Fill in the blank. Pick a workplace.

A manager with a rich sense of humor and the judgment to apply it deftly, in a non-attacking manner, and at precisely the right moment can make a major dent in the stress of a high-pressure job situation for the team.

Different types of humor fit different audiences and different situations. Droll satire works well with sophisticated native English-speaking audiences. Imaginatively conceived metaphors and similes can add zest to a boring communiqué, sometimes even soften a bad-news communiqué. Ask yourself, would you rather read an e-mail from your boss that said, *"Reading the attached 700-page report will be extremely boring"* or *"Reading this 700-page report will be like slogging through a vat of cold, congealing oatmeal."*

In a presentation and for the 57th international STC conference and an accompanying paper, Voss took a whimsical yet functional look at three possible appr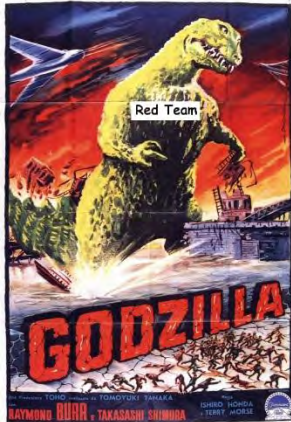oaches to humor in the workplace involving (1) outlandish metaphors, (2) finding a "common" enemy to build team camaraderie, and, as a last resort, (3) sheer incongruity, even to the point of zaniness (Voss, 2010).

Figure 1. Godzilla, aka a 5,000-page proposal.

As an example, would you rather be locked in a proposal center putting in 18-hour days working a 5,000-page series of documents or engaged in mortal combat with a "Godzilla" (Figure1)?

Metaphor presupposes understanding on the part of the audience and it is therefore critical to ensure your audience will get the point. "Political correctness" can also be an issue. Broader, more farcical humor is generally better suited to a less sophisticated workforce, and it must remain within the boundaries of propriety. Sheer zaniness can work across educational levels, but using this type of humor effectively requires an inherently "twisted" mind

(which was not a problem for the authors) and the ability to quickly size up one's audience.

Here are a few guidelines for using humor in the workplace:

- In your speech, never attack personally. If you're going to use satire, use it on an external "enemy," a concept, or yourself.
- In your writing, never sacrifice clarity (and potentially safety) for the sake of a laugh.
- Realize that humor doesn't work well across intercultural lines and it will NOT translate. Don't even try.
- If you give yourself the latitude of "letting down your hair," give your team the same latitude.
- Remember that unless you're script-writing for a stand-up comedian, humor is a means to an end—in this case, relieving stress—not an end in itself.

In an article in *The International Journal of Humor Research*, called "Cooking With Humor," the author states that humor is, "the binding ingredient of social relations at work; it facilitates relationship initiation as well as reducing tensions." The article goes on to say, "Managers and those of hierarchical status can use humor effectively to gain compliance without emphasis on the power differentials … Humor has also been linked with improvement in group problem-solving" (Lynch, 2010, pg. 8).

It seems clear that humor is a tool that we must add to our arsenal if we hope to effectively lead a team.

YES, YOU CAN STAND IT!

or

RETribution

A form of psychological counseling known as rational emotive therapy, or "RET," conceived and practiced by Dr. Albert Ellis in the late1950's, boldly challenges the premise that stress is the result of external forces impinging upon an individual and "causing" an internal reaction. Instead, RET theory posits that nearly all stress originates from within; that it is *self*-inflicted. And since stress is self-inflicted, it can also be controlled, from the inside, no matter what external "stressors" may be in the equation.

Figure 2. Dr. Albert Ellis conceived rational emotive therapy (RET) in the late 1950's.

Peeling the onion back another layer, RET assigns responsibility for <u>extended</u> emotions to the *person* experiencing those emotions, not to an outside event or person that *causes* them. Suppose, for example, you get a vicious "Dear John" (or, to be gender-friendly, "Dear Joan") letter from your significant other. An RET practitioner would "allow" you only the initial feeling of disappointment, anger, sadness. That's OK, for about 30 seconds … if you "wallow" in the feelings beyond that point, that's your "choice." And you're not allowed to say "He hurt me" or "she hurt me," rather, "I don't like what he did," or "she has given me the opportunity to <u>hurt myself</u>" … but I can choose to exercise it or not exercise it."

You're also not allowed to use the words "should" and "must" or "should not" and "must not." Not even think them! You only control your own thoughts, your own emotions, your own reactions. For the most part, you have limited to no ability to control your environment, your significant other, your boss, your co-workers.

Thus, "he shouldn't've have done that" is verboten in RET. He *gets* to do it; that's his choice. You get to upset yourself over it or not; that's your choice. He doesn't upset you; he gives you the opportunity to upset yourself.

Similarly, to return to the opening scenario, desperate thoughts such as "the overhead projector *must not* fail at a crucial time like this" and "this is horrible!" are not permitted. The overhead projector, like any inanimate object, has free will; it can "choose" to fail any time it wants to. Indeed, countless instances since the dawn of recorded history attest to the fact that inanimate objects can sense your panic and are much more likely to malfunction when you are most

vulnerable. The reality is, it has every right to fail, you have no control over it, it *has* failed, and you can choose to deal with it or not deal with it.

An RET counselor will jump all over you if you dare utter the words, "I can't stand it!" She will tell you, "If I suck all the air out of this room and create a vacuum, *that*, you can't stand! You don't have to *like* being dumped, but you sure as hell can *stand* it." She will tell you not to "terribilize" the situation. Words like "awful," "horrible," and the like must be cast aside into the scrap pile along with the "must's" and the "should's."

RET boils down to mental toughness. It takes some practice, but when you get the hang of it, it can yield remarkable results in stress management.

TAKE OWNERSHIP OF YOUR STRESS!

If you "own" it, you can also "disown" it. Returning to the RET discussion, the "jerk" down the hall is not stressing you; he is merely giving you the opportunity to stress yourself. He does not have a direct line to your adrenal glands; that signal comes from your pituitary, which, in return, responds to the "self-talk" in your frontal lobe, not to the jerk's behavior, whatever that may be. And, with determination and practice, you can learn to *control* that self-talk. That accomplished, you can then empowered to make the choice: lose stomach lining stressing over a "jerk" whose actions you cannot control, or you take ownership of the stress and extinguish or at least attenuate it. It's hard at first, but eventually, you can become almost "immune" to the jerk, to the point of laughing at him (internally, not externally!) and simply "blowing him off" psychologically.

It works. Try it.

The key is to when you feel yourself starting to respond negatively to an external stressor, to redirect your attention inward and literally will yourself not to react, or, as a minimum, to react much less intensely. Not only can this principle help you keep your personal stress at sub-coronary levels, it can also help you coach your employees on managing their own stress. Explain the basic concept simply, give a generic example or two, and then encourage the stressed employees to apply it to their own situations. To increase the likelihood an employee will give this

a try, you can acknowledge that "RET is not easy; you have to be mentally tough." We ask you, what employee is going to respond to that by concluding he/she is mentally weak?

PICK YOUR BATTLES

In the fiercely competitive, high-stress world of technical communication in the aerospace industry, it's very important to "keep your powder dry" for the truly important battles. The more stressful your work environment, the more important it is for you to conserve your "ammunition" for when you really need it. If you fire off a salvo of every time you think you hear the bandits in the bush, about to ambush the stagecoach, not only do you risk shooting innocent horseback riders who are not actually robbers, you are likely to find yourself with an empty rifle when the real bandits attack.

Dropping the metaphor, when, as a manager, you feel yourself getting hot under the collar, learn to take a deep breath, analyze the importance of the issue that has triggered your "fight or flight" response, and decide whether it is worth it to engage whatever "enemy" needs to be engaged. In terms of your next paycheck and your mortgage payment, this principle becomes particularly urgent when the "enemy" is higher up on the organization chart than you, but it is also important in governing your approach to potential conflicts with peers and subordinates.

With subordinates, you obviously have the option of "pulling rank" to resolve a conflict in your favor. With peers, you can resort to the usual chicanery of the dog-eat-dog corporate environment—go over your peer's head to his/her supervisor, get your supervisor to "take them out" from above in that manner, slash their tires in the parking lot … you know the drill. But either of these behaviors may wind up with you winning the battle but losing the war … for several reasons.

For one thing, subordinates generally resent the "because I say so" approach to conflict resolution and while you may shoot the bandits in *this* exchange, you had better watch your back next time you ride the stagecoach. Similarly, peers tend to resent being "defeated" by corporate politics, and two can play at that game. You live by the sword, you die by the sword.

And even if you are not overbearing when you exercise your legitimate managerial authority to resolve a dispute with a subordinate, or when you are forthright and non-political in winning an argument with a peer, if you get a reputation for being contentious, you will lose credibility the next time you take a firm stand on an issue. "Loose cannons" tend to kill innocent people, and sooner or later, they are removed from the corporate arsenal by another loose cannon with bigger cannonballs.

Finally, unless you genuinely *thrive* on conflict, you know that confrontation is a major stressor that can be quite debilitating, especially when it is a day-in, day-out thing.

Figure 3. Judo utilizes the opponent's strengths while experiencing conflict.

Hal Runkle, author, speaker, and founder of The ScreamFree Institute, says that our goal is not to stifle the will of those around us, but to steer it along the most productive path while keeping our cool. He uses the example martial arts, specifically Judo. He says that in Judo, before and after engaging in a match, both opponents bow to each other (Figure 2.). It's a way to show gratitude and respect; you are thanking your opponent for giving you an opportunity to improve yourself (Runkle, 2007).

That is way that we have to approach conflict. Whether you like it or not, it is an opportunity to grow and to learn for all of us.

To do battle or not to do battle? Use the serenity prayer. It really applies here.

BE KIND TO YOURSELF

As an inveterate work-a-holic for more decades than he cares to admit, the senior author acknowledges his total lack of credibility on this subject and hereby recuses himself from the discussion of point #5 and yields the floor to his mentee.

TAKE IT AWAY, SARAH!

I think that Dan, being a work-a-holic, has found a way to do what he loves, which is work his keester off. He also planned well and married a therapist to save himself from years of expensive psychotherapy. I think that's quite well-played, myself.

The question of self-care is a tricky one. Of course everyone has different needs. Some people feel rejuvenated being around others. Some people enjoy solitude. It's hard to know what will benefit you the most.

"The Swahili word for 'white man' – *mazungu* – literally means 'one who spins around.' That's how East Africans see Westerners: turning ourselves dizzy, a great whirl of motion without direction. We're flurries of going nowhere" (Buchanan, 2007).

The skill that I have found to be the simplest to use is to take at least one whole day a week dedicated to rest and rejuvenation. It's very simple (although certainly not easy!) to decide that on one day you will not do any work above what must be done to maintain your household. You can choose to keep this day from sundown to sundown or just during the daylight hours of one day. It's up to you how you define this time, but once you do, you have to stick to it.

This is, of course, a tradition that many religions have kept for thousands of years. Perhaps they have clued into an important aspect of human nature. Taking a full day to rest and reconnect with who we are allows us to take the time to discover what rejuvenates us. That time is vital to being more productive and less stressed during the times we are at work. While it may feel like that time is wasted, it pays back exponentially when we do not collapse in the middle of a busy workweek because we are overly exhausted.

Of course, it's very hard to force yourself not to work for a full day when you normally check your Blackberry every five minutes.

You don't have to do this perfectly. Doctors and psychologists use the same word to describe their careers. They do not operate a "perfect," they operate a "practice."

"These practitioners are just that, practitioners, because the learning curve never ends – they never stop actively working on themselves and their work. They are always practicing, never getting to the point where they no longer need to work on their game." (Runkel, 2007, p. 183).

We urge you to practice using humor, take ownership of your actions as well as your stress, and pick your battles, all while taking some time to rest. Give it a try and let us know how it goes!

_____

Three minutes to eight. Having completed our five-point course in stress management, you look disdainfully at the silent overhead projector, walk calmly to the back of the room, pick up the printed copies you made of the presentation for distribution at the end, march confidently back to the front of the room, and casually place the material on the table.

If you execute this step correctly, the projector will generally snap back to life, realizing its objective has been defeated. If that doesn't work, at the stroke of eight, you begin your presentation by pointing ruefully to the projector, making a reference to "Murphy's Law." You briefly apologize for the inconvenience, distribute the printed copies, and, as soon as the last set is in your audience's hands, launch into your presentation.

Don't distress; de-stress! Life is too short.

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Knowledge Transfer: New Opportunities for Technical Communicators

James Conklin

Knowledge transfer—also referred to as knowledge translation and implementation science—is emerging as an important field of research and practice in the medical, environmental, and social sciences. The key question posed by this discipline is: How can new knowledge be transferred into frontline practices in ways that will bring about improvement and change? As organizations pursue answers to this question, a variety of new roles have taken shape, including that of the knowledge broker. This paper summarizes the role and importance of knowledge brokering, and suggests ways in which knowledge transfer could represent an important opportunity for technical communicators.

KNOWLEDGE TRANSFER

Knowledge transfer—also referred to as knowledge exchange, knowledge translation, innovation diffusion and implementation science—is emerging as an important field of research and practice in the medical, environmental, and social sciences. The key question posed by this discipline is: How can new knowledge be transferred into frontline practices in ways that will bring about improvement and change? The field was originally developed by social scientists who studied the diffusion of agricultural innovations in the USA (Rogers, 2003), and more recently it has become an area of interest for educational researchers (Fixsen et al, 2005) and health services researchers (Bero et al., 1998). Researchers are curious about how knowledge moves across social boundaries in ways that promote improved decision making (for example, in the formation of effective public health policies) and result in better day-to-day work practices (for example, in more consistent use of an efficiency-enhancing computer technology).

The movement of scientific and technical knowledge from the laboratory into the workplace and community is bound to interest many technical communicators. The field of knowledge transfer offers conceptual models and practical "lessons learned" that could strengthen technical communication practice, and also could offer some exciting opportunities for extending a consulting practice or for exploring new career directions. One such opportunity can be seen in the emerging role of the knowledge broker in complex social networks.

THE EMERGENCE OF KNOWLEDGE BROKERS

Knowledge brokers were first discussed by scholars in management science (Davenport & Prusak, 1998; Hargadon, 1998; Hinloopin, 2004), and more recently have emerged as significant participants in health networks in Europe and Canada (Eccles & Foy, 2009; Lomas, 2007; Robeson et al., 2008). Knowledge brokers create linkages across social, occupational, and organizational groups (Lavis, 2006; Lomas, 2007; Williams, 2002). They usually connect knowledge users who are seeking solutions to persistent problems with scientists and practitioners who have generated new knowledge that may be useful in solving the problems.

Knowledge brokering involves skills in carrying out the following activities (Dobbins et al, 2009; Robeson et al., 2008; Ward et al., 2009):

- Gather, analyze, package, and manage knowledge resources
- Analyze the needs of user groups, and understand how knowledge users do their work
- Form relationships, create networks, and mediate between groups with diverse interests
- Educate and mentor people
- Facilitate organizational change

The research on knowledge brokering has also found that the role is complex and contextual, and demands a flexible approach along with excellent interpersonal and leadership skills.

TECHNICAL COMMUNICATION AS KNOWLEDGE BROKERING

Over the past few decades many technical communicators have found that their traditional role of designing, writing and publishing texts has been expanding to include rich forms of social interaction (Albers, 2005; Kastman Breuch, 2001; Conklin, 2007; Moore & Kreth, 2005). In some ways, this evolution is bringing technical communicators closer to the emerging role of the knowledge broker.

Writing in the mid-1990s about the 150,000 environmental communicators and educators working in the United States, Waddell (1995) points out that communicators are spending less time creating texts and more time facilitating public participation processes and deliberations about environmental policy. This trend, he suggests, is part of an attempt to correct the systematic exclusion of the public from decisions related to the impact of science and technology upon the natural environment. A decade later, Hart and Conklin (2006) conducted a study revealing that technical communicators no longer perceived their role largely as the writers of manuals and instructional texts, but rather saw themselves as facilitating communication processes through texts, conversations and relationships.

Other researchers and commentators are pointing out that many technical communicators focus more on social interaction and knowledge creation and less on the design and production of texts (Wojahn and colleagues 2001; Rainey, Turner, and Dayton 2005). Reporting the results of a survey of technical communication competencies, Rainey, Turner, and Dayton suggest that "collaborative competencies" and "people skills" are vital to technical communication success, while communication skills are now viewed merely as "a given".

Bernhardt and McCulley (2000) describe a process that allows scientists to share their thoughts with each other and with collaborators from other disciplines, while simultaneously preparing the documentation needed to bring a new pharmaceutical product to market. The technical communicators who support this process facilitate collaborative processes that allow participants to learn from each other across occupational boundaries. Wick (2000) suggests that four diverse approaches to knowledge management are emerging in the workplace, including a socio-organizational perspective that accepts the importance of documents and technology, and also places considerable emphasis on the role of human interaction and communication in constructing and sharing knowledge.

Hughes (2002) suggests that a constructivist notion of technical communication will help us to make sense of this growing diversity in our practice: "*Technical communicators negotiate meaning within development communities and between those communities and user contexts, and they capture the resulting consensus as knowledge assets*" (p. 278). This value proposition suggests that technical communicators act as agents of organizational learning by facilitating the creation of valuable individual, group, and organizational knowledge that help to make organizations more competitive, effective, and efficient. Hughes suggests that this means that technical communicators should become involved

early in development projects, and that they need to acquire facilitation skills and become adept in the research methods used by anthropologists and sociologists.

HOW TECHNICAL COMMUNICATORS MIGHT ACT ON THIS OPPORTUNITY

Clearly there is a growing convergence of knowledge brokering and technical communication. How might technical communicators prepare for this convergence, and respond to the opportunities?

To prepare themselves for playing knowledge brokering roles, technical communicators should familiarize themselves with some of the main books and journals in the field of knowledge transfer and implementation science. The reviews by Greenhalgh and colleagues (2004) and Mitton and colleagues (2007), and the classic text by Rogers (2003), represent a good start. It might also be possible to attend one of the many conferences that bring together researchers and practitioners who are working in the area of knowledge translation, or at least to browse the websites of relevant organizations. For example, the Global Implementation Conference is a new implementation science conference that takes place in the United States. The Center for Health Dissemination and Implementation Research is an American organization dedicated to narrowing the gap that divides research, policy and practice; it maintains a comprehensive website that includes a useful list of other organizations and websites related to knowledge exchange.

There are also job postings appearing on various internet sites that might help to inform a technical communicator about this type of work. For example, while I was writing this article the Ontario Knowledge Transfer and Exchange Community of Practice website had several job postings at a variety of skill and experience levels. The job titles included Knowledge Broker/Coordinator, Director of Knowledge Services, Knowledge Exchange Specialist, Knowledge Transfer Coordinator, and Knowledge Transfer Associate.

It is only fair to point out that working in a knowledge exchange network may not be right for everyone. The work tends to be emergent and ambiguous. It often involves building capacity in groups and organizations, and thus tends to unfold over long periods of time. Tangible, clear accomplishments might be hard to identify, and it can also be difficult to identify your own specific contributions to a project's success.

At the same time, however, many people find this work to be exciting and rewarding. It is a new and growing field, and in Canada at least much of the work focuses on the reform of provincial health systems and education systems. The knowledge broker is recognized to be playing an important role in generating new, useful knowledge.

Of course, for an experienced technical communicator the knowledge broker role could involve new priorities and activities, but it is important to recognize that the role is also based on a solid core of writing and communication skills. This is consistent with the findings of Hart and Conklin (2006), who discovered that emerging technical communication roles did not involve the casting aside of traditional communication roles and skills, but rather involved an expansion of these roles and skills to include a new emphasis on facilitating interaction, communication, and change. Knowledge brokering is first and foremost a special mode of communication.

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Experience an Index Usability Test

Cheryl Landes

Can an indexer's background affect how readers find information? A volunteer group of indexers from the Pacific Northwest Chapter of the American Society for Indexing (PNW/ASI) decided to find out. Since 2002, we have conducted two usability tests on two different sets of indexes created by indexers with differing professional backgrounds. The first usability test was on a collection of outdoor essays by a philosophy professor. The latest test, which will be conducted in this session, is for the second edition of Five Steps to MadCap Flare*, by Lorraine Kupka and Joy Underhill. The results from this usability test were analyzed to uncover patterns in how users can and cannot find information and to help indexers improve their work.*

PROJECT OVERVIEW

In January 2002, a thread began on INDEX-L, a discussion list for professional indexers and people interested in indexing, about mistakes in technical indexes. The discussion evolved into the idea for this index comparison project.

Carolyn Weaver, a medical indexer in Bellevue, Washington, proposed the idea and originally volunteered as one of the indexers. The goal of the original project was for a non-technical and a technical indexer to index the same software book and compare their results to determine whether their professional and personal experiences affected the way they wrote entries. Cheryl Landes, who was living in the Boston metro area at the time, volunteered as the technical indexer.

Weaver and Landes chose a book, a beginner's guide on using Microsoft Word with a tiny index (2.25 pages for a 210-page manuscript). They began indexing the book.

A few months into the project, Weaver dropped out. She didn't believe she had the "mindset" to continue indexing the book. Landes then posted a request to INDEX-L for another indexer, and Debra Spidal, who lived in La Grande, Oregon, at the time, volunteered. Spidal and Landes completed the project and presented their findings at the joint American Society of Indexers/Indexing and Abstracting Society of Canada (ASI/IASC) conference in Vancouver, British Columbia, in 2003.

During this presentation, someone in the audience suggested a "reverse project," where a technical indexer would index a non-technical book, such as a scholarly book, alongside an experienced indexer in that field. The two indexers would then compare their results. Landes and Cynthia Landeen, a scholarly indexer from Eugene, Oregon, selected *Riverwalking*, a collection of outdoor essays written by Oregon State University philosophy professor Kathleen Dean Moore, for that phase of the project. A third indexer from Seattle, Sue Dryer, also volunteered for this phase of the project. Sue had recently completed her Master's in Library and Information Science (MLIS) from the University of Washington and was interested in comparing her entries with experienced indexers. All three indexers completed and compared their indexes in the spring of 2006. Landes presented the results at the ASI/IASC conference in Toronto in June 2006.

During Landes' presentation at the Toronto ASI conference, Seth Maislin, president of the society at the time, suggested running usability tests on the indexes to determine which one readers preferred. After extensive discussion, Landeen and Landes decided to conduct the tests on *Riverwalking*, since the book for the first phase of the project was outdated. (Two new versions of Word had been released by then.) Landes consulted with Dick Evans, an index usability expert and former president of ASI, on how to design and write this usability test. Then Landes wrote the test.

Landes and Landeen conducted the first usability test for *Riverwalking* at Portland State University (PSU) in April 2007 at Ooligan Press, a student-run publishing house. The second test was conducted by Marie Naughton, a writing professor at Washington State University (WSU) in Vancouver, with her advanced writing students in April 2008. Three additional tests were conducted with a book club in Sandpoint, Idaho in September 2008; at the ASI conference in Portland, Oregon, in April 2009; and at the spring conference of the New England Chapter of ASI (NEASI) in Chelmsford, Massachusetts, in April 2010.

As the usability tests progressed on the *Riverwalking* book, Landes became interested in conducting a usability test on a book designed for technical communicators. When she learned that Lorraine Kupka and Joy Underhill were publishing a new edition of their *Five Steps to MadCap Flare* book, she asked them whether she could use the book for the test. They consented. Landes and Teri Jurgens Lefever, a PNW/ASI chapter member based in Loveland, Colorado, indexed the book. Landes wrote the usability test for these two indexes. She conducted

the first test with nine technical communicators at the STC Mid-Atlantic Conference in Willow Grove, Pennsylvania, in March 2011. She is conducting the second test during the Project Showcase at the 2011 STC Summit in Sacramento.

USABILITY TEST DESIGN

The usability tests for both books follow similar designs. For each index, users complete a series of tasks. For the first index, they answer five questions by looking up information in the index. Then they evaluate the index for usability by answering a set of questions and rating each answer on a scale of one (strongly disagree) to five (strongly agree). This process is repeated for the second index. After the tasks for the second index is complete, the users answer a set of questions comparing the two indexes and selecting which index was the most helpful in finding information. For the final task, they complete a one-page sheet of demographic information.

Goals of the Usability Test

The goals of the usability test are to:
- Determine which index is easier to use.
- Examine how readers search for information.
- Examine whether readers can find information.

RESULTS TO DATE

The five usability tests we conducted for the *Riverwalking* book confirmed that an indexer's background can affect how readers find information. The indexer's background influences the terms used in the index, which means that alternate entry points may or may not be included. Even the structure and organization of the index can be affected. For an example, see the two variations of the entry/subentry combinations for "snake" in the *Riverwalking* indexes.

Entries by scholarly indexer:

snakes
> coachwhip, 99
> garter, 7–8, 93
> gopher, 89
> homing instinct in, 7–8
> the life of, 184–185
> thinking like, 185–186
> . *See also* rattlesnakes

Entries by technical indexer:

snakes
> finding at night, 97–99, 177–182
> homing instincts of, 7–8
> thinking like, 185–186
> *See also individual snake names*

We also discovered that readers' backgrounds affect how they find information. This hit home with a response from a student participating in the WSU usability test on a challenging question: "(This is) not in my vernacular." Not only do readers' experiences affect how they find information, but so do their vocabularies (internal thesauri). Their vocabularies also affect whether they find information.

Similar patterns emerged during the first test of the *Five Steps to MadCap Flare* book. More tests need to be conducted to determine whether the same patterns will continue, new ones will emerge, or both.

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Users play cards. We keep score. Magic results!

Carol Barnum and Laura Palmer

Our use of Microsoft's Product Reaction Cards over numerous usability studies gives us a window into users' experience that is eye-opening and amazingly consistent within each study. We show and tell how we use the cards and the results we obtain, focusing on several case studies. We give you the strategy to use them in your studies.

DESIRABILITY IS HARD TO MEASURE

Interest in understanding the "desirability factor" in user experience continues to grow while the use of post-test questionnaires to measure desirability continues to be problematic.

The ISO definition of usability (9241-11) contains three elements for gauging usability: effectiveness, efficiency, and satisfaction. The first two elements can be readily measured and observed, but the elusive quality of satisfaction is hard to gauge, especially when we know that users tend to provide more positive feedback about their experience, when asked, than observers noted.

Microsoft Creates a Desirability Toolkit

Microsoft created a "desirability toolkit" to address the elusive desirability factor, and presented their methodology and results in 2002 (Benedek & Miner) and 2004 (Williams, Kelly, Anderson, Zavislak, Wixon, & de los Reyes).

The original desirability toolkit had two parts:
- A faces questionnaire, in which participants were asked to look at a photograph of a face and rate how closely the facial expression matched their experience with performing a task.
- Product reaction cards, a deck of 118 cards with 60% positive and 40% negative or neutral words, from which participants chose the words that reflected their feelings about the experience.

The faces questionnaire confused some participants and didn't produce consistent results, so it was abandoned. The product reaction cards played well, so these were refined before the final card deck was determined. A different strategy for using the cards was presented by Microsoft for the rollout of MSN 9 (2004).

Since then, a few others have reported sporadically and sometimes anecdotally about their use of the product reaction cards (Rohrer, 2009; Travis, 2008; Tullis & Stetson, 2004).

We got on board in 2006

Our interest in using the cards was driven by our desire to understand the desirability factor, which we felt that post-task and post-test questionnaires didn't reveal very well. As most of our studies are qualitative, we wanted to be able to explain users' experiences qualitatively, and we especially wanted users to demonstrate how they felt about the experience in their own words, rather than via the fixed format of a questionnaire.

The 118 cards in the product reaction card deck offered us a way to see if this would work. And it did . . . beyond our wildest expectations.

Here's how we use them in our studies:
- After completing a study (and in some cases, after certain scenarios within a study), we ask the participant to go to a table with the cards spread out in a random pattern.
- We ask each participant to look over the cards, and pick up 3 or 4 or 5 cards (making the suggestion in a way that maintains a flexible requirement on the number of cards) that match their experience of working with the product.
- We then ask the participant to bring the cards back to the desk, place them under our document camera so that we can record them, and tell us what each card means to the participant.
- We record the comments made by the participant, both on video and in our log (for analysis in the findings meeting).
- We return the cards to different places on the table, so that they are arranged differently for the next selection round, whether that selection is made by the same or a different participant.

CASE STUDIES PROVE THE POINT OF THE CARDS' EFFECTIVENESS

Since 2006, our studies have spanned a variety of industries and applications. We've tested basic web-based applications for education, telephone-based

interactive voice response (IVR) systems for the telecommunications and airline industries, complex web-based corporate applications for the hospitality industry, and even TV weather stations' websites.

In our early work with the cards, we were amazed by two outcomes:

- How an overall negative or positive assessment was indicated by participants' card choices.
- How many times the same card was picked by each participant in a study.

What follows is a select overview of several of our usability studies where we've employed the product reaction cards to add additional depth to our findings.

Education Website

In a small study of a teacher education website, a total of 18 cards were chosen by the six participants. Seventeen of those cards were positive; thus, the choices reflected an unequivocal endorsement of the site. What truly captivated us and confirmed that we should keep using the cards were the individual card selections.

Six out of six participants chose the card *useful* to describe their experience on the teacher education website. Three participants chose the card *organized*. We were intrigued, to say the least.

Interactive Voice Response

We wanted to know if the cards would work well in iterative developments—that is, would there be meaningful results if we tested Version 1.0 and retested several weeks later when the client used the results to develop Version 2.0?

We got our chance to test that and more in a study on an interactive voice response (IVR) system for a telecommunications provider. The baseline test on Version 1.0 yielded a dramatic negative assessment. Only 41% of the cards selected were positive. We tested Version 2.0 several weeks later with new participants; in that test, participants also tested another IVR, which was currently in use by the company.

Version 2.0 garnered 85% positive card choices. The card *efficient* was selected four times; *business-like, convenient, high-quality*, and *easy-to-use* were each selected twice.

By way of comparison, the other IVR (the current system) tested in this study was not anywhere near as popular with only 48% of the card selections reflecting a positive sentiment.

TV Station Weather Sites

In another study, we compared three TV station weather websites. The goal of the study was to determine which style of presentation and what features participants preferred. We asked participants to complete the same set of tasks on each site and we randomized the presentation order to prevent usage bias. From our study of stations A, B, and C, we could see there was a clear winner in the opinion of our participants.

When we looked at the basic negative and positive card choices for Station B, we saw that 89% of the cards selected were positive. The positive card choices for Station A (67%) and Station C (58%) indicated these stations' formats were not as well liked.

When we broke participants' choices down to individual card selections, Station A had the following repeated positive card choices: *useful* (4), *time-saving* (3), and *clear* (3). *Appealing, clean, connected, helpful,* and *satisfying* were selected twice each.

The least popular station—Station C—was not liked by participants because they felt it was *confusing*. Their other assessments of Station C, as compared to negative assessments for Station A and B, are shown in Figure 1.

Station A	Station B	Station C
	Confusing	Confusing
		Confusing
		Confusing
Frustrating	Frustrating	Frustrating
Ineffective		Ineffective
		Not valuable
		Not valuable
		Simplistic
		Simplistic
Time-consuming		Time-consuming
Time-consuming		Time-consuming
Undesirable		Undesirable

Figure 1: A comparison of negative language choices in product reaction cards for Stations A, B, and C shows users' card choices.

Hospitality Industry

We have also assessed the product reaction cards in a study with a significant longitudinal span and an

aggressive iterative development cycle. A major global hotel group created a web-based application to help their hotel properties define, measure, and implement various environmental initiatives.

Their first version was not received well by the study's participants. With only 42% of the card choices reflecting a positive assessment, it was clear the application was problematic. What did emerge from participants' choices with the cards were **themes**. Participants' repeated positive card choices were low, with only *comprehensive*, *professional,* and *usable* selected twice each. However, the cards they did select clustered in broad themes.

On the positive end of the scale, the themes of Quality, Appearance, Ease-of-Use, and Motivation emerged from participants' card choices.

Negative card choices told a different story on this first version of the application. There were significant repeated card choices with *time-consuming* (6) and *hard-to-use* (5) being most notable. Here, however, we also saw two strong themes emerge from the card choices: Ease-of-Use and Speed. Eighteen individual card choices were grouped into the theme of Ease-of-Use. Eight individual card choices landed clearly in Speed.

The application was, in the eyes of participants, neither easy to use nor fast. Version 1.0 was entirely scrapped, and eight months later we were working with Version 2.0 prototype.

The results this time were of the night-to-day variety. This second iteration of the application had 82% of the card choices reflect positive language. The theme, Ease-of-Use, which, in the first iteration, had only seven positive cards, now had 25. The card *useful* was selected five times; *usable* was selected four times.

With respect to negative themes and card choices, the theme of Speed contained only two cards: *time-consuming* and *slow*. Previously, it had contained eight.

Fast-forward another eight months and we're now testing the pilot of Version 2.0. Astoundingly, no negative cards were chosen—100% of the participants' card choices were positive. The theme of Speed reversed its polarity as well. Now, Speed was a positive attribute of the application with *fast* selected three times and *time-saving* selected twice.

CONCLUSION

Our work with the product reaction cards makes a strong case for their inclusion in usability studies. As a way for users to tell their story, the cards are invaluable to our work and strengthen the findings from other data collection sources.

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Innovations in Accessibility: Designing for Digital Outcasts

Kel Smith

Introduced by researchers from the University of Sussex, the term "digital outcasts" is applied to users with disabilities or illness who are left behind as technology advances. The Web now offers new forms of engagement that bring greater fidelity and complexity to the online space; the very concept of "web accessibility" itself has evolved into something deeply immersive and complex. We as designers now face dynamic challenges and opportunities when providing barrier-free digital experiences. Virtual worlds, geolocation apps, augmented reality and the 3D Web provide opportunities for people with special needs to develop their own solutions to problems of access? This paper explores the cultivation of digital innovation on behalf of people with physiological and cognitive disabilities, focusing primarily on the health and life sciences industry. Practical examples will include iPad, Nintendo Wii, haptic interfaces, virtual prosthetics, adaptive therapies, text-to-speech functionality, iPhone games and Second Life.

INTRODUCTION

"The future is already here — it's just not very evenly distributed."

> *~ William Gibson, science fiction writer*

The stuttering curve of innovation can be interpreted as a series of brief flashes, not unlike the effect one has when viewing a scene illuminated by strobe light. Opinions can be polarized; some audiences, for example, enthusiastically hailed Apple's iPad (launched in spring of 2010 and then again in 2011) as the next generation of personal computing. Others bemoaned the delivery of "infantile hardware," a diluted offering specifically designed for consumers deemed timid, disorganized and technophobic.[1]

Then there is Glenda Watson Hyatt, a widely respected accessibility advocate and blogger who frequently writes about her experiences living with athetoid cerebral palsy. Upon acquiring an iPad and downloading the ProLoQuo2Go (an app that constructs phrases from picture icons and reads them back to the user), Ms. Hyatt discovered new ways to engage with friends and colleagues using a tool that was simple, responsive and adaptable. In Ms. Hyatt's words, "I feel like technology is finally catching up with what I truly need."[2]

Opinions were similarly polarized when the virtual world community Second Life first gained mainstream attention in 2008. Businesses bought into the model with

initial enthusiasm, then quickly evacuated upon realizing little social or economic momentum to sustain interest. The platform itself cultivated an unsavory reputation. Public scrutiny cynically elevated virtual world participants as mere caricatures, picturing introverted misanthropes living vicariously through their avatars, operating more in tune with a bizarre, futuristic cartoon landscape than their real lives.

Then a funny thing happened. As Second Life gained and lost currency in the private sector, a surprisingly vital demographic began to emerge among people with disabilities. These users turned to virtual worlds to find education, commerce and fellowship despite their visual, cognitive and motor skill impairments – impressive for an interface comprised of three-dimensional graphics whose mastery required strong hand-eye coordination.

Technology continues to advance, bringing greater fidelity and complexity to the online space. Design teams who work with mobile devices, virtual worlds, geolocation apps, augmented reality and 3D websites face dynamic challenges bringing forth experiences that satisfy user requirements and business needs. Innovation is a constant battle between "what if?" and "so what?" – how do we identify the key parameters to develop a marketable product?

From a initial inspection, it would appear that gaming interfaces and touchscreen devices have little to offer people with disabilities. The experiences are highly visual, with complex user interfaces spanning multiple modalities. For users who are unaccustomed to expanded level of multitasking, the resulting cognitive load can be topically severe. However, people with a wide range of disabilities – visual impairments, motor skill disorders, degenerative illness, limited mobility, and cognitive difficulties – comprise a rich ecosystem of individuals for who possess attributes that cannot readily be changed. These needs are rarely understood, yet alone factored into the design lifecycle. As a result, inclusive design can wind up on the "back burner" of project scopes without sufficient championing during the specification process.

Recognizing this, researchers from the University of Sussex (UK) have introduced the term *digital outcasts* to describe people left behind the technology innovation curve.[3] The term is applicable to people with disabilities, those living with terminal illness/injury, or patients undergoing long-term rehabilitation. As a result, these populations must sift through the digital landscape to

develop their own solutions; cases involving people with disabilities often comprise the most forward-thinking scenarios – even if the disabled are not considered part of the target demographic. The period of time from late 2009 until early 2011 has been particularly fascinating. People are programming in Arduino, ripping apart Wii game consoles, creating haptic interfaces from raw materials, retro-fitting Kinect systems and exploring augmented reality platforms. Much of this activity resides within the disability and healthcare sectors, with a very specific (and personal) end in mind.

Thomas Armstrong once wrote about the need for the human ecosystem to cultivate beings of all competencies and abilities. In his words, we exist along "continuums of competence" where "success is based upon adapting oneself to the needs of the surrounding environment."[4] We see examples in nature all the time; environments are cluttered, organic, difficult to navigate and impossible to organize. From this seeming chaos, an organism must create something protective and sustainable in order to survive – such as how a beaver builds dam out of wood it gnaws, or how a bird constructs a nest from debris it finds. This process, this system of creating something from nothing in order to sustain life, is called *niche construction* – sustaining success in life by modifying one's surroundings according to one's unique needs. It happens in nature, it happens among human beings, and it's taking place in the digital space with exciting results.

The following case studies will explore various forms of *digital niche construction* – implementations of emerging technologies to barrier-free digital experiences, spanning a variety of therapeutic contexts. Practical examples to be discussed will include such platforms as the iPad, Nintendo Wii, haptic interfaces, virtual prosthetics, text-to-speech functionality, eye-tracking, adaptive mobile devices, iPhone games and Second Life.

CASE STUDIES

Case Study: Mobile Apps

For 10-year old Grace Domican, unable to speak due to severe autism, the touchscreen iPhone provided her a voice for the first time. Her mother, Lisa Domican, described her daughter's frustration as a "three-hour tantrum that leaves your ears ringing." Creating a picture-based iPhone app to help Grace communicate has made such a strong impact that the tool is being trialled in a Irish school for autistic children. "With the phone showing exactly what she has requested," as Ms. Domican described. "We see a huge reduction in (her) frustration."[5]

Frustration in communication is common among children with autism spectrum disorders and other disabilities. Martin Brooks' daughter is similarly challenged, having been born with cerebral palsy. After trying objects and picture cards, Mr. Brooks created an iPhone app that allows his daughter to communicate by pointing at different pictures on the screen. This is a textbook case of digital niche construction; when Brooks discovered there was nothing that suited the needs of his five-year-old daughter, he designed an app to address the challenge.[6]

Both of these apps are based on the wonderful Proloquo2Go, a pictorial interface that helps people with cognitive or speech difficulties by mapping images to an audible voice control. Proloquo2Go combines natural sounding text-to-speech voices, close to 8000 up-to-date symbols, power automatic conjugations, a large default vocabulary, full expandability and cross-device extensibility. Special educators, speech language pathologists and occupational therapists are using Proloquo2Go as a cost-effective solution in the learning space. It can be used as a companion to a table top device, or as a sole vehicle of AAC (Augmented and Alternative Communication) delivery.[7]

When reviewing consumer products such as the iPad, it is encouraging to note that Apple shipped the device with default functionality intended toward greater inclusivity. VoiceOver (screen reader) and Zoom (screen magnification tool) are features that have led the National Federation for the Blind to endorse the iPad for e-reading. Third-party apps such as ezTasker and Braille Buddies further advance the cause of barrier-free access to this new wave of personal computing.[8]

MobileASL is a video compression project at the University of Washington, with the goal of making wireless cell phone communication through sign language a reality in the U.S. With the advent of cell phone PDAs containing larger screens and photo/video capture capabilities. People who communicate using American Sign Language (ASL) have an option that sidesteps the bandwidth limitations of the U.S. Wireless telephone network. MobileASL utilizes ASL encoders that are compatible with the new H.264/AVC compression standard, nearly doubling the compression ratios of previous standards. Spring, Nokia and the National Science Foundation are already on board launching trial programs in the U.S. and Sweden.[9]

Case Study: Fitness Gaming

Among the daily challenges of physical therapy is motivation. There is a tendency among patients to

prematurely cease exercise once they believe that personal improvement has been made. Adherence can be increased through such triggers as unlocking rewards, setting benchmarks and measuring personal achievement. Personal motivation is an especially critical factor for patients undergoing homebound care; solitude is a daily reality for people whose disabilities prevent them from accessing a hospital facility. For patients with brain injuries, vision/optic nerve reactions, multiple sclerosis, cerebral palsy, stroke and muscular dystrophy, simply leaving the house requires a great deal of effort and coordination.[10]

Nurses, therapists, home care aides and infirm specialists drive nearly 5 billion miles each year to service 12 million patients spanning 428 million visits. (By comparison, UPS drives 2 billion miles annually).[11] Telephone care programs are suited to provided a cost-effective treatment alternative, although such remote monitoring is not reimbursable through current health care payment systems.[12] Ironically, it is the disabled patient who stands to benefit the most and yet is least equipped to take advantage of the available options. The result is less face-to-face time for therapists to connect with patients. Meanwhile, exercises must still be performed correctly and rehabilitation goals clearly understood by the patient.

A possible solution might be found in the growing effectiveness of video games for health use, played by patients on mobile devices or via gaming consoles. Current examples cover a wide range of case subjects, from general wellness to chronic or even catastrophic care conditions. Incentives of "play" are harnessed into a model that is inherently motivational; the patient or caregiver can monitor and track behavior in a context that is personally meaningful.

"Exergames" are video interfaces that use physical activity as input and help blind players avoid a less sedentary lifestyle. The VI Fit research project offers free downloadable games that can be played with a low-cost motion-sensing controller, such as the Wii, using tactile and audio clues to help players navigate the game interface.[13] Video games provide interesting examples of incentive-based patient care. Wii gaming consoles have been used in the Stroke Outcomes Research Unit at St. Michael's Hospital in the University of Toronto. During a 2010 study, twenty stroke patients (average age of 61 years) were split into two groups: those using the Wii and those without. After two weeks, the Wii patients demonstrated 30% improvement in motor skill efficiency over those patients undergoing conventional rehabilitation.[14]

Waterloo Labs has released an eyeball tracking mechanism that helps players control video game objects through sight. A human eye is covered by a field of electrode activity; as sight direction changes, so too does the field surrounding the eye. These signals are passed to a data controller programmed to manipulate screen objects on a Nintendo game system, of possible interest to people with ALS and other disorders that compromise physical mobility.[15]

There is newly-emerging evidence that gestural interfaces represent a new frontier in human-computer interaction. John Yan wrote a review of the Xbox Kinect, noting how his four-year-old autistic son Kyle acclimated quickly to the interface controls: "What proceeded to happen was pretty amazing. He jumped around and flailed his arms and legs in trying to punch the balls back to the blocks. We're fortunate that he expresses some emotions. His issue is communication and comprehension ... you really pay attention to any small signs of progress. We tried couple of games, but he'd just get stuck. With Kinect he just put up his hand and knew where to go."[16]

Case Study: Virtual Prosthetics and Cognitive Control

Some might be familiar with the "rubber hand illusion" – the state where a person can be convinced that a rubber hand is their own, by placing it on a table in front of them while stroking it at the same time/pace as their real hand. It's not only a mind-blowing party trick; the illusion is important in understanding how sight, touch and proprioception (the sense of body position) combine to create a proxy sense of self-conscious body ownership.

Work is currently being done to advance the rubber hand illusion with virtual technology. By investigating how the body responds to virtual limbs on a computer screen, researchers hope to understand how an avatar limb provides greater fidelity than a stationary one. According to Kristina Caudle, Brain Imaging Lab Manager from the Dartmouth College Department of Psychological and Brain Sciences, "A human-like arm that couldn't bend any finger or arm joints would be much less likely to engender the illusion."[17]

This virtual application of the rubber hand illusion has been applied to contexts funded by the U.S. Military, in an effort to assist combat veterans with amputations as they acclimate to prosthetic limbs. Computer scientists at University College London, after studying how the rubber hand illusion tricks the brain into responding to a fake hand, have applied this concept to patients during the acclimation stages of prosthetic medicine. When

nerves are rerouted and bound to an interface that can detect electromyographic signals, the user can control a mechanical arm as if it were biological. The U.S. Defense Advanced Research Projects Agency (DARPA) are using a rewired Guitar Hero gaming interface to help patients retain nerve control by triggering response from muscle contractions.[18]

Similarly, electroencephalograph (EEG) technology is being used in hospitals to detect brainwaves during relaxation and stimulation. Algorithms measure signals produced by the brain and send them to EEG sensors interfaced with computer screens. As the brain cycle through thoughts and emotions, biometric feedback translates these commands to allow participants cognitive control while navigating virtual environments.[19]

Robots are currently being used to help kids with low- and high-functioning autism communicate better. Researchers at the Center for Health, Intervention and Prevention (CHIP) at the University of Connecticut have designed a series of robot-child interactions to improve motor coordination and balance.[20] Additional research is being conducted at Northwestern University to study how children with autism make social connections. A virtual avatar "buddy" communicates through gestures via a touch-sensitive computer screen, and the gestures are imitated by the subject.[21]

As of spring 2011, there has been increased attention paid to the manifestation of the "virtual body" in the form of game avatars. Doctors are exploring a form of *cybertherapy* by placing their patients in front of a virtual mirror, as a means to identify and psychologically inhabit that part of the self that controls healing. Researchers at Stanford University have found that by subtly altering elements of the embodied figure, healing principles take place that are fundamental to therapy. That an experience in a virtual world can alter behavior in the real one is an amazing development: when the patient moves, the avatar moves, and the brain begins to show neurological activity typical of what the avatar is doing on the screen. As noted by Jeremy Bailenson, Director of the Stanford University Virtual Human Interaction Lab, "The remarkable thing is how little a virtual human has to do to produce fairly large effects on behavior."[22]

Case Study: Virtual Pain Distraction

It's an interesting premise to explore, this notion of digital representation that becomes interchangeable with ourselves. Vivian Sobchack, media theorist and film critic, once wrote that "even the most ordinary images find their value, their substance, their impetus, in the the

agency and investments of our flesh."[23] She was speaking partly about something called *decorporealization* – that point in which a media object, such as a photograph, depicts a persona that is at once representative and interchangeable with our identity of self.

There is emerging evidence in the value of fantasy as a distraction for pain. A publication by Hunter Hoffman, PhD and David Patterson, PhD reveals that immersive virtual reality (VR) distraction can reduce a patient's pain during severe wound care by 30-50%. VR analgesia, as it's called, is currently being used to treat burn victims at the University of Washington Seattle and U.W. Harborview Burn Center.[24]

Dr. Hoffman has since introduced a virtual world project called SnowWorld to treat burn victims at the University of Washington HarborView Burn Center. Patients wear headphones and gaze into a screen display showing a snowy, placid landscape while undergoing treatments. This soothing wintry environment helps to balm the pain and discomfort of redressing by intercepting the neurological response to pain, which is similar to the part of the brain that responds to heat. By immersing the patient in this secluded virtual place, third-degree burns can be treated without medication. What is interesting is how the mind is able to navigate virtual states while the body disengages from that part of the brain responsive to pain. The technology enables the body to enter a soothing state of relaxation, even while cognitive pain receptors are operating naturally.[25]

Fantasy is not a new concept in pain distraction. People with disabilities and chronic illnesses bring widely varied mental and emotional approaches to their specific conditions. Factors include the nature of the illness/injury, how it was acquired, the length of duration, and the perceived level of hardship on family and caretakers. These nuances can subtly (or not) have an impact and behavior and personal outlook. Fantasy is, after all, an example of universal design because it applies to disabled and nondisabled people alike. Everyone dreams about what they cannot do and employs these aspirations as inspirational or coping mechanisms.

As one final example, consider the case of Clark Thurston. Living with Asperger's syndrome presents Thurston with many social challenges, so he is taking part in a study at the Center for Brain Health in Dallas, TX. In this virtual world, Thurston learns how to socially interact through the use of an avatar. The progress has been measurable according to Thurston, who says, "Four or five sessions in here is worth about two or three years of real world training."[26]

"It's not just recognizing a face," says Dan Krawczyk, a researcher at the facility. "It's recognizing emotion ... So, a lot of brain areas have to talk to each other and coordinate, and some of these connections are not as strong as they should be." Even Thurston's mother reports being impressed at how beneficially the treatment has affected her son's social behavior.[27]

Case Study: Second Life Communities

The past few years have seen a small but powerfully strong subset of Second Life users in the areas of disability and rehabilitation. The Association of Rehabilitation Nurses released a paper in November 2010 detailing the "improved quality of life" by disabled person who visit virtual worlds. Among the benefits cited include the increased, fellowship, engagement and participation among those who would otherwise have little or no access to peer groups. As the article states, "SL could become part of a rehabilitation plan … participation in support grups and communities of people who understand what they are going through improves their sense of self-worth and augments their adjustment and functional ability."[28]

Other organizations have adopted the value of virtual worlds for education and training purposes. In November of 2010, the National Science Foundation awarded a $1.5 million grant to the University of George and Georgia Institute of Technology, to help raise the number of disabled students achieve their degrees in in science, engineering and math. The program uses specially designed virtual classrooms inside the Second Life environment for students with disabilities, who can then interact with their instructors without leaving their homes.[29]

A new collaborative effort at the Center of Stress and Health at Stanford University aims to fuse cancer therapy with virtual worlds, providing a learning and fellowship space for adolescents between the ages of 13 and 24. Called the BE Community, the interaction provides games, videos, treatment and nutrition diaries. Mette Hoybye, PhD, a visiting scholar at the Center on Stress and Health, explains that "patients feel empowered by support resources they find online and experience a strong sense of emotionally beneficial recognition from interactions with similar others in shared patient spaces such as discussion fora or websites. We are also planning to collect various measures of treatment adherence, for example: appointment attendance, blood tests to observe adherence to chemotherapy regimens, and possibly cortisol levels to indicate stress level."[30]

What's interesting is how officials from the University decided to build their own platform, rather than set up an island in Second Life; the BE Community represents yet another form of niche construction delivered with the digital outcast in mind. People with disabilities access computer-simulated environments using any number of assistive tools, many of them developed by open-source project teams. For people who rely on screen-reading software, an application called TextSL provides the ability to interact with Second Life using JAWS.[31] IBM's alphaWorks division introduced Virtual Worlds User Interface for the Blind, which interprets semantic data read back as text through an ARIA interface.[32] A coalition of groups called Virtual Helping Hands released "Max the Virtual Guide Dog," allowing visually impaired users to read signs and locate items of interest via text-to-speech functionality.[33]

A group of researchers at the University of Massachusetts have developed a gaze-controlled interface for motor- and speech-impaired users to access virtual reality applications. Through this software, users are able to participate virtually by simply moving their eyes, addressing the requirements of interaction through multimodal communication. The effort acknowledges social and therapeutic benefits of virtual worlds: "As our society progressively invents and integrates more advanced technologies including virtual worlds, overcoming technology access barriers for different user groups and promoting equalization across the whole society become even more critical. Research shows that virtual worlds can be especially beneficial to physically challenged users, not only to enhance their independence and mental health, but also to increase career and education opportunities for them."[34]

Disabled Second Life users with disabilities are fiercely protective, especially those who consider themselves part of the spectrum community, and many of them rely on SL as a part of their extended digital families. This sense of belonging helps to build advocacy among selected groups, using SL as a platform to advance causes of special interest. For example, the Virtual Ability Island is now an destination gateway for first-time users, and they host regular meetings and presentations among disability thought-leaders.[35]

Virtual communities offer meaningful involvement to people with disabilities, some of whom may otherwise live in isolation. For example, many Second Life groups offer special events. Helen Keller Day has taken place in SL for the past two years, bringing together folks from around the world. GimpGirl provides a valuable resource for women with disabilities as a forum for advocacy and companionship. Among the activities at GimpGirl's Second Life are social events, art happenings and

outreach sessions. Many of their initiatives operate in parallel both in-world and in real life.

Above all, people in the virtual realm interact relatively free of risk and find community among folks for whom it may not otherwise exist. The most commonly conveyed sentiment is someone who says, "I've always wanted to be a part of a group that understood what it's like to be me."[36] Virtual worlds provide benefit to people with disabilities (and their caregivers) who use these environments and communities to discuss their experiences with others who understand them. The key word here is *empathy*. While technological innovations are exciting, it's important to keep in mind the benefit that barrier-free virtual environments provide. People with disabilities have the opportunity to escape their bodies, if they so choose, or to celebrate their unique gifts among peers. It really comes down to finding a sense of finding one's place among others, no matter what the platform.

In the end, as designers of inclusive environments we are making allowances to attributes a person cannot readily change. It goes beyond 3D environments or the appearance of avatars; it's really about how a person's behavior can be enhanced or manifested through technology. Virtual worlds are just one form of engagement for digital outcasts; in fact, it could be argued that it is the digital outcasts who have provided the necessary relevance and substance otherwise lacking in such platforms as Second Life.

THE IMPORTANCE OF DESIGNING FOR DIGITAL OUTCASTS

While technological innovations are exciting and certainly important, it's necessary to keep in mind that barrier-free experiences provide benefit to the disabled and nondisabled alike. People with disabilities have the opportunity to escape their bodies, if they so choose, or to celebrate their unique gifts through tools that augment their capabilities. Technology can be much more than merely a tool; it is a partner in a person's walk of life. The most successful case studies move towards the state in which body and mind operate fluidly with supportive machinery.

The art historian Amelia Jones touches upon this notion of the body as something through which events must be *experienced* in order to bring order to disorder. Reading through the quote brings to mind the importance of bringing users early and often into the product development equation:

> "The promise (or threat?) of digital convergence brings decorporealization as both

disembodiment and realization ... it heightens the tension between subject and object; it puts into play the new relations of signification produced by the emergence of digital representation ... How else, other than through my embodied senses, which transmit meaning through the circuits that ultimately comprise my though processes, could I comprehend them?"[37]

The landscape in which digital outcasts reside is littered with false assumptions. Statistically speaking, disability is often associated with being older, less educated and living in a lower-income household. By contrast, Internet use is statistically associated with being younger, college-educated, and living in a higher-income household. It's not surprising that people living with a disability report lower rates of Internet access than other adults; however, when all demographic factors are controlled, living with a disability is negatively correlated with the likelihood to have Internet access.[38]

For example, some may retain the mistaken notion that people with disabilities don't play video games. According to a 2008 Information Solutions Group survey of 13,296 players, over a fifth of game players self-identified as as having some form of a disability:[39]

- **Physical (46% overall)** - Rheumatoid Arthritis/Osteoarthritis (14%) , Fibromyalgia (11%), Multiple Sclerosis (7%)
- **Mental (29% overall)** - Moderate/Severe Depression (41%), Bipolar Disorder (16%), Anxiety Disorder (15%)
- **Developmental/Learning (25% overall)** - ADD/ADHD (46%), Autism (15%), Dyslexia (11%)

Another assumption is that people with disabilities, many of whom live with fixed incomes, do not have economic access to such luxuries as mobile devices. A study published last year by the Pew Research Center's Internet & American Life Project listed relative rates of adoption according to income bracket. Interestingly, the lowest income group (comprising those making less than $30,000 year) showed the highest rise in mobile Internet use, from 35% in April 2009 to 46% in May 2010. By comparison, the highest income group (those making more than $75,000 a year) only rose 8%.[40] The full breakdown is below:

- **Less than $30,000** - rose 11 points from 35% to 46%
- **$30,000-$49,999** - rose 2 points from 53% to 55%
- **$50,000-$74,999** - rose 4 points from 63% to 67%

- **$30,000-$49,999** - rose 2 points from 72% to 80%

What does this mean? Although the mobile access is still directly proportional to income, the trend is starting to shift. This means that we cannot use economic inaccessibility as a means to discount the technological needs of underserved populations.

One might position the following two hypotheses for debate and/or disproof: (1) with 54% of adults living with a disability using the Internet, and 41% having access to broadband, the adoption of mobile access must be accounting for at least some portion of the remainder; and (2) both numbers would be a lot higher, if accessibility were more successfully integrated in digital product design. In other words, the onus of inaccessibility should fall more heavily on those providing the service than those who cannot use it.

One final note will hopefully underscore the importance of addressing these emerging modes of interaction on behalf of digital outcasts. A 2010 study published by the Pew Foundation details the top online activities, ranked from 1-17, split among seven age groups from youngest to oldest: Teens, Generation Y, Generation X, Younger Boomers, Older Boomers, the Silent Generation and finally the G.I. Generation.

The study is a fascinating examination of attitudinal preferences specific to target segments. For example, the online activity labeled "Get health info" appears in the first four rankings for older demographics, which comes as little surprise (since the older the audience, the more naturally and critically they rank the importance of finding health information online). Meanwhile, teens (the youngest segment) ranked "Get health info" at #14 out of a field of 17. [41]

A deeper investigation reveals the online activities of most interest to the Teen demographic: playing games, checking email, sharing content and visiting social networking sites. Younger audiences want their digital content to be immediate, engaging, ubiquitous and evaporative. This is a very important for designers to understand. As we seek to understand and accommodate digital outcasts, we must also have a vision for the future of the Web and how today's digital natives are retrieving and utilizing information. One day those Teens will be much older, and it's all but guaranteed that their interest in personal health will increase with time.

To put it simply … at some point or another in our lives, *we are all digital outcasts*. The key to cultivating inclusive ideation, from sketch to spec and from prototype to product, might be derived by keeping the following tips in mind:

- Emphasize designing for *needs* rather than *features*. An iPad app that offers fitness games for those with multiple sclerosis may be a terrific invention, but if a patient cannot control the interface then the benefit may be lost.
- Segment the target audience as specifically as possible, and ensure that affordances take into account the unique aspects of that market segment. Resist the urge to approach accessibility solely from the perspective of the "neediest" user.
- Keep in mind that for users with chronic illness or long-term disability, the treatment lifecycle often results in what patients call "the new normal." Tailor behavioral expectations with these empathy points in mind.
- Solicit feedback from key opinion leaders (KOLs) within therapeutic areas of relevance. Include KOLs in the prototyping process; test iteratively and often.
- Remember that no two people with a disability will respond in exactly the same way. A slightly larger sample size might be necessary to avoid homogenizing results.
- At the same time, keep in mind that not every use case can be addressed. There will always be outliers.
- From a business standpoint, identify and cultivate a relationship with a C-suite level "innovation/accessibility champion" within the organization. Ideally, this will be a single person; a team will suffice as well.
- Review best practices for usability testing for people with disabilities. A great resource is the book *Just Ask* by Shawn Lawton Henry.

The past 12-18 months have seen a sharp confluence in interest in such streams as games for health, haptic controls, virtual environments, avatars, robotics, augmented reality, mobile devices, geolocation and social technology. Just about anything envisioned from science fiction is either in market or well within the realm of feasibility. As the result, the question isn't so much a matter of, "When does the future get here?" For digital outcasts, they are making their own future. In fact, one could argue that the future has already arrived, and that we are currently living in a digital landscape being constructed from the efforts of the disenfranchised. It is an exciting time to be working in this field, bringing to mind a mid-1990's prediction made by the writer Nicholas Negroponte: "Being digital is not about computers any more. It is about living." [42]

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Animated visual instructions: can we do better?

Carla Galvão Spinillo

Animation is used to convey instructions in several fields. However, how effective are they for people? This paper discusses some drawbacks in the graphic presentation of instructions through animation from the information design perspective. It takes into account the functions of images and text/audio, interactivity, the time/speed presentation of the animation, and the cognitive aspects. Experimental and analytical studies are discussed to illustrate the relevance of graphic presentation of information to effectiveness of animated instructions.

1. INDRODUCTION

Animated visual instructions are widely employed to represent step-by-step procedures to users in instructional material. Ideally, they should optimize task performance by allowing the inclusion of realistic depiction of action/motion and interactivity in digital environment. However, making information clear to people may go beyond realistic depiction (1), (2), (3) particularly in instructional contexts. The use of less realistic picture style (e.g. drawings) may be better than realistic ones (e.g. photographs) in providing users with relevant information to carry the task out. Similarly, schematic elements such as arrows and lines, may function as a support to better inform users about an action to be performed rather than using only the realistic depiction of the action. Thus, the design of animated visual instructions is not simply a matter of representing a procedure realistically, but of making information understandable to people so as to enable them to perform a task.

It is worth highlighting that despite the role animation plays in representing instructions it may not always be the best alternative. Depending on the context of use, user's profile, the learning goals, among other aspects, the choice for static representations may lead to best results. In this sense, Hegarty (4) claims that considering animation a better alternative to static representation is a naïve and constraining assumption that should give place to the concern about the conditions to use animation as an effective learning tool.

The appropriateness of using static or animated instructions was investigated by Wright (5) in a study on people's preference for information formats for procedural and reference tasks. She discussed the relevance of providing people with choices on the modes of content presentation. Regarding the preference for static or animated instructions both with the use of audio, she found no significant difference between these modes of presentation: 36% participants listened when the images were animated, and 33% when they were static. Such results indicate that communication effectiveness and people's preference are important aspects when designing instructions.

Moreover, animation may pose constraints to users in visualizing dynamic images representing steps. The temporary character of such images due to the short time of exposure in the animation may make information processing difficult to users (6) (7). Besides, animated images may not be able to provide or highlight the key-moment of an action/step, that is, they may not show the main information features which characterize an action/step (8). On the other hand, animation is claimed to promote learning motivation (9), to reduce cognitive load (10), and to facilitate visualization of complex procedures (11). These are, certainly, strong arguments for the use of animation to communicate instructions, as far as the representational constraints are taken into consideration in the design of animated visual instructions.

So, nowadays, designers' responsibilities go beyond the specification of animation to visually represent instructions. They regard the appropriateness of animation to convey different contents, the users' information needs and cognitive processes. In this sense, the modes of content presentation (verbal, pictorial, schematic), information hierarchy, and visual organization of elements are aspects to be taken into account in the design of animated instructions as they may influence users' preference and comprehension (5) (12).

2. COGNITIVE ASPECTS IN THE DESIGN OF ANIMATED VISUAL INSTRUCTIONS

The visual representation of instructions is an inferential activity, which regards the level of accuracy of the

description of the actions/task representation (13). User's partial knowledge, information gaps and/or general information may lead to mistakes and task failure when following instructions (13) (14), whether in print or animation. To follow an instruction users produce mental images of the task, and build an action plan to carry the steps out. One of the difficulties in using instructions regards users' mental representations of the action plan for the task. A mental representation of a task that provides the necessary information to users to perform the steps, results in a complete action plan for the task. Otherwise, users will fill the information gaps in the action plan with their assumptions on the task, and this may lead to task failure. Animated visual instructions as dynamic depictions of actions may then aid users to build accurate action plans for the task.

Other aspect that influences the effectiveness of animated instructions is the way information is organized and represented (15) (16). These may affect users' metacognitive processes during task performance. Wright (17) claims that cognitive and metacognitive processes regard the capacity of understanding and interpreting the visual structure and the content of written instructions. The cognitive process involve subconscious actions, whereas the metacognitive one the conscious actions taken to solve a problem (18). Thus, in the metagocnitive process the person is aware of her/his understanding of the message, and may even take measures when facing difficulties in grasping the message. Accordingly, following an instruction, whether represented by static or animated steps, can be considered a problem-solving activity that demands reading text and images.

Thus, the visual organization and presentation of information in animated instructions allow users to make decisions, modeling behavior based upon the outcomes of the task (13). They function as metainstructions. In this sense, the organization of the elements (the position of menus, texts and images) on the screen layout of animated instructions may ease users' metacognitive processes. Furthermore, the representation of introductory information about the task to be carried out may facilitate users' decision-making process. In this regard, the title of an instruction, the inventorial and the contextual pictures may also be considered metainstructions, as they play an important part in user's decision-making process (19). For instance, in an animated visual instruction on assembling a chair, the title 'How to assemble the chair', the inventory picture showing the necessary components and/or tools to carry the task out, and the contextual image of the chair assembled may help users to decide if they want to/can (or not) perform the task. Thus, the misplacement of menus, texts and/or images in the screen layout as well as the omission of introductory information may jeopardize

comprehension of the animated instruction, affecting users' metacognitive processes.

In addition, providing users with the control of the format of animated instruction may also facilitate users' metacognitive processes. This makes possible for user to personalize the animated instruction in some of its features according to their information needs. So, they can decide for instance, on the picture style, the sequence of steps, the animation framing, and on the presentation of text and audio. Then, interactivity is an important resource to customize and personalize animated instructions. It may reduce users' cognitive load, promoting comprehension of the instructions, and therefore positively affecting task performance.

In Wright's (5) study on people's preference for information formats for procedural and reference tasks, earlier mentioned, she also conducted an experiment on choosing (or not) audio information together with images/graphics. She found that 96 out of 128 participants selected the audio mode more often in the procedural than in the reference tasks. This suggests that the use of audio information may be considered to support visual instructions by users. Similarly, in other experiment on combining information modes (text, audio and graphics/images), she found that 61 out of 128 participants preferred two modes of information presentation to the instruction on how to set an alarm clock. However, 28% chose to have the information presented in only one mode (verbal information), whereas 24% preferred the three modes of presentation. In face of these results, Wright claims that the lack of patterns in people's preference for information representation suggests the relevance of providing users with choices to decide on how information could be presented to them. Wright's results may also lead to the assumption that there is no general satisfactory way to represent instructions to people, and therefore personalization of information is perhaps the ultimate alternative.

Thus, designing animated instructions for people implies in empowering them to make decisions and in this regard, the modes of representation play an import part.

3. MULTIMODAL REPRESENTATION

In the design of instructions, different sensory modalities and media can be employed to promote comprehension and attention according to the message design and users' profile and information needs (20) (13). Thus, the pictorial and verbal modes (written and audio text) have

been used to represent instructional messages in combination or separately, and their role in promoting communication success has been widely discussed in the literature (21)(15)(16). The functions of text and image can be of relay and/or anchorage (22)(23). In animated visual instructions the former regards the use of written text and/or audio text to complete the meaning of the dynamic image, and the latter regards text and image used to convey the same message.

The combined use of verbal and pictorial modes in animated instructions is in accordance to the Cognitive Theory of Multimedia Learning (21)(15). This theory is based upon the Duo Coding Theory proposed by Paivio (24), in which cognition regards two systems: the verbal and the non-verbal. The former processes the linguistic information, whereas the latter the non- linguistic information, such as images. Both systems work independently and cooperatively to mediate verbal and nonverbal behaviors, and cognition interplays the two systems according to the degree to which they have developed. Accordingly, to prevent information overload in one of the systems, the combined use of pictures and words are recommended, so as to in the Cognitive Theory of Multimedia Learning.

Several studies have investigated how and in what conditions verbal and pictorial modes support learning in animated instructions (15). In a study conducted by Spinillo et al (12) on the graphic representation of warnings in animated instructions, they found drawbacks in the relation between pictorial and verbal modes. Thus, users were not properly informed on the risks they and/or the product were exposed to.

Some warnings were presented only by the verbal mode (text and/or audio text) with no relation to the animated images showing the steps which they refer to. Other warnings were in relay relationship with the animated steps. This was considered to negatively affect users' cognitive information processes, as they have to watch the animation and read carefully the text as well as listen carefully to the audio to process the complementary information about the hazards. It was also claimed that the relay relation between verbal and pictorial modes in warnings might divide users' attention, as they deal with different contents presented in different sensory modalities. This was considered a misemployment of multi sensory modalities and media to communicate warnings in animated instructions.

The study results also showed that emphasis and conventions for prohibitions (cross or diagonal bar) were rarely or even not employed to make the warnings visually noticeable in the animated instructions. Attention is a key element in warnings, as they should firstly be noticeable and salient in a surrounding context, and then be legible and brief to allow prompt visualization (3). Thus, most animated instructions analyzed in the study seem to fail in this respect. As a possible consequence, the prompt visualization of warnings may not occur, preventing users to make decisions to avoid the hazard/risk. Moreover, the misinformation or lack of information about possible hazards in task performance may lead manufactures to be sued and to pay high fines if users are injured and/or the product is damaged due to their neglecting attitude toward consumers.

This study ratifies the important part graphic presentation of information plays in communicating instructional messages. It does not only regard the use of verbal and pictorial modes, but also how graphic resources are employed to aid them to represent content in animated instructions.

4. SOME ASPECTS OF THE GRAPHIC PRESENTATON OF ANIMATED INSTRUCTIONS

Among the graphic aspects of the representation of instructions through animation, the visual relation between text and images, and the ways menus are displayed in the screen deserve special attention. Studies have suggested that they affect users/learners visual perception of information (25)(12) and, therefore, the misplacement of menus, text and images may jeopardize comprehension in animated instructions.

When texts are used, they can be presented integrated to the animated image as a caption and/or a label. In general, the former describes the step/content represented by the image, and the latter is employed to name parts of the image. Text may also be displayed apart from the images. In such cases, letters or numbers are added to the text and image to link them. The omission of visual cues linking the animated image to its corresponding text may endanger success in communicating the instructional message. Users/learners may not be able to establish a relation between the image and its separated text, preventing them to fully understand the image (without the support of the text).

Text may also vary in their typographic aspects in animated instructions, such as alignment (left, centred, right, justified), gender (bold, italic, regular), case (upper, lower), typeface, type size and space (line space, space between elements). These can be employed to confer hierarchy and/or emphasis, particularly in headings and warnings. The misuse of typographic resources may not only lead to legibility problems, but

also negatively affect users' reading strategies (26)(17). For instance, in an animated instruction presenting a warning text, the signal word (e.g. caution, attention) should be highlighted (e.g., bold, upper case) to call users' attention to the hazard involved in the performance of the step.

Regarding menus in animated instructions, in general they are responsible for the interaction between users and the steps depicted in the animation. They can be displayed horizontally, vertically or in a hybrid form, integrated to or separated from the animated image. The can also be visible on the screen, or hidden. The hidden menus appear only when the cursor is positioned over them on the screen. The menu's functions can be represented by pictorial, verbal and schematic elements, such as pictograms, letters and arrows. They allow users to decide on the visualization of the steps (e.g. stop, forward, zoom) and on the use of audio/text; as well as to access non-procedural information (inventorial, contextual).

A study on the graphic presentation of animated instructions for the car industry (25) found that generally more than one menu was used on the interface and they were placed apart from the main image. However, when placed near the animated image, the menus were hidden. Moreover, the visible menus displayed the basic interactive functions (e.g., play, stop), whereas the hidden menus displayed specialized functions. These were only necessary when users want control of particular or detailed aspects of the animation (e.g., sectional view). Thus, there seems to be a relation between the menus' visualization and their interactive functions. The use of different kinds of menu visualization was considered beneficial to the design of animated instructions for car industry, as it may facilitate users' information processing, preventing cognitive overload. Figure 1 shows the interface of an animated instruction for the car industry presenting visible and hidden menus.
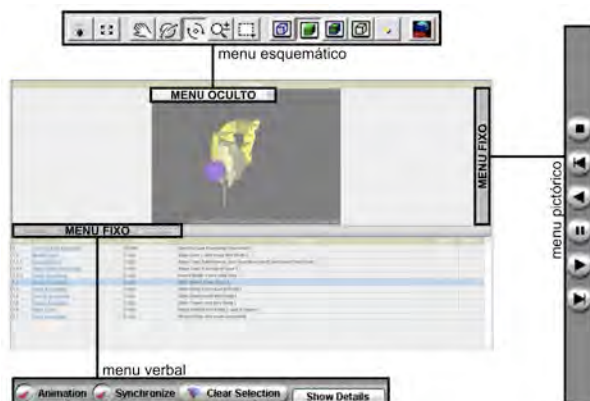
Figure 1: Hidden (top) and visible (bottom and right) menus. Source: Buba (25) page 54.

Other study on the graphic presentation of animated instructions found several drawbacks in the visualization of assembling procedures (12). They regard not only typographic aspects and menus, but also the depiction of actions. In the analysis of a sample of 23 animated instructions, the ellipses of the doer (the person represented in the animation) and events (time lapse) were considered the main problems. Some animated instructions omitted certain of steps, making the instruction shorter, as for instance, showing the first and the last steps and skipping the intermediary ones. Other animated instructions omitted the doer, showing for instance, the assembling tools moving by themselves. These representation strategies lead users to make inferences regarding the meaning implicit in the given representation of the action/steps and in time lapses, that is, in the gaps of the sequence of steps in the animated images. For experienced users, ellipsis of the doer and time lapses may not pose constraints in understanding, but for inexperienced ones these may cause difficulties (16)(27). Thus, the lack of information was considered to impair comprehension of visual instructions, which is related to users' capability to infer meaning from the depiction provided (13). This would also prevent users to build an accurate action plan for the procedural task, and therefore lead to action errors and even to failure in task performance.

The results abovementioned allied to the aspects discussed so far seem to point to the need of investigation on the effects of the graphic presentation of animated instruction on users comprehension and preference.

6. VALIDATING ANIMATED INSTRUCTIONS WITH PEOPLE

The relevance of time presentation in visual instructions to content learning has been acknowledge in the literature (27)(28)(29). Regarding dynamic representations, a taxonomy was proposed by Ainsworth and Van Labeke (28) in which time can be categorized as time-persistent, time-implicit and time-singular. The first regards the use of spatial dimension showing a range of values to indicate time notion, whereas the second only regards the indication of a range of values (but when they occur). The third category, time-singular, embraces the representations that show one value of a variable at a time. This taxonomy is considered useful to differ animation from other kinds of dynamic representations,

aiding to understand the role time plays in animated instructions.

A previous study (30) also brings an interesting classification for time notion, however regarding narrative texts. Time was considered to have two dimensions: the content time or actual time, and the discourse time. The former regards the natural time length of the event described; whereas the latter the ways the content of the event is narrated. The time dimensions may both occur in a narrative whether visual or verbal, and it is up to the viewer/reader to conciliate and comprehend the relations between these two dimensions of time. In this sense, the content time and discourse time in animated instruction may regard the speed the animation is presented to users/viewers. In other words, it refers to presenting the animation in the actual speed of the task or in a manipulated speed (faster/slower). Concerning this aspect, an exploratory study investigated comprehension of and preference for animated instructions on assembling a 3D puzzle, varying in time of presentation to users: spontaneous (actual time/speed for the task), slow and fast speeds (31). It was conducted with 25 adults in Brazil and task performance was observed. Figure 2 shows four screen shots of the animation tested.
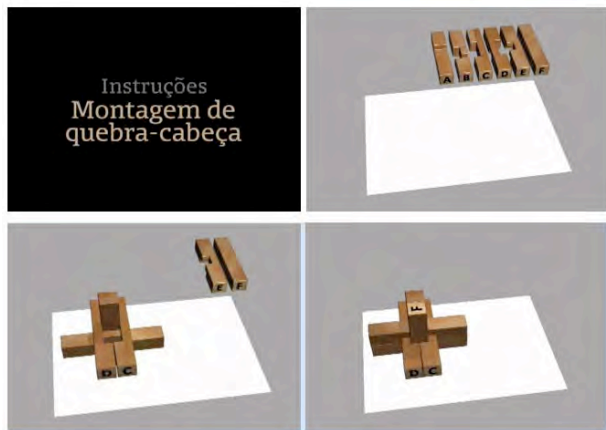
Figure 1: Screen shots of the animated instruction tested.

The results indicated that the variation in time presentation/speed of the animation seems to have not affected comprehension nor task performance, as most participants understood the instructions and performed the task satisfactorily. However, speed variation did affect participants' preference for the animation presentation. The animation in spontaneous speed produced better results in preference, whereas the one in slow speed had the worst results. Some participants showed irritation and anxiety when watching the animation in slow speed. Others considered that the animation in fast speed, although interesting to watch,

was not helpful when assembling the 3D puzzle. These results suggest that exaggeration in the time of presentation/speed of animation for more (faster) or for less (slower) produce unpleasant reactions towards the representation. Therefore, this negatively influences users' opinion on the animated instructions.

The study also found that participants expected the animated instructions to present interactive functions, allowing them to control, for instance, the animation speed, and to choose ways to visualize of the steps (backward and forward functions). This is in accordance with studies earlier mentioned here, ratifying the relevance of interactivity to animated instructions.

5. FINAL CONSIDERATIONS: CAN WE DO BETTER?

Based upon the aspects discussed here, it seems pertinent to state that animated visual instructions demand attention to their graphic presentation from a research based perspective. It also seems pertinent to claim that the effectiveness of animated instructions depends not only on the use of pictorial and verbal modes of representation, but also on (a) how these modes are employed, (b) the time of animation presentation and (c) the interactivity of the animation. These are aspects to be taken into consideration in the design of animated instructions, together with aspects of comprehension and preference for format presentations.

As an attempt to answer the question: *Can we do better?* some recommendations are proposed here. They are grounded in the literature on animated instructions and on the outcomes of the studies earlier mentioned. They are intended to identify where improvements would be welcomed in the design of animated visual instructions, as follows.

1. Multi sensory modalities and media presentation should be used in order to promote comprehension (anchorage relation) and attention to information in animated instructions, and;
2. Slow and fast speed presentations should be avoided as they may produce unwanted results (anxiety or information loss);
3. Time lapse should be used carefully, as it may lead to omission of relevant events to task performance;
4. Resources of interactivity should be used to allow users to control the animation, as this promote understanding;
5. Emphatic devices should be employed to promote information visualization;
6. When possible the doer should be depicted in the animated steps to promote comprehension;

7. When pertinent, inventorial and contextual images should be used to ease information processing and the action plan for the task
8. Users' emotion/affective aspect should be taken into account when designing animated instructions as it affect users' reaction toward the instruction depicted;
9. When warnings are necessary, emphatic devices should be used to call attention to the hazard message in the animated instruction; and
10. The verbal and pictorial modes should be in anchorage relation in warnings.

Despite the possible contributions of those recommendations to the design of animated instructions, investigations on the effectiveness of the graphic representation of instructions are still needed. In this sense, it is important to highlight that not only content comprehension should be verified, but also peoples' preference and task performance. This implies in conceiving communication effectiveness in animated instructions as a matter of usability, acceptability and satisfaction. So, quantitative as well as qualitative approaches to research on this topic are necessary from a person-centered design perspective, in which one person is more than one data to the design of animated instructions.

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# Google Analytics: Measuring Content Use and Engagement

Patricia Boswell

You can use Google Analytics (www.google.com/analytics) to measure user engagement with your online docs. This paper briefly introduces Google Analytics and discusses the 'usage life cycle' for Analytics—from reports, to metrics, to customizations, to insights. With this process, you can get the most out of Google Analytics as an online content creator.

INTRODUCTION

Google Analytics 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 tracking code sends a wide variety of information about that visit to the Analytics servers, where it is later processed and appears in over 50 pre-configured reports. The reports describe where your visitors come from, how they reach your site, which pages they visit most and for how long, and much more.

Because Analytics is such a rich tool, the first-time experience with it can be overwhelming. In addition, it can be hard to know which reports, metrics, and customizations are most useful to you as a content creator. By following a simple 4-step approach to Analytics, you can make initial sense of the reports and later gain deeper insight with each repetition of the cycle.

The Analytics Usage Life Cycle
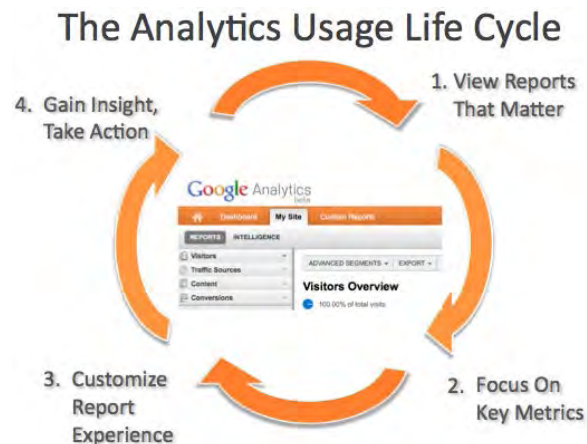
USE REPORTS THAT MATTER

Once you have set up Analytics on your content site and have started to collect data, three major report areas can provide you with immediate insight into how your visitors are using your content.

Visitor Demographics & Behavior

These reports provide the "immediate snapshop" of your visitors. You can learn geographic location down to the city level and learn which language settings users set for their browsers. In this way, even if your documentation is not localized, you can determine the most popular non-local languages being used by visitors, and use that data to plan and budget for localization. You can also combine these two report features to learn, for example, that a significant number of Russian speakers from New York City are visiting your site.

The visitor behavior reports can reveal the average duration of visits to your site, as well as the split between new visitors and returning visitors. More interestingly, you get a sense of the "time window" for truly engaged visitors to your content and learn for instance that visits lasting between 1 and 30 minutes count for the majority of pageviews to your site. This can help you craft your content accordingly for the most popular reading time, or to run experiments with how you break up your documentation.

Technology Reports

These reports show technology preferences for your users—which browsers are the most popular, and whether the majority support Flash or Java. From here, you can decide whether customizing content for a particular browser feature is worth the effort, or whether you should push for the latest new Flash-enabled widget for your online help pages.

Content Reports

The content reports offer a gold mine of data for your online content. You can use a variety of approaches to viewing your content—by path, page title, or directory. You can view which pages are the top landing pages (pages typically viewed first by visitors) or top exit pages (pages typically viewed last before visitors leave the site). If your site has a meaningful directory structure, the content drill-down reports offer a great way to get total metrics by documentation section (e.g whether

visitors spend more time in the "/overview" section or the "/reference" section).

Content reports show which pages are the most popular, the average time spent on the page, and other key metrics such as bounce rate and exit rate for a given page or section.

FOCUS ON KEY METRICS

With all of this data coming at you paired with a variety of display widgets, it's best to first focus on 3 key "content" metrics—bounces, time on page, and pageviews—when trying to understand your documentation performance. The "BTPs" work together as a metric trio to help you see whether your pages are actually functioning the way you expect them to.

The BTP Trio

By itself, each metric reveals one data point for a page.
- *Bounces* describe how many times that page was the only page viewed in a single visit.
- *Time on page* shows the average time spent on that page for visits that were not bounces.
- *Pageviews* show the total views (including duplicates per session) to that page for the selected date range.

Let's explore why it's better not to focus on a single page metric in isolation, but rather use the BTPs as a unit that operates differently depending on the kind of doc you are investigating.

The key task document. You might be alarmed to learn that one of your key task documents has a very high bounce rate; however, it can very well be the case that it has a high bounce rate simply *because* it is such a cornerstone document. Remember that for ecommerce-based sites, a high bounce rate is generally an indication that users did not stay long enough to purchase a product. For content-based sites, the user model is slightly different, so interpreting bounce rate depends on the purpose of the document. For example, visitors might come directly to your key task document through a bookmark, leave that page open on their browsers for longer than 30 minutes while they perform a variety of actions related to the instructions, and exit the site after completing the task. That is a bounce! In this instance, the document served its purpose.

To understand the key task document better, look at bounce rate along with pageviews and time on page. Does the document have a high number of pageviews relative to other documents? If it's a considerably

important document for your customers to read, it should. Along with a high bounce rate, you are seeing that the page is also viewed by a high percentage of your visitors.

Finally, take a look at the time on page metric. If the key task document has a high bounce rate, high pageview count, *and* high time on page, then it is definitely functioning in its cornerstone role. On our developer site (code.google.com/apis/analytics), our 4th most popular document (Event Tracking) has an almost 58% bounce rate paired with a 4:14 avg time on page. Users are clearly engaged with this document. The bounce rate is not alarming, because Event Tracking is a customization task not related to other topics covered by other documents in the site.

The "linker" document. There are some pages on your site which should reveal a low BTP signal. If, for example, your index document had a high bounce rate, you could assume that most visitors did not find the page (or your site) very useful, since they only visited one page whose sole purpose was to generate a visit to another one. Not good. Similarly, a high time on page for such a document might indicate that users are not easily finding terms that they are looking for.

Ideally, you would expect a linker document to have a low bounce rate, a generally healthy pageview count, and hopefully a very low time on page. Together you can get a signal that the index page is desirable and useful to your readers. On our developer site, our tracking home page serves as a table of contents to other docs in that section. It is the 3rd-most popular doc, has a 34% bounce rate and a measly 46 *seconds* avg time on page. Good job!

The specialized document. Most documentation sets include documents that are not hugely critical, but targeted to serve a specialize need, such as implementing one feature of the product that requires special interest. For Analytics, that document is the Ecommerce Tracking Guide. Most users don't need this document, but for those who do, it serves a fundamental and involved instruction.

For this kind of content, a high bounce rate is normal: visitors are coming to this page to learn/read about a specialized task that requires focus and time. The pageview count for the document should roughly reflect the importance of the specialized feature being described. For Analytics, ecommerce tracking is important enough that our guide on this topic is #10 on the list. More importantly, however, we know the ecommerce tracking doc is doing its job because the average time on page is 3:53. Should the average time on page for this document be lower, we might revise the document after reaching

out to key users on our forum to determine if the document needs more information or revising.

Other Metric Uses

Once you develop some facility with the BTP metric trio, you can use that as a springboard into deeper investigation. For example, *unique pageviews* is a great overall metric to use when getting absolute ranking for your documents or for learning the difference between frequency of usage compared to overall popularity. You might notice that your index page has a relatively high spread between unique and non-unique pageviews, which indicates that users return to that page more frequently in a session than they do for other pages. In general, a high spread for technical docs serves to indicates the "reference factor" for a document.

You can also use advanced filters on BTPs to ask more targeted questions about your docs. Exclude all pages whose Avg Time on Page < 300 seconds (5 minutes) on your Pages report to get a ranking of those pages that readers use the longest.

Entrances is a metric that you can use to see page ranking in your docs by which one is the first in a visit, and this can reveal other behavior. For example, our ecommerce doc is the 10th by popularity, but the 6th by entrance, which indicates that many users have likely bookmarked this page or access the site directly via this page. This can be useful if we want to leverage this page to direct readers to other content related to ecommerce tracking.

CUSTOMIZE YOUR REPORT EXPERIENCE

Once you have settled into the report usage and taken a close look at the base content metrics, you are ready to adjust and customize the experience to test your assumptions. It's easier than you think!

Simple Tricks

Annotations. Use annotations to track fluctuations in visitors against calendar events. For example, did your marketing team make a product announcement that includes a link to the documentation? Or what about a blog post? By annotating product related events, you can determine the relationship to visitor traffic and have historical reminders in your tracking efforts.

Keywords. Generally, the Keywords report reveals whether certain AdWords or organic search terms drove visits to your site. With a content site where you might

not use AdWords, you can proactively search the keywords report to find out popularity of certain terms among search engine traffic. For example, our reference document contains a list of methods that all begin with an underscore character. Using "_" as a search term in the keyword report, we can quickly get a ranking of the most popular methods queried by our users. This helps us determine where to focus our documentation efforts.

Site Search. If your online content also offers Site Search capabilities, you can use Analytics to get a report of the types of queries users apply once they are on your site. It also gives you a sense of how popular your site search is and how effective. For example, if certain key terms are related to high exit rates, you can learn what information might be missing from your site, either as a document or an improvement to your index. On our Help Center, the term "beta" is highly related to a site exit, so we are aware that we need to provide information about our beta program on the Help Center.

More Customizations

Advanced Segments. Use this feature in the reports to provide your own visitor segments without having to customize the tracking code. We wanted to understand whether visitors to the tracking docs also visited the data export API docs. We created an advanced segment on landing pages of a certain type—and learned that there is not a lot of cross-traffic between the two primary sections of our docs. It's an opportunity for us to drive more adoption of our export API. Read our Advanced Segment articles to learn more.

Filters to fix ugly URLs. If you have a content management system that adds many URL parameters (http://www.google.com/support/analyticshelp/bin/answer.py?hl=en&answer=1008080&topic=1006226) page metrics can be difficult to identify and calculate. To fix this, use a profile filter to strip the query parameters off the end of your URLs. As a result you will have values reported on total views for a single file. You can also use URL filters to rewrite URLs that contain comment content. For example, our Google Code documentation has the same documentation localized to 5 languages. We use profile filters to get aggregate visitor data for documents by type rather than a by-language breakdown.

Link Tracking. If you have some facility with JavaScript, you can use Event Tracking to track clicks on links to your navigation elements, such as a table of contents section in your documents. We used this feature to determine the most popular configuration in cross domain tracking, and adjusted the document accordingly.

GAIN INSIGHT; TAKE ACTION

Perhaps you have made your first pass through the usage cycle: you've looked at the reports, analyzed the BTP performance of some documents, and added a few annotations to your document usage timeline. Now what?

Insight: Your "specialized task" document shows decent pageviews and bounce rate, but the time on page seems low. You wonder if people are not finding the document useful. ***Action***: Reach out to your users and get some opinions on improving the document (content/structure). Revise the document accordingly and measure again to see if bounce rate decreases. *Example*: Our ecommerce document time on page indicates low engagement.

Insight: Your "key task" document has great time and pageview metrics, but the bounce rate is really high. Is this doc a content silo? Do you have too much content into a single doc? ***Action***: Split your content into two separate docs/files. If the split documents contain information that users hunger for, bounce rate should decrease and visits between the two pages should be reflected in the content path report. *Example*: Our asynchronous tracking documentation bounce rate is very low on both pages, each of which clearly refer to the other.

Insight: The doc you were thinking of retiring does indeed have low pageviews, but it has a surprisingly high time on page. ***Action***: Explain this metric to your boss, address ways to feature the document more prominently, annotate the change, and measure again. You might actually post a link to that page on your company's blog, after which you can check your referral reports to see if traffic to the page improves as a result.

CONCLUSION

By following this simple usage cycle with Google Analytics, your use of the reports will carry you into customizations, and from there into insights that you can act on. Once you take action on an insight that you learn from Analytics, the very next step is to dive back into the reports again! This time, you'll take your analysis to a whole new level.

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Managing Book Development Using a Wiki

Richard L. Hamilton

Wikis can help improve the productivity of writers, editors, reviewers, and publishers by reducing communication friction – the process and tool sharp edges that slow us down. XML Press used a wiki for Alan J. Porter's new book, WIKI: Grow Your Own for Fun and Profit *(Porter, 2010), and is now using the same, wiki-based process for two new books. This paper and talk describe this process and its benefits.*

When XML Press began working with Alan Porter on his new book, *WIKI: Grow Your Own for Fun and Profit* (Porter, 2010), he had already started work in a wiki. We quickly realized that developing the book in a wiki would be a great demonstration of the value of wikis.

We found that not only was it possible to work with a wiki, but also that a wiki provided benefits well beyond what we expected. In addition to making it easier for Alan to write his book, the editing, review, and indexing were significantly more efficient.

THE CHALLENGE

Most management problems and inefficiencies come from communication problems, and most communication problems come from "communication friction." Whenever we try to communicate, there is always some degree of communication friction – those little, and sometimes not so little, things that slow down communication, distract us from the job at hand, or otherwise stand in the way of free and easy communication. The more you reduce friction, the more productive you will be.

To carry the friction analogy a bit further, you can combat friction in two ways: you can apply a lubricant or you can alter your design to reduce the places where friction can occur. Most efforts apply a bit of oil and hope for the best. Using a wiki changes your design.

In a technical communication project, the main sources of friction are in the interactions between writers and each of subject matter experts (SMEs), technical reviewers, editors, production staff, and customers. Wikis can reduce friction in all of these places, but this discussion focuses on the interactions with reviewers, editors, and production staff and the impact of those interactions on book and eBook production. The other interactions are equally important, but they are a topic for another day.

In a traditional book production process, the writer sends drafts to an editor at defined intervals, the editor makes his or her notes, and then sends them back. The editor doesn't see anything until well after it has been written, and the author doesn't get feedback until he or she has written a significant portion of the book. This leads to an asynchronous process that guarantees rework.

The review process may be synchronous – all of the reviewers receive the manuscript at the same time and do their work simultaneously – but each reviewer typically works independently. The result is that problems get reported multiple times, wasting the reviewers' efforts. You can apply a little oil by asking each reviewer to focus on a different aspect of the manuscript, but that's just a patch.

If, instead, the author's work is constantly viewable in its current state, the editor can comment at any time and the author can see the comments immediately. You get a similar benefit if all reviewers work on the same copy of the manuscript at the same time. As soon as any reviewer makes a comment, all the other reviewers can see that comment, avoiding duplication.

A wiki can handle both of these processes.

THE PROCESS

We chose PBWiki and used the free, hosted version available at: PBWorks.com [http://pbworks.com]. PBWiki is a popular, flexible wiki that has the decided advantage that you can export wiki pages in reasonably clean html.

All of the writing and reviewing took place directly in the wiki, as did most of the editing. We were able to generate a pdf at any point in the process by exporting the content and running a series of fully automated scripts that will be described below. Everything except generating pdfs was done in the wiki until about one month before publication. At that point, we exported the content to DocBook XML and completed final production, including book and eBook production, from the DocBook source using the open source DocBook XSL stylesheets, customized for the XML Press look-and-feel.

WRITING WITH A WIKI

Standard wiki markup captures the majority of structural markup that authors need, including sections, paragraphs,

tables, and figures. In PBWiki, you can also directly edit using many, though not all, html elements.

Structured inline markup is tougher; you can easily get presentational markup like bold, italics, and font colors, but you don't get structured markup for things like programming constructs (variable names, GUI labels, etc.). This limits your ability to handle programming manuals and other documents that need to distinguish inline elements.

Our objective was to make the writing experience as close as possible to "just writing in a wiki." We wanted authors to worry about writing, and leave the rest to us. Simply using a wiki satisfies most of that requirement, since wikis are easy to work with. And, unlike some structured environments, a wiki will give you enough of a visual representation of your content that you can get a sense of what the output will look like, even though the final result will of course be different.

However, we needed to capture some information that is not directly available in the wiki markup. We used a couple of strategies to do this:

- **Conventions:** We used some simple conventions to help simplify conversion. For example, each wiki page is a chapter, and the first line is expected to be an html `<h1>` element that contains the title of the chapter. Subsequent headings start at `<h2>` and nest normally.

- **Special markup:** We created markup to capture structured and inline markup that the wiki does not capture. The markup uses curly brackets ("{}") with a keyword. For example, `{in markup; DocBook}` will insert an index entry with a primary term of "markup" and a secondary term of "DocBook" at the place where it appears. This markup is used for index entries, footnotes, endnotes, sidebars, and epigraphs, and can be extended as needed.

  In the wiki, this markup is simply text, and can be edited as text. During production, text marked up using the curly bracket markup is converted into the corresponding DocBook markup.

For Alan's book, the combination of conventions and special markup was adequate for our purposes. For other books, for example a book on programming, we would need to extend the special markup and possibly use additional strategies. Of course, the ideal would be a wiki that used DocBook or DITA as a native format. There are projects (Drupal, Ditastorm, and others) that are headed in that direction, so it is probably just a matter of time before we can use XML directly in the wiki.

REVIEWING WITH A WIKI

In many ways, reviewing is both the easiest and one of the most effective ways to use a wiki. For Alan's book, we simply gave reviewers access to the wiki and had them edit directly on the page. They could choose to make direct edits, for example to fix a typo, or add comments for Alan to read and respond to. Because the wiki keeps a history of changes, there's no danger of losing information, and it is easy to go back to a previous version if the author decides not to take a particular comment.

Because all comments are kept in the same place, and that place is the content itself, it is hard to lose or ignore comments. It's also easy for any of the participants to see when a particular comment has been addressed. We had cases with Alan's book where reviewers, editors, and Alan engaged in a "conversation" about particular comments in the wiki and were able to resolve questions directly.

Another, somewhat hidden, advantage of using a wiki is that it's easy for everyone to see who is commenting and who isn't, which provides a subtle incentive for reviewers to participate. It is also possible for the author and editor to provide direct, quick feedback to reviewers, letting them know that someone really is paying attention to their comments.

BOOK PRODUCTION WITH A WIKI

The book production back-end is the most complex part of the process, but it is fully automated, so the complexity was mostly in the setup, and not in the day-to-day processing of content. XML Press already has a robust DocBook XML production process that lets us create pdf, epub, and mobi (kindle) content from DocBook source. So, our objective was to convert the wiki content to DocBook XML, then use our existing processes for production.

The process we used is a multi-step conversion that handles the conversion to DocBook XML, the conventions, and the special markup. Here are the steps:

1. **Export to HTML:** PBWiki exports directly to HTML and will export your entire workspace in one simple operation.

2. **Convert to XHTML:** This step uses the open source tidy [http://tidy.sourceforge.net] program to create clean XHTML. From this step onward, everything is in XML.

3. **Pre-process:** This step uses an XSL stylesheet to handles the simple conventions, like finding the chapter

title, adjusting heading levels, and converting a couple of html inlines to simplify the next steps.

4. **Convert to DocBook:** This step uses the open source herold [http://www.dbdoclet.org/] program to convert XHTML to DocBook. This step does most of the heavy lifting required to get to DocBook. In particular, it handles the problem of creating nested sections from the HTML unnested `<h1>`, `<h2>`, and `<h3>` tags.

5. **Handle special markup:** This step uses a perl script to convert the curly bracket markup to DocBook markup.

6. **Post-process:** This step uses an XSL stylesheet to a few miscellaneous things, including: turning each page into a chapter, handling internal links, and removing any remaining things that herold couldn't clean up.

Once this is done, each chapter is checked with a parser to be sure it's legal DocBook. We then use a "book" file that uses the XInclude standard to pull together the chapters into one file for output processing.

The output processing uses the open source DocBook stylesheets, with customizations that provide the XML Press look-and-feel. We are able to produce PDF, ePub, and mobi (Kindle) output formats for production, and we can also create html, which we use to extract blog posts, articles, and anything else we need for web-based output.

OTHER APPLICATIONS

In addition to the book production process, XML Press has begun to incorporate wikis into other parts of its work. We maintain an author's wiki, which contains instructions for writers on common questions, like using our source control system, marking up XML, and using our style guidelines. We have also started a reader's wiki, which would provide a place for readers to get up-to-date information on our books, errata, downloads, and so forth.

SUMMARY

Using a wiki for Alan Porter's book gave us several advantages, the most important of which is that we reduced the amount of communication friction in the book development process. We were able to significantly reduce the amount of time needed to write, edit, review, and produce Alan's book.

XML Press is currently developing two more books using the same process, and we are also beginning to use wikis in other ways. We expect that wikis will continue to be an important part of our processes in the future.

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Examining Error in the Technical Communication Editing Test

Ryan K. Boettger

Usage error is a popular topic for technical communicators. However, its anecdotal discussions remain the best source of information on the errors that technical communicators might value over others.

In this paper, I report the types and frequencies of errors found in 41 editing tests administered to prospective technical writers and editors.

Results indicate that misspellings and faulty/missing capitalization were the most frequent and dispersed errors. Eight of the most frequent errors related to style; however, grammar and punctuation errors remain the most dispersed. A larger dataset will better determine how technical communicators prioritize specific errors.

BACKGROUND

Usage error remains a popular topic for technical communicators. A recent discussion thread on STCTESIG-L solicited input for a newsletter article entitled, "The Top Ten Errors That Technical Communicators Make." The thread elicited a myriad of responses, including the correct use and punctuation of restrictive and nonrestrictive clauses to the ungrammatical use of "for example." Unfortunately, these anecdotal discussions remain the best source of information on error for technical communication practitioners and academics.

The results from relevant studies have only reported how distracting specific errors are to practitioners instead of examining the actual errors found in workplace writing (e.g., Beason, 2001; Gilsdorf & Leonard, 2001; Hairston, 1987; Leonard & Gilsdorf, 1990). Two empirical studies identified the prominent errors in college writing (Connors & Lunsford, 1988; Lunsford & Lunsford, 2008), but these results do not necessarily reflect how practitioners, in general, or technical communicators, in particular, prioritize errors.

In this paper, I begin to address this gap by discussing the types and frequencies of errors found in 41 editing tests administered to prospective technical writers and editors. Editing tests evaluate an applicant's ability to spot obvious typographical errors as well as fix rather than introduce new errors (Hart, 2003, p. 12). The editing test remains the only workplace document to purposely contain errors and therefore serves as a first step in identifying how technical communicators prioritize specific errors. Results will extend the earlier-noted research by providing the first list of errors that were derived from an authentic workplace document. This data will help prospective technical communicators prepare to take an editing test and help employers evaluate how well their own test assesses its applicants. Finally, this data can be compared to the existing taxonomies of errors in college writing. Indentifying discrepancies in how college and workplace writers are trained can help instructors better prepare their students for the writing and editing professions.

LITERATURE REVIEW

Within the fields of business and technical communication, only a handful of studies have empirically addressed usage error. Hairston's 1981 study was the first to determine how practitioners responded to specific usage errors. She constructed a 65-sentence questionnaire in an attempt to understand the emphasis business professionals placed on various errors. The 84 respondents, who represented 63 occupations, were overwhelmingly bothered by errors Hairston that classified as status markers: "When Mitchell moved, he brung his secretary with him" (p. 796). Other status markers that overwhelmingly bothered participants included double negatives and beginning a sentence with an objective pronoun. The next tier of bothersome errors were grouped by mechanical mistakes—sentence fragments, fused sentences, and faulty parallelism. Errors that bothered participants the least included the comma splice and its/it's error.

Leonard and Gilsdorf (1990) extended this study by comparing academics' and executives' reactions to specific errors. The researchers also used a questionnaire to measure these perceptions; their subject pool comprised of randomly selected members from the Association for Business Communication. The questionnaire contained 58 sentences, each one including a single usage error. The list of most distracting errors often aligned with Hairston's: fused-sentences, faulty parallel structure, sentence fragments, and danglers. Participants appeared least bothered by sentences that included "feel" instead of "believe" or the clipping of "quotation" to "quote." The results also indicated that academics were much more bothered by certain errors than executives, particularly its/it's confusion, missing commas, and missing apostrophes. Gilsdorf and Leonard followed up on their own study in 2001 and yielded strikingly similar results.

While these studies generated salient findings, the usefulness of the data is somewhat limited by the methodological design. The questionnaires included errors that the researchers believed could be the most bothersome to practitioners. These results may not accurately reflect the errors that practitioners' value. Similarly, data collected from questionnaires depend on self-reporting, which can motivate participants to respond in ways they think are appropriate to the research. While these researchers all stressed to participants that they were not being tested, this potential threat to validity is difficult to control. Hairston conceded: "I feel certain that many respondents self-consciously looked for the error in each sentence, and there was a certain amount of 'trying to do well on the test'" (p. 798). She added that it was easier for participants to find one error isolated in a sentence rather than multiple errors scattered throughout a longer text.

Error taxonomies on college writing compensated for these methodological limitations by assessing the errors in authentic writing samples, but the results cannot necessarily be generalized to the workplace or the field of technical communication. Connors and Lunsford's (1988) study produced a list of over 50 formal and mechanical errors that college students made in their writing (p. 396). Misspellings outnumbered the other errors by 300% and were removed from the formal study for independent analysis. Connors and Lunsford ranked the remaining errors by occurrence, selecting the top 20 for further inquiry. The list began with missing comma after an introductory element (occurring 11.5% of the time) and ended with its/it's error (occurring 1.0% of the time).

In 2008, Lunsford and Lunsford extended the original study. The results reflected how a broader use of academic genres and the expansion of technology changed the error patterns in college students. Due to an increase in argument papers, the new list included errors related to using sources, quotations, and attributions. Technology also played a role in the rank of specific errors. Misspellings now ranked fifth and wrong word errors emerged as the top error. Lunsford and Lunsford attributed these shifts to electronic spellcheckers. The technology helps students remedy misspellings, but a reliance on the automated spelling suggestions likely attributes to the increase in wrong words.

Both of these studies comprise the most thorough and current error taxonomies, but they do not specifically relate to workplace writing where stylistic approaches — tone, word choice, consistency — could play a more prominent role. Therefore, I examine the errors found in 41 technical writing and editing tests. Editing tests remain the only workplace document to purposely include errors, so this study operates under the assumption that these are the errors that technical communicators prioritize over others. While technical communicators arguably value error more than other practitioners, the results from this study begin to suggest how practitioners, in general, prioritize error compared to academics.

Further, this examination contributes empirical data to technical editing, which remains the most scholarly underdeveloped subfield of technical communication. Researchers have only recently moved beyond anecdotal approaches of inquiry to explore issues on larger, more empirical scales, including the alleged adversarial relationship between editors and their clients, and the presumed differences in communicating edits to native and nonnative clients (Eaton, Brewer, Craft Portewig, & Davidson, 2008a, 2008b). Eaton (2010) notes that anecdotal explorations only produce "cup of coffee articles" — the resulting research is useful, but only as useful as having a cup of coffee with someone and chatting about an experience (p. 9).

METHODOLOGY

Because of the privatization of editing tests, the study's sample proved difficult to collect. I obtained 41 editing tests through my requests on various Listservs, including STC's Technical Editing and Management SIGs, Copyediting-L, and Edprof. I signed a nondisclosure agreement with a majority of the companies to further protect the integrity of the tests.

Participating organizations represented a variety of industries, including computer programming services, healthcare and social assistance, and education services. Organizations were represented by 15 different states with the most representation from California (n=8) and Texas (n=6). This majority correlates with the findings from STC's 2008 Salary Database, which identified California and Texas as the two states with the most technical writers (*STC's 2008 Salary Database*, 2009).

Every error in the editing tests was coded and then quantified. When noted, tests were coded with the appropriate style manual, primarily *The Chicago Manual of Style* (15th edition). Two raters independently coded the tests based off the supplied answer keys (when available). This approach ensured that the errors were classified from the organization's perspective. Whenever possible, errors were classified by the error/error patterns used in the Connors and Lunsford and (or) the Lunsford and Lunsford studies; however, multiple new errors related to style were identified. The Cohen kappa test identified an overall inter-rater agreement of 81.3%, indicating a high level of consistency.

RESULTS & DISCUSSION

Coders identified 72 errors within the 41 editing tests. Each test contained an average of 54.7 errors (*SD* =14.1) and an average of 20.2 different errors (*SD* =5.66). The standard deviation of both means indicate disparity, which could relate to the privatized nature of the editing test and the lack of publicly available examples.

Table 1 summarizes the top 20 errors by frequency, beginning with misspellings (13.6% of total errors) and ending with repetition (2% of total errors). Spelling and capitalization emerged as the top two most frequent errors. Results indicated that the presence of both correlated to style conventions. Seventy-one percent of the misspellings were classified as general, and many of these errors included the misspelling of proper nouns like company or solution names. Twenty-five percent of the misspellings were homonyms (e.g., *affect* instead of *effect*), and 4% were compound words (e.g., *bi-polar* instead of *bipolar*).

This distribution correlates more with the original Connors and Lunsford study rather than the updated study. Seventy percent of the student papers that Connors and Lunsford assessed in 1988 were handwritten (p. 398) compared to "almost every" paper being word processed in Lunsford and Lunsford's 2008 follow-up study (p. 79). As mentioned earlier, the latter researchers noted that the medium of the student-written texts likely attributed to the decreased rank of misspellings — the electronic spellcheckers lessened the frequency of this type of error but simultaneously produced an increase in wrong words.

However, a sizable majority of misspellings identified in this study were not proper nouns and therefore detectable by a spellchecker. Further analysis revealed this discrepancy might be linked to how companies administered the editing test. Sixty-one percent of companies administered the test on-site, and 74% of those tests were paper-based.

The anxiety of the testing situation coupled with the paper-based administration likely rationalizes the inclusion of these general misspellings. The introduction of these more noticeable errors also supports Hart's description of the editing test's purpose: to measure applicants' ability to spot obvious typographical errors.

The misspellings and capitalizations that related to proper nouns often referenced the company or a product. While 56% of companies required applicants to demonstrate knowledge of a style guide on the test, most other companies integrated these style-related errors into the tests differently. One test provided applicants with

the correct spellings of four proper nouns in bold print, and its instructions noted that "everything in boldface is correct." The test's creator said that the instructions assessed how consistent applicants applied spelling and capitalization and how well they followed instructions.

Another test included the correct spellings and capitalizations of proper nouns on the first page but then misspelled them throughout the subsequent pages. The test's creator said this approach gauged how perceptive applicants were in catching errors and then determining which spelling or capitalization forms looked consistent with the rest of the document. Finally, dozens of tests included a misspelling of the company name. Many of these tests' creators and hiring managers cited branding as a motivation behind introducing this error as well as measuring applicants' familiarity with the company.

Table 1: Most Frequent Errors

#	Error or Error Pattern	# found in 41 tests	% of total errors
1	Spelling (including homonyms)	305	13.6%
2	Unnecessary or missing capitalization	152	6.8%
3	Hyphen, em- or en-dash error	93	4.1%
4	Language or nomenclature consistency	86	3.8%
5	Wrong word	83	3.7%
6	Faulty predication	74	3.3%
7	Format/consistency text	69	3.1%
8	Unnecessary shift in verb tense	68	3.0%
9	Unnecessary or missing apostrophe (including its/it's)	62	2.8%
10	Number, date, percentage, time format	54	2.4%
11	Wordiness, rewrite for concision	53	2.4%
12	Misplaced or dangling modifier	51	2.3%
13	Missing or incorrect article	51	2%
14	Lack of subject-verb agreement	50	2%
15	Organization	49	2%
16	Active voice preferred	48	2%
17	Faulty parallel structure	48	2%
18	Missing comma in a series	47	2%
19	Missing comma with a nonrestrictive element	46	2%
20	Repetition	44	2%

Eight of the top errors were stylistic and not represented in the earlier referenced taxonomies. Language or nomenclature consistency (#4) related to how well test takers maintained consistency throughout the document (e.g., a specific solution name would change throughout the test). Number formats (#10) related to the spelling of numerical information (e.g., 100 versus one hundred, % versus percent). Wordiness (#11) was found on a word level that often involved adverbs (e.g., it was a *very* hard puzzle) and on the sentence level like the following:

Original: The Risk Control Organization will establish a relationship of meeting with the Research department on a regular basis for the purpose of discussing model development activities.

Revision: Risk Control will regularly meet with Research to discuss model development.

Organization (#15) included the need for directional language (e.g., first, next, finally) as well as the need for topic, transitional, and forecasting statements. Since most company representatives provided an answer key with their test, it was easy to determine when active voice was preferred to passive voice (#16). Faulty parallel structure related primarily to a lack of parallelism within a list. Repetition (#20) appeared at the word level (e.g., Laura was vaccinated for the HPV virus) and the sentence level.

However, Table 1 only demonstrates how frequent (or popular) a specific error was within the 41 editing tests. This information proves valuable in better understanding how technical communication practitioners prioritize error, but it does not offer applicants a sense of how the errors were dispersed throughout the tests. The data in Table 2 summarizes how the errors were dispersed throughout the tests. These data indicate which errors clustered in a small number of tests and which errors appeared more consistently throughout the 41tests.

Errors related to spelling and capitalization remained the top dispersed errors, solidifying their prominence in this dataset. Fourteen additional errors appeared in both the most frequent and most dispersed lists. Notable jumps in rank included missing comma with a restrictive element (#19 in frequency, #4 in dispersion) and faulty parallel structure (#17 in frequency, #9 in dispersion). In other words, these errors may not have appeared multiple times within a test, but they had a presence in 65% to 55% of the 41 tests, respectively.

Table 2 also indicates that some of the most frequent errors did not appear in a majority of the editing tests. Interestingly, the four errors that were frequent but weakly dispersed were all stylist conventions: number

format (#22 in dispersion), format/consistency of text (#25), wordiness (#28), and organization (#33). These conventions were replaced with grammar and punctuation errors: unnecessary comma, wrong or missing preposition, missing comma in a parenthetical or transitional expression, and incorrect singular/plural use.

In other words, while these stylistic errors appeared frequently in specific tests, their presence was not representative of the study's dataset. For example, errors related to number formatting appeared in only 39% of the editing tests, and errors related to organization appeared in only 0.3% of the tests.

Table 2: Most Dispersed Errors

#	Error or Error Pattern	% found across 41 tests	# by frequency in 41 tests
1	Spelling (including homonyms)	75.6%	1
2	Unnecessary or missing capitalization	65.9%	2
3	Faulty predication	65.9%	6
4	Missing comma with a nonrestrictive element	65.9%	19
5	Misplaced or dangling modifier	63.4%	12
6	Wrong word	61.0%	5
7	Unnecessary shift in verb tense	61.0%	8
8	Hyphen, em- or en-dash error	58.5%	3
9	Faulty parallel structure	56.1%	17
10	Missing or incorrect article	53.7%	13
11	Lack of subject-verb agreement	51.2%	14
12	Missing comma in a series	51.2%	18
13	Unnecessary comma	51.2%	21
14	Unnecessary or missing apostrophe (including its/it's)	48.8%	9
15	Active voice preferred	46.3%	16
16	Wrong or missing preposition	43.9%	23
17	Missing comma in a parenthetical or transitional expression	43.9%	24
18	Incorrect singular/plural application	43.9%	30
19	Language or nomenclature consistency	41.5%	4
20	Repetition	41.5%	20

Likewise, the grammatical and punctuation errors that rose in rank were dispersed throughout 44%-51% of the tests.

The findings in Table 2 suggest that style-intensive tests exist, but are infrequent. However, stylistic conventions had a strong presence in all of the editing tests, including faulty parallel structure, active voice preferred, language or nomenclature consistency, and repetition. Similarly, test takers should always be aware of their own justification for fixing an error in an editing test. Hiring managers indicated that they examine the decision-making process behind fixing specific errors as well as observe how well the candidate follows instructions and how informed they are about the company (thus, the rationale for the frequent misspellings of company names).

CONCLUSIONS

I conducted this study to offer technical communication researchers, practitioners, teachers, and students some empirical insight into error usage in their field. Further empirical exploration will advance our field's research beyond the anecdotal and simultaneously strengthen the pedagogy and practice in technical communication.

The results of this research, however, begin to suggest commonalities and differences among existing error taxonomies. For example, missing comma after an introductory element appeared frequently in the Connors and Lunsford study (#1) as well as in the Lunsford and Lunsford follow-up study (#2). However, these results also revealed that teachers only marked this error in their students' papers 30% and 28% of the time, respectively. These percentage levels suggest that teachers may not consider missing commas in introductory elements as distracting as other errors.

This inference seems to be reflected in this study's results as well; the error ranked #27 in frequency (appearing only 29 times) and #23 in dispersion (appearing in 39% of the tests). Since the editing tests purposely contained errors, as opposed to the errors introduced by students, a larger dataset might indicate if this error, while frequently made, is of lesser concern to technical communicators than other error patterns.

On the other hand, Gilsdorf and Leonard's study found that errors that troubled readers the most related to basic sentence structure, such as fused sentences, fragments, faulty parallel structure, and dangling modifiers. Faulty parallel structure and misplaced and dangling modifiers appeared toward the top-half of this study's frequency and dispersion list, but fused sentences and fragments appeared infrequently (#47 and #28, respectively) and

throughout a small amount of the tests (29.3% and 0.12%, respectively). Since Gilsdorf and Leonard's results closely mirrored their 1990 study, conclusions related to this area cannot be made at this point. The results of this research by no means represent a final word on any question involving the formal error in technical communication. Within the existing dataset, further examination to reconcile some of the differences between the frequencies and dispersion lists is needed. An index that factors the weights of both variables would offer a clearer indication of which errors technical communicators value as well as which errors applicants can expect to see in most editing tests.

Finally, additional tests will strengthen the current sample and demonstrate a more common distribution of errors between tests. However, perhaps the privatization of editing tests has produced this disparity and more research on the conventions common to this assessment genre is needed.

My interest in exploring these issues is ongoing. If you would like to contribute an editing test to my dataset, please email me at ryan.boettger@unt.edu. My research will not disclose company names or any sections of the tests themselves—my results will just present an anonymous comparison of the types of errors. I will also sign a non-disclosure agreement to further protect the integrity of your company's test.

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Narratives over Numbers: Why Qualitative Research is Essential

James Conklin, George Hayhoe, Menno de Jong, Hillary Hart, & Saul Carliner

This panel presentation will consider the importance and use of qualitative research methods by technical communication researchers and practitioners. The panel includes experienced qualitative researchers and practitioners who are able to discuss both the reasons why qualitative methods are important, and the actual use of these methods to gather data about audiences, products, and communication approaches. The panelists share a conviction that narrative is a powerful medium for understanding human situations and motivations, and that qualitative methods allow us to explore the diverse ways that audiences respond to our work.

INTRODUCTION

Qualitative research methods have become an integral part of technical communication practice. In her venerable work entitled *Managing your Documentation Projects*, Joann Hackos suggests that analyzing the needs of audiences is an essential step in most technical communication projects, and suggests several data gathering techniques including document reviews, focus groups, interviews, and site visits – which are all well-accepted qualitative methods (Hackos, 1994). Three years later Karen Schriver, in *The Dynamics of Document Design*, discusses feedback-driven audience analysis that generally requires gathering data directly from potential readers (Schriver, 1997).

Qualitative research has also played an important role in technical communication research. Odell and Goswami (1985) recognized that although the 1980s had seen a growing demand for skilled technical communicators, we knew relatively little about the way in which texts were produced and used in workplaces. Faigley (1985) pointed out that social groups are constituted and sustained through written and verbal communication , and suggested that "Because qualitative research offers the potential for describing the complex social situation that any act of writing involves, empirical researchers are likely to use qualitative approaches with increasing frequency" (p. 243). The continuing importance of qualitative research is confirmed in a recent study that found that 39% of the research articles published in five major technical communication journals between 2003 and 2007 relied on qualitative methods (Davy & Valecillos, 2011).

There was a time when qualitative methods were viewed rather contemptuously by statisticians and quantitative researchers, who tended to exercise considerable influence over the funding institutions that supported social science research. Happily, this is no longer the case. Qualitative methods have developed rigorous techniques to assure the credibility, transferability, dependability, and confirmability of research findings (Lincoln & Guba, 1985; Patton, 1990). Moreover, increasing numbers of researchers have recognized that the social world is fundamentally different from the physical world. The qualitative enterprise is a pluralist and exploratory endeavor that often joins researcher(s) and research participants in collaborative sensemaking. Rather than testing narrow hypotheses, qualitative research yields interpretations and rich narratives about complex social phenomena. It faces us with the untidy realities of social situations, and allows us to squarely face the likelihood that people such as writers, trainers, programmers, engineers, sales professionals, managers, and users experience and interpret the same products and technologies in different ways. The unique strength of qualitative research is that it allows us to discover and depict multiple realities, and to delve into underlying patterns in ways that yield a shared experience of coherence, identity, and purpose.

HOW QUALITATIVE METHODS CONTRIBUTE TO THE PROFESSION

In this paper, and in the panel that it is based on, we offer the views of four experienced qualitative researchers. During the session at the conference the panelists will consider the purpose and potential contribution of qualitative research for technical communication practitioners and researchers. In the following paragraphs, they each offer a preliminary statement.

George Hayhoe

Although some elements of technical communication can be explored using quantitative techniques, some of the most crucial cannot really be measured or counted. For example, the author's awareness of purpose and audience, usually cited as the most critical factor in successful technical communication, isn't susceptible to quantification in any significant way. Purpose and

audience are, however, especially easy to explore by asking writers or presenters to tell the story behind the experience of producing a piece of discourse, or by asking the audience about the meaning and effectiveness of what they have heard or read.

The central role of this kind of storytelling gets to several ultimate truths about technical communication. Stories can make complex subject matter easier to understand. For example, a story about two couples' situations as they approach retirement can make it easier to understand complicated eligibility criteria for various government benefits or the advantages of one alternative over another.

Even when writers or speakers haven't done a preliminary analysis of purpose and audience, they can tell us in retrospect what purposes the discourse addresses and what audiences it reaches successfully. For example, a writer who didn't do any conscious audience analysis prior to preparing an instruction set can be asked to read what she has written, describe the characteristics of the people who would find that particular set of instructions helpful, and then speculate on the needs of other potential audiences.

Audiences can tell us their reactions to pieces of discourse—most especially, how effective the authors have been and how successful they think that they themselves would be in accomplishing what they perceive as the goals of the communication act. For example, a person with decreased visual acuity could examine a Web page and tell us how easy it is to read the words and interpret the photographs on the page.

Storytelling is powerful precisely because it gets not only to the *who* and the *what*, but also to the *why* and the *how*. After all, aren't these the most common questions we ask those who attempt to communicate with us from early childhood?

Storytelling can also encompass (and even integrate) the reason and logic that underlie science and technology, and the values and ethical considerations that often underlie negotiations between groups of people. Technical communicators often work on teams that are seeking to introduce new technologies, products, and approaches into workplaces and communities. The decision to accept and use the innovations offered by science and technology is often not merely a matter of logic, but also involves complicated choices that are resolved through a balancing of values and points of view. Does this new computer system mean that some of my friends will lose their jobs? How can we convince people that this new environmental technology is safe, and will make our communities more sustainable? If we

install this new equipment in our company, will my contributions no longer matter as much?

The fit between qualitative methods and technical communication that Faigley (1985) pointed to 25 years ago has certainly not decreased over time, nor does it promise to do so in the next decade or more.

Menno de Jong

Although the term itself does not seem to take a prominent position in the technical communication literature, empathy is one of the key success factors for technical communicators (De Jong & Lentz, 2007). As users' advocates, technical communication professionals are assumed to be able to estimate the prior knowledge, skills, needs and preferences of end users. If this is taken seriously, it has drastic consequences for the design of technical communication programs as well as for the kinds of technical communication research we need. After all, the literature on empathy clearly shows that direct exposure to the target audience, narratives, and experiential learning are the most effective strategies to improve professionals' empathic competences.

A well-known expression (both in English and in Dutch) is that someone cannot see the forest for the trees. It refers to a situation of being strongly focused on details and overlooking the bigger picture. It is my conviction that the opposite problem is the biggest threat for technical communication professionals. The invention and widespread use of general concepts such as target audience and the tendency to focus on categorical or numerical indications of its features can easily lead to an alienation of the end users. Communication professionals see the big amorphous audience, but forget about the individuals who are part of it. They sometimes even forget about the needs and preferences they would have themselves.

That is why we need qualitative research. Instead of viewing people as collections of psychological constructs, qualitative researchers provide us with insights in how individual people make sense of the situations they are in. Good qualitative research therefore involves more than collecting rich and detailed data: it also requires rich and vivid descriptions of the results, which make technical communicators optimally experience the participants' perspective.

Qualitative research may contribute to the empathy of technical communicators; quantitative research often only gives them a semblance of knowing the audience. Consider, for instance, the difference between Web site evaluation questionnaires and qualitative techniques such as think-aloud usability testing or the critical incident

technique. Managers will probably prefer the quantitative results of a Web site evaluation questionnaire because it gives them benchmarks and security. However, technical communicators can learn very little from the results of such a questionnaire. In fact, it is often even hard to revise the Web site concerned on the basis of such results. For technical communicators, the confrontation with real and specific user experiences will always be far more informative. They therefore need to incorporate qualitative research techniques in their daily work procedures, and can benefit from published qualitative studies as far as they do provide the vivid descriptions of user experiences.

Hillary Hart

As Conklin and Hayhoe (2011) note in the preface to *Qualitative Research in Technical Communication*, qualitative research is a mode of inquiry well known in technical-communication practice. Though they may not think of themselves as researchers, all technical communicators at some point "seek to understand the working realities of the users of technology" (p. x). Shadowing the user, asking questions during the task, asking users to keep notes on their experience, analyzing help-desk calls – all these and more are methods of qualitative research.

One of the greatest strengths of such research is that it allows participants to tell their stories in various media: speech, writing, structured conversations, and – perhaps most excitingly and least studied – drawing, Asking participants to draw is not a new method, but it has mainly been used in psychological and educational research. As Kearney and Hyle discovered, for instance, in their 2004 study of emotional impact of change in an educational setting, "drawings … lead to a more succinct presentation of participant experiences" (p. 361).

Emotional impact is not the only suitable subject for this research technique. Asking almost any research participants to produce drawings, metaphors, and other so-called creative products adds dimension and rich meaning to the more quantitative demographic data that can also be collected. In the 2006 study conducted by Conklin and Hart, participants, who were all technical communicators themselves, were asked to draw their conception of the role of technical communication in their organization. The drawings revealed much about the complexity of that role, the paucity of current "job descriptions," and the importance of the agent as well as the action. The sketches "show a vision of the profession that is non-hierarchical and highly networked" (p. 412). Many of the drawings show stick figures or other symbols of people enacting their technical-communicator role as the hub or cross-functional unifier of the

organization. Such illustrations demonstrate the agency of technical communicators, a "story" that runs counter to much of the current rhetoric about how invisible and under-appreciated technical communicators are.

Saul Carliner

As noted earlier, qualitative methods are increasingly popular among researchers exploring technical communication. Part of the interest is philosophical. At its core, qualitative research offers a more comfortable alternative to the previously dominant paradigms— quantitative and critical. Quantitative—or positivist— research is rooted in the idea of a single Truth. Given technical communicators' focus on users and context— with a special emphasis on their differences and uniquenesses—a conflict exists between the idea of a single Truth of positivism and the multiple truths that we uncover in our work. Similarly, critical research primarily relies on the personal truth of the researcher, a truth that could conflict with that of the population whose artifacts are under study. So researchers in technical communication often find qualitative methods more consistent with their beliefs.

Part of the interest in qualitative research is methodological. Although experiments typical of quantitative research provided useful insights into the ways people read and provided helpful heuristics for layout and sentence-level issues, its reliance on manipulating well-defined variables makes it less helpful for answering questions about complex problems, rooted in the myriad of political, economic, and social issues affecting the design and publication of content. Surveys, also typical of quantitative research, can provide insights into such issues, but the responses are often self-reported data, which research increasingly finds contrasts with actual data. In other words, what people say they do and what they actually do differs, and some survey methodologies often do capture that dichotomy. But qualitative research is excellent at sharing its methodology and identifying the limits of its studies. Critical research, which is also popular among technical communication researchers, often lacks that transparency. For example, few critical studies state why they have chosen the phenomenon they choose to study nor provide a complete disclosure of their analysis techniques. Although qualitative research employs critical research techniques when exploring documents, it stresses the importance of transparency in sharing both methods and analysis with readers, so others can see how researchers arrived at their conclusions and determine whether that pathway is appropriate.

The last, and possibly the most significant, issue driving interest in qualitative research is that it makes research

come alive. By providing voice to the participants in the study and sharing their realities and truths, qualitative research takes full advantage of technical communicators' writing skills and results in engaging reports that, while every bit as rigorous as those of quantitative research, are among the most compelling studies to read.

CONCLUSION

A fundamental purpose of social science and its methods is to generate new knowledge that can be used in the service of worthy ideals. In considering the ways in which we know the world around us, Fisher (1978) argued that human beings deploy both reason and values as they seek to understand and act in the world. We need to understand the facts, and we need to appreciate the human values that are at work as we interpret the facts and decide on a course of action. Fisher (1984a, 1984b) came to suggest that narrative rationality is a universal basis for communicating, learning, and knowing that can be found in all cultures. Narratives bring meaning to human experience.

Qualitative research is based on the power of narrative, and on the power of other forms of creative expression. Qualitative research recognizes that different people experience the same social world in different ways, and has developed a tradition for transparency and realism. It is an agent of a holistic view of human intelligence, which recognizes that empathy is an essential competence for those whose work involves the creation of relationships, community, and shared knowledge. Perhaps most importantly, qualitative research allows us to create relationships and generate knowledge through our interactions with the people who use our texts and our products.

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Consistency is Not a Hobgoblin: Formatting as Editing

Charles R. Crawley

This paper focuses on an often neglected role of the editor, that of formatter. While many editors may look down on formatting as a lower level of editing, it is an important role in organizations where content is the domain of subject matter experts. The paper discusses why consistency is important, what a wise consistency looks like, and how to achieve that consistency.

WHY EDITORS SHOULD TAKE THEIR ROLE AS FORMATTERS SERIOUSLY

Ralph Waldo Emerson in his essay "Self-Reliance" wrote: "A foolish consistency is the hobgoblin of little minds, adored by little statesmen and philosophers and divines" (Emerson, 1983). While many people use this quote to argue against consistency, what is often left out is the word "foolish." That means there's such a thing as a wise consistency, which I hope is what this paper conveys.

Consistency can be seen as the conscious repetition of elements in a design, which is sometimes called the principle of repetition, used by Robin Williams in her book, *The Non-Designers Design Book* (Williams, 2003).

Consistency in editing is often reinforced by the use of style guides, so that the same words are used consistently throughout a document, for example. Consistency in formatting is just as important, and that function may often be left to the editor. In this respect, I am following what is called the "Format Edit" by Van Buren and Beuhler (1980, 23–25). Therefore I will address what an editor needs to do to achieve consistency in formatting.

I am also indebted to David Farkas (Farkas, 1985) for his article "The Concept of Consistency in Writing and Editing." While he does not directly address the concept of formatting, I think it could be added to the categories of consistency he elaborates: semantic, syntactic, stylistic, spatial, and mechanical. The main force of his argument has to do with the *importance* of consistency in writing and editing, and to make sure that your efforts are focused on the things that matter to the reader.

WHAT SHOULD BE DONE CONSISTENTLY

The editor as formatter must be very disciplined in creating (or using assigned) styles in documents, as difficult as this may be in such unfriendly "design" programs as Microsoft Word.

The elements of a document that need formatting attention can be anything to which a style has been applied, but I will limit myself to headings, headers, footers, tables of contents, captions, tables, and figures.

Headings

Headings need consistency in fonts and size and typestyle. Sans serif type works well for headings because it provides a nice contrast to serif text which is usually the typeface of choice for most text.

Size in typefaces needs to be used on a consistent scale. Just as music has scales, so does type. It is best to work out some style for headings, such as Heading 1, Heading 2, Heading 3, and Heading 4, which can be applied consistently throughout a document.

Headers and Footers

Headers and footers are the navigational aids that readers use to find their place in a document. And because headers and footers are often copied from one file to another, it is very important to make sure that they are right. In my business, documents are identified by document numbers, and if these are wrong, it can be very damaging to our customers.

If you use Microsoft Word, you may find yourself having to use section breaks, in order to switch from portrait to landscape to incorporate larger illustrations, for example. You can encounter problems when you do that, such as headers created for portrait sections ending up in landscape sections, so you must be careful to check the areas between section breaks.

Page numbers are often left off of documents. Microsoft Word amazingly does not include page numbers as part of its default template. I think that is due to its word processing (as opposed to page layout) heritage, when it assumes you are typing a one page memo which does not need to be numbered.

But page numbers are essential in documents for navigation, and a good editor will always check page numbers: (1) to make that sure each page has one, (2) that the number of pages is equal to the last page of the document, and (3) that the page numbers are sequential.

Tables of Contents

Tables of contents are usually generated automatically by word processing and page layout programs. They are usually based on tagging headings with styles, which are then generated into tables of contents.

A good editor will review the table of contents to make sure the levels (Heading 1, 2, 3, etc.) are coming out correctly. Often it is an iterative process to ferret out mis-tagged items that end up in the table of contents. For example, it is not unusual to see illustrations that have accidently been tagged with a Heading style and end up in the table of contents.

Captions

Captions, or figure headings, are very important in most technical documentation, because they are often read or scanned when the text of a document will not be. If you are developing a table of figures or table of tables, they are often built on captions, so you must make sure they are numbered correctly (if numbered), and are tagged correctly so they appear in the table of figures or tables.

Generating a table of figures or of tables is often a good way for an editor to find inconsistencies in a document. Therefore it's sometimes helpful to generate a table of figures or tables for proofing, even if the table will be deleted and not used in the document.

Tables and Figures

An editor could spend a great deal of time on table design, as it is one area where there is a great deal of variation about how things are done. Tables are sort of a strange hybrid between text and graphics; while they contain text and numbers, they are often treated as one entity, as one would treat a graphic.

A good editor will pay attention to how tables are formatted and whether or not they are numbered correctly. And an important thing to know is that table titles go *above* tables, whereas figure titles (captions) go below them, for most of the major style guides.

Figures may be illustrations, photographs, or charts. You'll want to review callouts in figures for spelling and sense, and you'll want to make sure that figures match their captions. Ask any newspaper editor about identifying the wrong person in a photograph; you'll always see that mistake in the corrections section.

HOW IT CAN BE DONE CONSISTENTLY

There are many different ways to make sure you are formatting a document consistently. After a while, much of this will become second nature, so that you will catch mistakes as they are happening or prevent them from happening in the first place.

But until you develop that expertise, here are some ways to ensure a wise consistency in your documents. These include checklists, search and replace, macros, and viewing before printing.

Checklists

Checklists are not only useful for grocery shopping or packing for vacations. They can also be useful in making sure you haven't missed something, when you don't want to rely on your memory.

Checklists are particularly helpful if you have a collection of files, and you need to make sure that you have gone through each one methodically. A checklist can easily be made from a Word table or an Excel spreadsheet, with Yes, No, or Not Applicable (NA) checkboxes. Examples of such a checklist could include:

Do all figures have captions, placed below figures?
Yes _____   No _____   NA _____

Do all tables have captions, placed above tables?
Yes _____   No _____   NA _____

Find and Replace

If you work with long documents, or are involved with tedious changes, using the Find and Replace option can save you a lot of time and hand ache and will insure consistency.

One of the little known features of Microsoft Word is that you can Find and Replace based on characters, as opposed to words or formatting marks. For example, if you need to replace a tab with a return, you would type ^t (for tab) in the Find box and ^p (for paragraph return) in the Replace box. Make sure that you use lower case letters, as this feature is case sensitive.

Macros

Macros are recorded shortcuts that allow you to press a key or key combination or icon and have your computer do the work for you. That's why computers were invented, right, so that you could have a four-day work week? Well, that didn't happen, but macros can save you some time as well as wear and tear on your fingers.

You don't have to be a programmer to write macros. In many programs, such as Microsoft Word and Adobe Photoshop, it's a matter of recording keystrokes and mouse movements until you get your desired results.

I find assigning styles to macros to be a very efficient way of consistently tagging a document. Assigning a key combination that has mnemonic device is also valuable. For example, assigning the style "Heading 1" to Ctrl+1 makes sense, as well as "Figure" to Ctrl+Shift+F. Note in this last case, I had to add Shift to this keystroke combination, because Word already pre-assigned Ctrl+F to Find.

And you might find it handy to print the macros you have created, in case you forget what keys you assigned to which macros. In Microsoft Word 2010, you can do this in File > Print > Key Assignments.

Printing and Proofing

A good editor always wants to see that his or her formatting edits were made correctly. The best way to do this is to do some sort of "print preview," where you can review the appearance of your pages, to make sure they look right. An alternative to that is to create a PDF, and see how it looks. Then there is the old-fashioned method, frowned upon (rightly) by environmentalists who hate to see paper wasted: printing.

Whatever method you choose, making sure your edits look right will give you some peace of mind. Of course, in today's economy, we are often called upon to sacrifice quality in the name of completion. But if you have time, do it!

CONCLUSION: A WISE CONSISTENCY

While most of us naturally think of words when it comes to editing, formatting may be the natural province for editors as well, especially after the advent of desktop publishing. And it may be we are the only ones who really care about it. As a wise designer once said, "If it looks bad, it probably is." So do your best to make it

look good and show a wise consistency, and your company will hopefully thank you for it.

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Collaborative Approach for Value-Added Technical Writing Training

Ann Marie Queeney

Using her experience with developing a technical writing workshop for medical device R&D engineers, the author shares how technical communicators in any field can take the initiative, leverage their writing expertise, and collaborate with functional areas to develop practical technical writing training customized for their audience. Collaboration is vital to understanding an audience and providing training that is truly value-added.

The paper covers how technical communicators can foster a collaborative environment during each of the following development activities: identifying training opportunities, performing a needs assessment, developing the course and accompanying materials, performing training and post-training evaluation, and leveraging future training opportunities.

My development of a technical writing workshop began serendipitously with an informal conversation. An R&D manager in the medical device company where I work asked me if I could recommend a consultant to present a technical writing workshop for his department. He wanted to improve his staff's writing quality of technical documents used in submissions to regulatory bodies. In addition to providing contacts, I offered that as a Document Specialist I could develop an in-house, customized version of the training he was seeking by working with him and enlisting the participation of Regulatory Affairs managers, the subject matter experts (SMEs) for the type of documents that would be the focus of the training.

The workshop I developed in partnership with the R&D and Regulatory Affairs managers was an in-house, three hour training session for R&D engineers who already had varied experience writing submission documents for regulatory bodies. The workshop covered four key areas: audience awareness, content organization, language clarity and editing. The class balanced lecture time with interactive, small group sessions, consisting of approximately six participants per group. I provided a brief presentation of the topics followed by small group exercises, with each group led by a Regulatory Affairs manager (SME).

For the exercises, the SMEs used samples of attendees' work and the discussion points in the class manual to reinforce the class topics and provide a regulatory perspective. The participants had provided

approximately three samples each of previously written documents prior to the class, which the SMEs reviewed for applicability to the exercises. As a compliment to the class I developed a class manual which included key points and tips for each topic, small group exercises, and reference materials.

This paper describes the process I used to develop my workshop so that you can adapt the process for your own projects. Key elements are highlighted in the paper for each phase and a checklist at the end provides a detailed list of the development activities.

Development of training can be organized into the following phases: initiation, development, presentation, post-training evaluation, and leveraging future training opportunities. The remainder of this paper covers the activities in each phase and how the collaborative approach can be made an integral part of each phase to increase the value of the training.

PROJECT INITIATION PHASE

Identify Training Opportunities

You may have already identified potential training opportunities within the functional areas with whom you work. It is important to not limit yourself to only areas where you have a working knowledge or expertise. By partnering with a subject matter expert you can expand your audience, training effectiveness, and value as a technical communicator to your company. With this arrangement you and the SME draw upon your specific backgrounds and knowledge to co-develop and/or co-present a class.

While surveys and other formal methods can be used to identify training needs, using more informal techniques can be as or more effective, especially for areas with whom you do not have a working relationship. For example, scheduling brief one-on-one meetings with managers of other functional areas allows you to introduce yourself and facilitate a personalized discussion on how you can partner with them to create training to directly benefit their area.

Lastly, you can ask to be included on a departmental meeting agenda. The advantage to group communication is that you reach a broader audience. While a manager

might feel that a class is not needed, those individuals in the department may welcome an opportunity to improve their writing skills.

Identify Stakeholders and Obtain Required Approvals

Once you have agreement for the class and before you begin development work, identify the stakeholders for your training project and confirm their level of involvement. Do the stakeholders want to be directly involved with decisions or be involved on an information only basis? Also, obtain any required approvals from their areas regarding their involvement in the project.

In this paper, I will use the term stakeholder to mean the individual(s) from the functional area requesting the training, SMEs, your management, depending on their level of involvement, and other individuals whom you or the stakeholders have identified as being involved in the project.

In developing my workshop, my stakeholders were the R&D manager for whom I was developing the class and the Regulatory Affairs managers (SMEs).

If you will be working with a subject matter expert to co-develop the training, decide on how communications to their management will be addressed. For my workshop, the Regulatory Affairs managers assumed responsibility.

PROJECT DEVELOPMENT PHASE

Assess Training Needs

The work done during this phase lays the foundation for the entire project. While it may be tempting to shorten the assessment and start the "real work" of developing the class, a thorough and accurate completion of this phase ensures successful completion of the later phases.

While different terms may be used to describe this phase, e.g., information gathering, needs assessment, needs analysis, the goal is the same: To understand the functional area's writing, business, and cultural environment so that you can develop training that is customized for their specific environment and writing needs.

Briefly stated: The goal of this phase is to know your audience.

The writing environment includes, but is not limited to the:

- Types of documents written in the area. This includes the documents' purpose, usage and audience(s). It also includes any specific company, regulatory, or governmental requirements the documents must follow.
- Challenges to writing quality, e.g., time, writing experience.
- Level of general and company-specific writing experience.
- Writing strengths within the group, things that are done well.
- Writing weaknesses and their frequency, opportunities for improvement.
- Managers' specific expectations of how they feel the class will improve their area's writing. Are they looking for overall incremental improvement or improvement in specific areas?

The business environment includes, but is not limited to the:

- Area's commitments and workload, e.g., project deadlines, product or system launches, travel schedule.
- Decision to include contractors, consultants, or co-ops in the training.
- Any confidentiality issues related to using company documents as samples in class.
- Tracking of training effectiveness. Are managers interested in formally determining the class's impact on their area's writing quality?

The cultural environment includes, but is not limited to the:

- Comfort level of the area in sharing their writing.
- Managers' commitment to the writing class as a value-added activity for their area.
- Area's learning and working style.

When developing a class the writing and business concerns sometimes take precedence over understanding the group's culture. While knowing the audience's writing needs is vital, developing a class with an area's culture in mind is important to achieving trust and creating an optimal environment for learning. For example, my audience consisted of R&D engineers so the class's organization was structured with brief segments of lecture time followed by small-group exercises.

Based on my needs assessment, I assigned individuals in departments to the same class. The attendees were comfortable working together and often reviewed each

other's work. I also left the author's name on the writing samples.

Additionally, managers fully participated in the workshops. They provided writing samples, attended the training and participated in the small group exercises. Their involvement signaled the importance of the class to attendees. The level of management involvement is influenced by the culture of the group. In my training sessions, attendees were comfortable with the managers' participation.

All three environments influence the decisions regarding the most important element of your class: how the writing portion will be addressed. Options include assigning attendees writing assignments or requesting previously written work prior to the class and then reviewing the work in class, to having the attendees write during the class.

For my workshop, the stakeholders and I chose to request existing writing samples based on the department's time restraints and the value of using real-world samples. Writing during the class by the attendees was minimal as the workshop's focus was on review and discussion of the existing writing samples in the small group sessions.

To facilitate confidentiality, I distributed packets of writing samples at the class and then collected the samples at the end of the class for shredding.

Your assessment begins with the stakeholders. Using the checklist as a starting point, discuss the items with the stakeholders to obtain their perspective. If you are already familiar with the area or have a general idea of the training topics you would like to cover, bring any preliminary information or drafts with you. In addition, ask the stakeholders for writing samples of the work typically done by the area, including examples of writing completed satisfactorily to the area's standards and examples showing common writing problems.

You can also interview individuals who will be attending your class. I recommend discussing your intentions with the manager of the area.

Once you have completed the needs assessment phase, you can begin the next phase, writing the proposal.

Create the Training Proposal

In this phase you translate the information you have gathered into a document that provides stakeholders with sufficient information to authorize you to develop the class, as described in your proposal. At a minimum the proposal includes the objectives, class length,

presentation method, and high-level class outline containing key topics. The proposal also includes project management details such as responsibilities and deliverable dates.

The proposal is also an opportunity to restate why the class is being developed and its benefits for the area receiving the training and the SMEs, if applicable. The "whys" may include cost savings because the class is being created in-house, specific training content that focuses on an area's needs due to your knowledge of the company, and so on.

Important: You are not writing the class. The content must be kept at a high-level. Think of your proposal document as a "road map" that you will use to guide you through the subsequent project phases.

While the proposal must provide sufficient information for the stakeholders to make informed decisions, it does not need to be overly formal. I developed a second level outline describing the items mentioned above.

While the goal is to have a complete proposal, there may be items that can only be decided when the stakeholders review the proposal. An example would be project milestone dates. Any open items are included on the proposal and identified as open.

The proposal serves another important function as the content will be expanded to develop the class and materials.

Approve the Training Proposal

Upon completion of the proposal hold an initial meeting with the stakeholders to review the proposal. I recommend that you distribute the proposal prior to the meeting so the stakeholders have time to review the content.

The purpose of this meeting is to obtain consensus on the overall training proposal, assign development responsibilities and dates, and identify any follow-up issues. This meeting can also confirm the type and frequency of project communication favored by the stakeholders. Ongoing communication is important throughout the project.

Depending on the outcome of the initial meeting hold additional meetings or distribute updated proposals for review until you have reached consensus on the content.

Develop the Training Class

Upon approval of the proposal you can develop the class, in partnership with the stakeholders, using the information obtained during your needs assessment, approved training proposal, and high-level course outline.

Class development may include creation of the:
- Instructor's course outline detailing content and course presentation instructions (e.g., timeline of topics, writing exercises, breaks)
  Note: The detail level is determined by how you and any co-trainers will use the outline.
- Participants' class materials (e.g., handouts, class manual).
- Instructor's presentation material (e.g. PowerPoint slides)
- Class evaluation form (highly recommended)
- Other communications needed for the class, such as a writing sample request sent to the participants.

During this phase you develop and distribute the deliverables to the stakeholders for their review and comments. The process is continued until you have the stakeholders' approval.

PRESENTATION PHASE

Pre-Presentation Preparation

You are now ready to begin preparations for holding the class. This phase includes sending out communications announcing the class and requesting writing samples or assigning writing pre-work, if applicable. It also includes the administrative functions, such as scheduling attendees, reserving a conference room, and printing hardcopy attendee materials, if used.

Depending on the participants' schedules, availability may be a critical factor determining when your class can be held. In my case, I needed to schedule three months in advance. If you will need a long lead time for scheduling, you can send out a preliminary announcement during the development phase to secure a date.

If you are requesting pre-work, a vital part of this phase is tracking the receipt of pre-work and ensuring that the work is received in a timely manner. For my workshop, the Regulatory Affairs SMEs reviewed the incoming writing samples prior to the class, discussed the samples

and matched the samples to the small group exercises. Therefore, it was critical to receive the samples at least two weeks before the class so the SMEs had time to prepare.

Present the Training

After all the preparation, the day has arrived. I recommend that a trainer or designee act as the timekeeper to maintain the class schedule. This is especially useful if writing exercises are part of the class. I acted as the timekeeper, allowing the SMEs to concentrate on leading the exercises.

For my workshop, I extended the collaborative approach by partnering with the Regulatory Affairs managers to present the class. I presented the brief overview of the topic while the managers led the small group exercises. The managers also had an opportunity to add comments or answer questions during my presentation portion. The attendee feedback was positive regarding multiple presenters.

Upon conclusion of the class, distribute evaluation forms, if used. As I mentioned earlier I strongly recommend use of evaluation forms to obtain attendee feedback. For my workshop I co-developed the form with the stakeholders. As a result, the evaluation form was an important source of information during our "lessons learned" meeting.

POST TRAINING PHASE

Evaluate the Class

After the class collate the evaluation forms and send the results to the stakeholders. A brief "lessons learned" meeting may also be scheduled with the stakeholders to discuss the participants' feedback on the evalution forms, things that went well, and areas for improvement. If you and the stakeholders will be tracking the class's impact upon writing quality, the meeting can also be used to initiate the tracking method and follow-up.

Leverage the Training

The workshop you create can be offered to others in the same functional area, other areas, or to other facilities within your company. The key to leveraging is to communicate to other potential stakeholders.

Upon successful completion of my pilot workshop, the stakeholders and I invited managers from R&D, Quality and other functional areas to a brief half-hour

information session. During that session we provided an overview of the workshop and each stakeholder spoke about the advantages of holding the class from their perspective. I also provided a copy of the workshop's class manual for each manager.

While there are other methods of communication available, it is my opinion that a meeting or teleconference where the stakeholders participate is an effective means to promote a class. As a result of the information session, four managers scheduled workshops, with two managers agreeing to a future class.

In conclusion, an in-house technical writing class developed using a collaborative approach adds value in several ways. First, the stakeholders' in-depth knowledge of the audience's writing, business and cultural environments results in training that is focused on the audience's needs. Secondly, a collaborative approach encourages the functional area's management to participate in the class. Increased management interest often results in increased attendee interest.
Lastly, a collaborative environment helps you to leverage your leverage training class to other areas. Stakeholders will feel part of the project and will be able to share in its success.

Technical communicators have a tremendous amount of knowledge and expertise that can be shared with other functional areas. Partnering with functional areas and subject matter experts to develop a technical writing class is an effective method to communicate that knowledge as well as reinforce that technical communicators are vital contributors to their companies.

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None

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Technical Writing Training Development Checklist

Checked	Item
Project Initiation Phase	
Identify Training Opportunities	
	Functional areas with whom you work.
	Functional areas outside your daily interaction.
Identify Stakeholders and Obtain Required Approvals	
	Identify stakeholders and their level of involvement. Will they be directly involved with decisions or involved as information only?
	Obtain any required approvals from their areas regarding their involvement in the project.
Project Development Phase	
Assess Training Needs. Topics may include, but are not limited to:	
Writing environment:	
	Types of documents written in the area. Includes the documents' purpose, usage and audience(s). Also includes any specific company, regulatory, or governmental requirements the documents must follow.
	Challenges to writing quality, e.g., time, writing experience.
	Level of general and company-specific writing experience.
	Writing strengths within the group, things that are done well.
	Writing weaknesses and their frequency, opportunities for improvement.
	Managers' specific expectations of how they feel the class will improve their area's writing. Are they looking for overall incremental improvement or improvement in specific areas?
	Other:
Business environment:	
	Area's commitments and workload, e.g., project deadlines, product or system launches, travel schedule. Note: These are important factors when determining class length, pre-class work vs. using existing work, and class date.
	Decision to include contractors, consultants, or co-ops in the training.
	Any confidentiality issues related to using company documents as samples in class.
	Tracking of training effectiveness. Are managers interested in formally determining the class's impact on their area's writing quality?
	Other:
Cultural environment:	
	Comfort level of the area in sharing their writing.
	Managers' commitment to the writing class as a value-added activity for their area. Identify the managers' level of participation and impact on attendees. Will they attend the class, submit writing, and/or participate in exercises?
	Area's learning and working style.
	Other:
Create the Training Proposal. Components may include, but are not limited to: (Note: Not all information may be available during this phase, include the item and identify it as open.)	
Class Structure	
	High-level synopsis of class. Also, restate why the class is being developed and its benefits.
	Training length
	Identify trainer(s) and role(s). Will you be the sole trainer or will you co-train with collegeagues or SMEs?
	Presentation approach: Will the class be predominantly interactive, predominantly lecture, or a combination? Will there be full group participation and/or small group break-out sessions?
	Location of training. Onsite or offsite? Will individuals at another location be participating from their site? How does the presentation approach impact the location?

Technical Writing Training Development Checklist	
Checked	**Item**
	Physical arrangements. Are there any audiovisual needs? Will the room need to accommodate the presentation approach? (Example: small group sessions)
Class content. (Note: High-level outline detailing the content below works well).	
	Course purpose
	Course objectives
	High-level instructor outline, including key topics, exercises, breaks, and general class timeline.
	Writing exercises. Although writing exercises are included in the course outline identifying when they would occur, this entry provides additional details clarifying how they will be addressed.
	Instructor's presentation material. Will there be accompanying PowerPoint slides? Note: The material does not need to be developed at this time.
	Participants' class material. Will there be materials for the attendees? Examples: Paper and electronic version of PowerPoint slides, handouts, class manual. Note: The material does not need to be developed at this time.
	Class evaluation form: Will a form be used? (Note: The form does not need to be created at this time).
	Method to track the class's impact on the attendees' quality of writing. Will the class's impact be tracked? If yes and known, briefly describe it.
Project Management	
	Establish timelines for the project.
Identify responsibilities for deliverables in the project, including but not limited to:	
	Instructor's course outline detailing content and course presentation instructions.
	Participants' class material.
	Instructor's presentation material.
	Class evaluation form (strongly recommended)
	Other communications needed for the class, such as a request to the participants to provide writing samples.
	Other:
Identify administrative responsibilities, including but not limited to:	
	Scheduling the class.
	Reserving a conference room or training location, including audiovisual or special physical arrangements for the room.
	Managing pre-work assignments or requests for samples prior to class.
	Printing copies of participants' materials (if needed)
	Taking care of refreshments (as appropriate).
	Other:
Approve the Training Proposal.	
	Review and approve the proposal. Revise as needed.
Develop the Training Class, using the needs assessment, approved training proposal, and high-level course outline.	
	Instructor's outline, including content and presentation instructions (e.g., timeline of topics, writing exercises, breaks)
	Participants' class materials.
	Instructor's presentation material.
	Class evaluation form, if used.
	Review and approve the materials. Revise as needed.
Presentation Phase	
Pre-presentation Preparation	
	Schedule the class, reserve a conference room, and make any audiovisual or special physical arrangements.
	Manage the receipt of pre-work or writing samples, and follow up as needed.
	Make copies of class materials.
	Take care of refreshments.
	Other:

Technical Writing Training Development Checklist

Checked	Item
Present the Training	
	Arrive prior to the class time to ensure that any audiovisual equipment is operating correctly and the room is arranged for the class.
	Distribute an attendance sheet, if applicable.
	Distribute evaluation forms, if applicable.
	Other:
Post Training Phase	
Evaluate the Class	
	Collate the evaluation forms (if used) and distribute them to stakeholders.
	Schedule a meeting, as appropriate, with stakeholders to hold a "lessons learned" meeting. Discuss the participants' feedback on the evaluation forms, things that went well, and areas for improvement.
	If you and the stakeholders will be tracking the class's impact upon writing quality, initiate the tracking method and follow-up.
	Other:
Leverage the Training	
	Invite managers to an information session where you and stakeholders provide an overview of the training class.
	Schedule one-on-one meetings with managers.
	Include articles in company or departmental newsletters describing your class.
Notes	

Highfaluting Hyphenation
Diane Ross

How to Hyphenate—Technical editors are often accused of "inconsistency" regarding hyphenation because the hyphenation changes with the types of words we use—is the word an adjective, adverb, noun, or verb? The Editing Special Interest Group round table will examine the "rules" of hyphenation and show how the example phrase "set up" can explain all.

WHAT ARE THE GUIDELINES?

For my documents, I use the following guidelines:

- If the phrase is a verb, it is usually two words, such as "We will set up the experiment."
- If the phrase is a noun, it is often one word, such as "The test equipment setup is ready."
- If the phase is an adjective that requires both words working together to modify the noun, it's usually a hyphenated word, as in, "The team defined the set-up parameters."
- If the phrase is an adverb/adjective combination where the adverb modifies the adjective (not the noun that the adjective modifies), don't use a hyphen, as in "…a highly flammable substance."

Over the years, I have been told by my mentors NOT to hyphenate any "-ly" words except for cases such as "user-friendly documentation." On further examination, one discovers that "-ly" words are not hyphenated because the "-ly" word is usually an adverb that modifies the adjective with which it is joined, not the noun that is modified. For example, "Our mutually beneficial arrangement helps us both." "Mutually" modifies "beneficial," not "arrangement." One may also see the phrase "environmentally friendly appliances." Avoid the hyphen for adverb/adverb phrases.

"X ray" is another interesting phrase, as it is the semantic equivalent of "gamma ray." The phrase "gamma ray" is not hyphenated when one is writing about the ray, but one would hyphenate "gamma-ray detector." The same logic applies to "X rays from outer space"; one does not hyphenate "X rays" because the plural form of "ray" is the noun. However, one would write "the x-ray machine" because in this case, "x-ray" is an adjective. (Also, the "X" becomes lower case, but that's the subject of another seminar.)

I had a spirited argument on the hyphenation of "X ray" with a subject matter expert. While I pointed out pages in my dictionaries and style books to explain my non-hyphen position, his reference for credibility was, as he stated, "X dash ray is all over the internet." My denouncement of internet writers who lack standards did not sway him. The subject matter expert is the boss. For his documents, I now hyphenate the phrase "X-ray" when used as a noun. (But he lets me put two spaces after a period.)

Sometimes hyphens are used to help conjoin words to make sense of a string of words, such as "seven 8-year-olds..."

Conventional wisdom (or perhaps, dubious sources) states that a compound word starts out as two words, then, over time, becomes hyphenated, and eventually, the words become one word. The use of the internet and personal computers has hastened that process. For example, "tool belt" is still two words, but "toolbox" is one word.

Style Guides

Many style guides differ on rules for hyphenation. I suggest your organization adopt standards based on one unifying style guide.

SUMMARY—GENERAL

Situation	Guideline	Example
Verb phrase	Two words	"We need to shut down the computer."
Noun phrase	One word	"We are experiencing a shutdown."
Adjective phrase	Hyphenate the words	"We are starting the shut-down phase."
Adverb/ adjective phrase	Use hyphens when both words modify the noun	"…a wholly owned company…" but… "steely-eyed glare"
Adverb/ adverb phrase	Do not hyphenate	"…an environmentally friendly construction project…"

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Localizing Images: Cultural Aspects and Visual Metaphors

Samartha Vashishtha

Modern corporations maintain a wide range of Web assets, including websites, documentation portals, and knowledge-bases. These Web assets use visual elements, such as colors, graphics, images, symbols, visual arrangements, and user interactions, to convey information. While we expect these elements to convey only the information we intend to convey, such visual elements also carry cultural meanings that different users interpret differently in the light of their social background.

Despite the importance of these visual elements, most Web asset localization projects limit their focus to only text and screenshots. However, translating these visual elements, keeping in mind the cultural ethos of the target audience, is crucial too—especially for marketing-oriented content, documentation, and websites.

In this article, we will look at the cultural aspects that must be considered while localizing these visual elements of "content".

DEFINING CULTURE

Before we examine the aforementioned visual elements, let's review a definition of culture given by Geert Hofstede, Emeritus Professor—Maastricht University:

"Culture is the collective programming of the human mind that distinguishes the members of one human group from those of another. Culture in this sense is a system of collectively held values."

Hofstede also propounded a set of five dimensions that help objectify cultural differences:

- Collectivism vs Individualism
- Power Distance
- Femininity vs Masculinity
- Uncertainty Avoidance
- Long Term Orientation

We will study these dimensions later in this article.

COLOR

Colors invoke different moods, emotions, and states of minds. Besides their general significance, they assume special significance in particular socio-cultural contexts.

While localizing visual elements, you could use the tables in this section as references to choose a color that would convey the intended meaning to users from a specific cultural background.

Tables: Significance of Colors

From this URL (PDF), you can download a table summarizing the general range of meaning that major colors convey.[2]

This table (PDF) captures many useful instances of culture-specific significance of colors.[1,2, and 4]

Although color can be used to supplement and reinforce the effect of a Web element, it should not be used as the sole means to convey meaning[5]—partly because that information cannot be used by those who are color-blind.

Case Study—Hygiene-product Websites

The websites of Axe® and Old Spice®, both leading brands of deodorants targeting male customers, display predictable color patterns. While the Axe site is predominantly set in black, a color of sexuality and sophistication, Old Spice uses a combination of red and black for similar reasons.

By contrast, SunSilk Gang Of Girls and Pond's®, two websites targeting female customers, figure pink hues prominently.

Similar trends are observable in Casio's launch of a series of women watches (Baby G) parallel to its popular G-Shock series for men[6], which features a number of black watches. Many Baby G watches are pink or of pastel colors, so that they appeal to the modern woman.

These examples elucidate the fact that the two genders have widely different color preferences. As a general observation, men tend to like cooler colors like blue and black, while women have a bias towards warmer colors—that is, shades of red and orange[3]. See *Case Study— Femininity vs Masculinity* later in this article for more information on the general preferences of the two genders.

Class Differences and Color Perception

Research has shown that members of the general working class prefer colors that they can easily name, while the highly educated class prefers obscure colors like taupe, azure and mauve[3].

This seems to be a primary reason why Wal-mart® chooses simple colors for its logo. The current logo is a distinct blue and yellow.

Age Differences and Color Perception

Jennifer Kyrnin opines that children like bright, solid colors, while adults prefer subdued shades; implying that mild pastels and gray shades are not the appropriate colors for images on a children's website.

Climatic Differences and Color Perception

The climatic conditions of a target country may also have an effect on the color preferences of the people there. For instance, Scandinavians are known to have a preference for light yellows, bright whites, and sky blues. This is in stark contrast to the long, dark nights that they are used to as a people. The residents of San Francisco, being used to foggy days, don't exhibit a liking for grays. However, these hues are preferred by the residents of Miami[7].

Color Trends

Like all other things, colors too periodically gain or lose favor with the masses. Very bright colors ruled the roost in the West in the mid-1800s, but subdued colors gained

currency in the 1870s and 1880s. In the 1890s, cream shades got popular[7].

In the twentieth century, these cycles of preference are short and abstract. As far as content, Help systems, and Web design are concerned, shades of blues seem to be the in thing globally. Some custom colors that Web and graphic designers prefer, as per a survey, are shown in Figure 1[8].
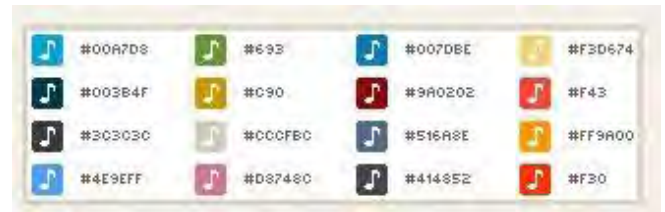
Figure 1: Some popular colors for Web and info design

Web-safe Colors

Back when computer displays were capable of displaying only 256 colors, a palette of 216 colors—supposedly immune to dithering on such displays—was developed. Those colors did not have standardized names, but were identifiable through a unique set of RGB values. It must be noted that the Web-safe palette has gone obsolete now[9], since almost all modern color displays are 16+ bit. However, designers of anti-phishing[10] systems still use that palette; since a large number of its colors can be distinguished uniquely by the human eye.

SYMBOLS AND ICONS

In most cultures, symbols are very closely interwoven with general etiquette and theistic beliefs. This calls for a careful assessment of their suitability in different cultural contexts. In most cases, drawing elements from a set of internationally accepted icons and symbols can be a safe option.

Recognizing the need to standardize the use of visual elements on a global scale, JTC1, a technical group of the ISO has come up with the ISO/IEC DIS 11851 standard for icon symbols and functions in IT user system interfaces. The standard deals with general, object, pointer, control, tool, and action icons.

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Some Guidelines on Using Symbols Internationally

Although deciding on the right symbols for a localization project calls for ingenuity and caution, these guidelines will come handy:

- Graphical elements with text in a particular language should be avoided, since they could be difficult to localize. Elements with a single letter could particularly lose a lot of their meaning in translation, since words with identical meaning in different languages can begin with different letters.

- Hand symbols should be avoided while designing interfaces that will be localized. Generally speaking, almost all hand gestures are obscene someplace or the other in the world.[11]

  If hand symbols must be used, generic human hands engaged in some unambiguous activity should be shown. Visual elements representing gender or racial distinctions should be omitted—for instance, the hands should be drawn in pure white or pure black. Some hand gestures that will not go down well with a global audience are shown in the table below.

Icon	Intended meaning	Problems
👍	Yes, OK	In Sicily, this hand gesture is a reference to an intimate activity.
👌	Precisely, yes	In France, this gesture means zero or worthless. In Japan, it is a reference to money. In South America and India, this hand gesture has anatomical connotations.
✋	Stop, halt	In Greece, this gesture, going back to Byzantine times, is an abusive signal.

- Similarly, using body parts as symbols could back-fire. Inanimate objects can be substituted for human figures, wherever possible.[11] When using human figures is indispensable, line and generic sketches should be used.

- The use of animal symbols should also be avoided while designing for an international audience. The dog normally thought of as a symbol of loyalty in the West, is food to many East Asians. The snake, which could be a negative symbol for the West (the Devil, tempter), is the symbol of life and rebirth in some parts of the East.[11] Many animals hold religious significance in specific parts of the world. The cow is sacred in India, while the pig is an unholy animal for Muslims everywhere.

- Mythological or religious symbols that hold relevance for a particular culture may be meaningless for others. For instance, the Red Cross symbol is modified to the Red Crescent in Arabic countries, since crosses and six-pointed stars can be deemed inappropriate there[11]. Similarly, while the Swastika is reminiscent of Nazism in the West, the related Swastik is a holy symbol for the Hindus.

Figure 2: Swastika and Swastik

- Using abstract symbols, made up of simple geometric shapes, can be a safe option. Here too, care must be taken not to use symbols that resemble religious symbols (like the Islamic crescent) and flags of nations.[11]

  Using natural images for designing symbols is also an option, since these remain fairly consistent across the world. Other possible inspirations for international symbols could be modes of transportation, globally-marketed consumer goods (like cameras, batteries, and

electric bulbs), office equipment, communication media, scientific symbols, and professions practiced throughout the world (painter, carpenter, writer, etc). Some traffic and warning symbols are also fairly standardized and in use throughout the world[11].

Flags on a Globalized Website

Yves Lang is of the view that on a globalized website, flags should not be used as icons that users must click to access language-localized versions. This is because the same language may be the native tongue of many countries, and the lingua franca of a still greater number of communities. Using a flag to represent a language (for example, using the British, American or the Australian flag to represent the English language) could offend users in other countries where that language is widely spoken.

CULTURAL ATTRIBUTES

While localizing the visual elements in an information asset, an understanding of the attributes of target culture comes very handy. In this section, we'll look at some theories that attempt to define such attributes beyond the obvious.

Hofstede's Dimensions of Culture

"Culture is more often a source of conflict than of synergy. Cultural differences are a nuisance at best and often a disaster." - GEERT HOFSTEDE

Hofstede's culture theory defines five dimensions of culture that help objectify differences between cultures[12]:

- **Collectivism vs Individualism (IDV):** The degree to which the culture emphasizes individual or collective relationships

- **Power Distance (PD):** The degree of equality among the people of a culture

- **Femininity vs Masculinity (MAS):** The power equation between genders in a culture

- **Uncertainty Avoidance (UA):** The extent to which the members of a culture feel threatened by uncertain circumstances

- **Time Orientation (LTO):** The extent to which a culture stays devoted to traditional values on a long-term basis

Hofstede has determined scores for each of these attributes for many countries of the world.

Example: Comparison of Hofstede's dimensions for India and the USA

Figure 3: Hofstede's dimensions for India and the USA

Case Study—Individualism vs Collectivism

Adobe® Systems websites for the USA and India sport different images.
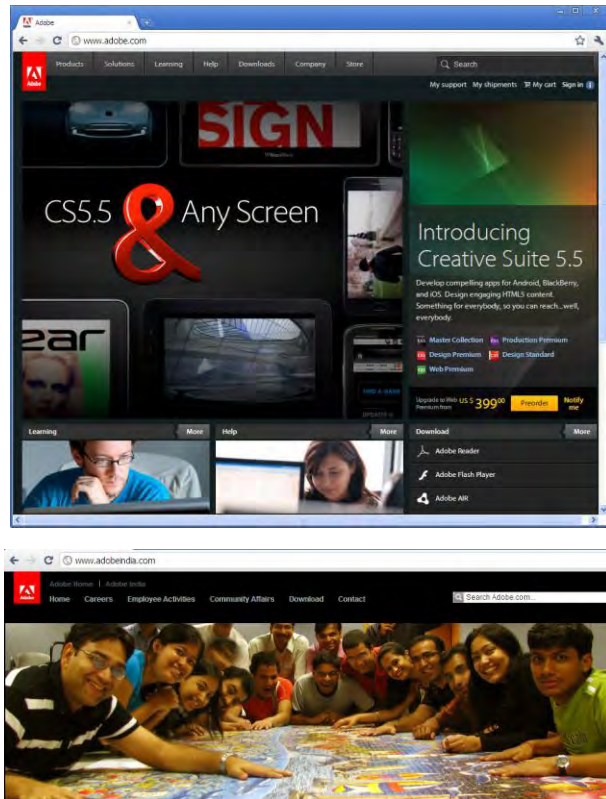
Figure 4: Individualism vs Collectivism
(websites accessed on April 15, 2011)

While searching for corporate information, users from individualist societies tend to be more interested in personal achievers at a company. Members of collectivist cultures focus more on group milestones.

Case Study—Power Distance

The Siemens® website for The Netherlands (low power distance) shows details of a single leaf as its predominant image. The website for Malaysia features images of the Kuala Lumpur skyline.

Figure 5: Power distance
(websites accessed on April 2, 2011)

Some other applications of the Power Distance dimension are as follows:

Navigation: People from High Power Distance cultures have been observed to appreciate restricted, guided routes and ways to access information, and greater use of authentication mechanisms. On the other hand, users from LPD cultures demonstrate a preference for multiple information paths, and freedom in the way things can be done.[13]

User Interaction: An analysis of the Coca-Cola websites for countries with different power distances shows that the error messages meant for users in LPD cultures tend to be didactic, while for HPD cultures, these are more supportive in nature.[13]

Models: While users in LPD cultures like to see influential people and leaders featured on websites, users in HPD cultures prefer to see normal people engaged in day-to-day activities. This may also reflect in the fonts, colors, sounds, logos and other multimedia elements on a website.

Case Study—Femininity vs Masculinity

McDonald's websites for Norway (low MAS) and Saudi Arabia (high MAS) have different designs. The metaphor on the front page of the Norwegian website underlines family and shopping, while the Saudi Arabian design lays emphasis on the spirit of sports and competition. Thus, the content and design of a website targeting a woman-dominated culture should emphasize social relationships. On the graphic design front, women tend to like softer edges and shapes, while men seem to prefer clear, no fuss illustrations[13].

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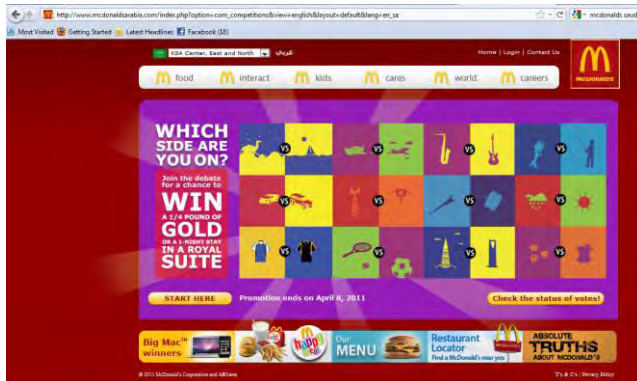
Figure 6: Femininity vs Masculinity
(websites accessed on April 3, 2011)

Case Study: Uncertainty Avoidance

Trends are observable in the visual information that Skoda presents to users in Britain (low UA) and Belgium (high UA). While the British website shows a dynamic image open to interpretation, the Belgian website features relatively unambiguous images.

Figure 7: Uncertainty avoidance
(websites accessed on April 3, 2011)

Case Study: Long Term Orientation

Figure 8 shows snapshots of the websites of two builders—one from Pakistan (LTO closer to zero) and the other active in India (LTO closer to 60). The effect of this Hofstede's parameter on the visual imagery of these websites is evident. The first website focuses on a single project, while the second one depicts a city-level long-term view.

Figure 8: Long term orientation
(websites accessed on April 3, 2011)

An example application of the LTO dimension is in designing the *Contact Us* page for a corporate website. Even a single Web form could suffice as the *Contact Us* Web page of a site targeting users from low LTO cultures, since long-distance communication is often the dominant mode of communication in such societies. However, in high LTO countries, users expect to see the personal contact information of some company representative displayed prominently on contact pages.[13]

Hall's time orientations

Edward T. Hall's theory of time orientations differentiates monochronic (single-tasking) and polychronic (multi-tasking) cultures. The US is usually seen as a monochronic culture, while the Arab world is considered polychronic.[14]

Unlike Hofstede, Hall has not developed detailed time orientation scores for countries and cultures. However, behavioral observation of a sample user-base could help determine if a culture is monochronic or polychronic.[15]

Hall's orientations likely have limited applications to the localization of visual elements. However, they could help optimize workflow and user interaction design for different cultures.

Marcus' model of culture-sensitive Web UI design

Aaron Marcus has identified five key design components for optimized global UI design[16]:

- **Metaphors** are words, images, sounds, and tactile experiences that have the potential to convey complex concepts.

Western page curl   Arabic page curl

- **Mental Models** are assumptions that people have in mind. For example, when someone says they went to see a sports game, Indian listeners would likely imagine a cricket match, while American listeners would likely think about a football/baseball game.

- **Navigation** pertains to how user would traverse a particular model.

- **Interaction** pertains to the human-computer interaction. Interaction involves elements, such as I/O, status displays, and other feedback.

- **Appearance** relates to the choice of fonts, colors, styles, sounds, or tactile perception for localized Web UIs.

Besides UI design, Marcus' components could find applications in information design and content delivery mechanisms for documentation suites.

POLITICAL CORRECTNESS

Sometimes, the quest to be politically correct leads to the conscious rejection of certain colors and symbols by a people or community. Such trends are more observable when a nation comes of age—for instance, when it becomes a sovereign state after a period of dictatorship or colonial rule. Otherwise too, trends like replacing the word disabled with the wheelchair symbol, or the coinage *differently-abled*, reflect an attempt to avoid offending those in question.

Another recent example is that of China blocking Web searches for the keyword *Jasmine* in the wake of the recent Tunisian 'Jasmine' revolution.

SUMMARY

The localization of corporate Web assets is a complex process involving many technical and cultural variables. The cultural aspects of this process can be addressed adequately through a careful study of the target user-base and application of cultural models, early in the development cycle.

Besides linguistic heterogeneities, the perception of colors, images, symbols, gestures, and signals by different cultures varies under the influence of factors like demographics, taboos, politics, history, moralities, and theistic beliefs. Any successful attempt to localize these assets, thus, must take cognizance of these factors.

While localizing visual elements in a culture-sensitive manner increases the overall localization effort, the resulting global Web presence helps companies build, maintain, and expand a loyal customer-base. Web analytics tools like Adobe Test&Target and user-feedback mechanisms, such as ratings and questionnaires, could help quantify the impact of culture-sensitive localization on user experience and customer loyalty.

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