TECHNIQUES

Innovations in Technical Communication & Interviews with Writers in the Field

In This Issue:

MINNESOTA STATE UNIVERSITY MANKATO

A Message from the Editors

The theme of this season's issue of Techniques is actually two interwoven themes: innovations in technical communication and interviews with technical writers working in the field. There are many facets to the industry of technical communication and many career options available. Keeping up to date on changes in the industry is an important aspect of being a successful and marketable technical writer. The writers featured in this issue share—through their own experiences and those of their interviewees—important insights and interesting aspects of an ever-evolving discipline.

Here are a few highlights of what you can expect from this issue:

- Jane Funk explores the need for tech writers to embrace the terminology of IT specialists and developers in "The New and IT-Literate Tech Writer."

- Asia Karpuleon shares an in depth interview with Dr. Ruth Cronje of the University of Wisconsin-Eau Claire. Cronje offers her insights on the technical communication job and internship market from her wealth of experience as a writer and educator.

- Liliana Cano chronicles a thought-provoking conversation with Arlandis Jones, a graduate of Minnesota State University Mankato's Technical Communication program, on what led him to technical writing and what he's up to next.

- Kathleen Romero discusses the evolution of content marketing and what it means for the technical writer looking to increase their own marketability in "Content Marketing and Technical Communication."

- Wendi Coleman delves into the growing need for technical communicators to develop a technical skill set themselves in "Technical Knowledge and Experience Are Essential Skills for Technical Communication Majors."

We're excited to have been a part of this edition of Techniques. We hope it fosters further discussion about the expectations and requirements for being a modern technical writer.

Peace, Youth Unemployment Causes and Solutions, PeaceChild.org, September 2015

The New and IT-Literate Tech Writer

By Jane Funk

Introduction

The activities of technical writers (TWs) are changing. Innovations in documentation, collaboration, and communication are creating a rift between the traditional and the new writing skills. The new skills include fresh jargon such as dogfooding, HCDE (Human Centered Design and Engineering), UX (User Experience), HCI (Human-Computer Interaction), API (Application Program Interface) documentation, DevOps (Development and Operations), and BPM (Business Process Management). These terms and their abbreviations are easily recognized by most practicing technical writers, but why would a writing-core field include terms associated with software development and process design?

"[H]aving some programming or 'scripting' skill is important if you are writing docs intended for engineers. For developer docs, dogfooding will often involve setting up a (minimal, toy) version of a system, whether it's a REST API, mobile SDK, whatever. It's not required to have dev skills for most of this, but it's very helpful since it lets you get further, faster, on your own before you need help from colleagues," remarks Richard Loveland (2015) in Write the Docs, a technical writer's forum. Loveland was responding to a big question posed to the forum's users: What is the difference between traditional technical writing and the new technical writing?

Dogfooding and APIs

The difference might fall directly within computer technology. When technical writers enter careers today, they will work on both sides of computer technology—designing a way for users to fully access and experience the technology and communicating with those who design the technology. This places technical writers at the nexus. Connecting the communication needs of engineers and connecting the communication needs of end-users, these specialists will understand and influence both worlds because they will work directly with technology

java.applet	Provides the classes necessary to create an applet and the classes an applet uses to communicate with its applet context.
java.awt	Contains all of the classes for creating user interfaces and for painting graphics and images.
java.awt.color	Provides classes for color spaces.
java.awt.datatransfer	Provides interfaces and classes for transferring data between and within applications.

Figure 1

developers and/or directly with technology users. Their writing, icons, designs, and steps will determine if the technology developers can track their data back to find errors and reuse code, and if the technology users can trace forward through the data paths to achieve their goals. How will these new writers accomplish that? They will almost certainly need to know how code operates, various types of codes, and various coding systems in addition to how diverse users operate, diverse types of users, and diverse user logics.

On the developer side of the nexus, many TWs will have to eat their own dog food. This phrase, eat your own dog food, has less to do with the Alpo advertisements that helped coin the phrase and more to do with using the new software personally, according to Warren Harrison of Computer.org. Harrison explains how developers should first use their products before the public will trust the company or its products ("Eat Your Own Dog Food," IEEE Computer Society, 2006). Since TWs will develop the documents associated with designing the software, they will then need to use those same documents when flaws appear in the dogfooding process. Most likely those flaws will appear in APIs—Application Programming Interfaces—which the TWs document.

"Applications use APIs to exchange information and services. […] APIs are the communication channel of the online world. Developers need help hooking their app up to someone else's API. A writer who can provide that help is in a very good position," according to Sarah Maddox's educational webinar, "Introduction to API Technical Writing," presented by the Society for Technical Communication ("Part 1 in API Series: Introduction to API Technical Writing," 2015). Maddox continues to explain that "[d]ocumenting APIs is not so very different from other types of technical writing. We show people how to use a product or perform a task. The difference lies in the product itself and the technical skills required." What does API look like?

Figure 1 is API documentation for Java's coding. The documentation was written by a TW (either by name or by skill set). This individual may or may not possess "dev skills" as mentioned by Loveland, but developer tasks were used to understand the script enough to explain them in text.

Information Users

On the user's side of the nexus, these same codes display communication in a varied set of media. Human Centered Design and Engineering (HCDE) is a division of technical communication concerned with UX (User Experience). Users, being humans, react to communication with often unsuspected outcomes. Engineering products that include the human elements of culture, social nuance, and situational perspectives requires sensitivity to user diversity. Keen design reflection creates products that "lead to positive user experiences, by ensuring […] artifacts are easy to learn and use, are fun and enjoyable, and help users to achieve their goals," according to Purdue Polytechnic Institute's online description of an HCDE degree (Purdue University - Purdue Polytechnic Institute, 2015, polytechnic.purdue.edu). A competing yet similar information design degree is HCI. "The Human Computer Interaction (HCI) specialization prepares students to address human needs with technology by determining useful system functionality and by designing usable interfaces, considering the context of the individual and/or organization," according to University of Michigan's School of Information's online program description. This program boasts career placement as "user-experience researcher, user experience designer, usability analyst, information architect, usability engineer, application developer, interaction designer, Web developer, human factors engineer," and others similar to the tasks of technical communicators and writers (www.si.umich.edu, 2014). However, each task and skill involves computer-coding related knowledge in order to communicate the issues in the users' experiences to developers.

Communication Strategies

In addition to designing for users, technical communicators also design intra-office communication. To improve the communication between developers and other areas within an organization, large corporations use DevOps (Development and Operations). "In an enterprise there is a need to break down silos, where business units operate as individual entities within the enterprise where management, processes and information are guarded. On the software development side […] there needs to be better communication and collaboration to best serve the IT business needs of the organization," states Vangie Beal (Webopedia, "DevOps - development and

> *"The new technical writer must still complete traditional tasks, but they must complete them in an increasingly computer-programming oriented environment."*

operations"). Her definition of DevOps promotes this Agile® methodology, which allows fortified teams to work without interruption and with ample support until project completion.

Agile® project management's popularity allowed the method to branch into many similar forms of Process Management (PM) for businesses not focused solely on software development. In order to break down "silos," communication designers use an analytical breakdown of product creation, often referred to as Business Process Management (BPM). Businesses strive to optimize the time and effort of each department by creating channels for use and reuse of information. These channels need BPM analysts who can dissect processes and reroute systems to streamline workflow in an ever-changing environment. Closely related to managing a business process, Documentation Management Process is a technical writing procedure for documentation departments managing how their documents flow throughout the entire business operation. DevOps, BPM, and documentation combine in the tasks assigned to TWs who serve in a quality management environment. In addition to understanding these processes, TWs must use specialized software designed for each management process.

Conclusion

Processes intersect, and often valuable communication collapses at that intersection. Managing the quality of the information created, the information product, and the information circulation are all within the job description of a traditional technical writer. "As part of developing such documents, we bring our ability to look at complex processes objectively, ask questions and gather the needed information, identify tasks that comprise the processes, and then distill the processes and tasks into clear and concise procedures," according to TechWhirl's Irv Boichuk ("Technical Writing in a Quality Management Environment," 2010). Document writers, traditional and leading-edge, perform these tasks in all varieties of business activities—engineering, manufacturing, publishing, retail sales, logistics, etc. "Whereas someone who performs tasks may have key knowledge, a technical writer can often better identify needed information, elicit that information, and then provide it in a way that meets users' needs," Boichuk further explains. Therefore, TWs must meet the information users' needs where they are currently using that information—on a device. The new technical writer must still complete traditional tasks, but they must complete them in an increasingly computer-programming oriented environment.

Advice from a Scientific Communicator

By Asia Karpuleon

Dr. Ruth Cronje is a professor in the English Department at the University of Wisconsin-Eau Claire (UWEC), and she teaches scientific communication in the Rhetorics of Science, Technology, and Culture Program. As one of her former students, I benefitted greatly from her expertise and insight, which are especially valuable because she's worked both in academia and in the field as a writer and editor. As this interview shows, her experience advising students and leading an internship program has given her a keen understanding of the opportunities and challenges that students face in preparing for a career in technical or scientific communication.

AK: Can you tell me about your background in technical and/or scientific communication before academia?

RC: Sure. I have a PhD in rhetoric of science, and I spent the better part of a decade working largely in the agricultural sector as a scientific and technical communicator and did a bit of tech comm around things like— and you're going to laugh, but this is true—writing artificial insemination handbooks. I also did some computer software program documentation.

For almost a decade, I was the editor of a peer-reviewed scientific journal for veterinarians whose practices were largely centered on swine— pig production and the pig livestock industry. We started a brand-new peer-reviewed journal that was targeted toward practitioners, not so much researchers working in labs, but actual veterinary practitioners who go out to farms, like vets and doctors.

AK: Can you tell me what led you in that particular direction after receiving your PhD?

RC: Well, this is before I had received my PhD. It was how I was making my living, working at the University of Minnesota while I was working toward my PhD. Since 2000, I've been a professor at Eau Claire.

AK: Are there any specific ways you think that professional experience informs your teaching?

RC: Sure, absolutely. I still sometimes use experiences or pieces or cases

> *"Internships are essentially a way for universities to prestructure those opportunities for students and developing connections for students to give them a*

(that I ran into as a professional scientific and technical communicator) in my classroom. I don't remember if you ever took Editing and Publications Management from me, but if you did, you might remember the artificial insemination graph, which I still use every spring. It's this hideous box-and-whisker plot graph. There are so many problems with it; I actually had that submitted as a piece of art in support of a manuscript we were publishing on the job – so that's a real example.

So, a much more interesting answer to your question is that I was in the trenches of the scientific publication process and the scientific peer review process. I saw it from behind the scenes.

My dissertation was a collection of case studies of really interesting things that had happened behind the scenes in the peer review process for the scientific journal. It helped me to really understand how scientists reason and how they argue for their reasons—the ways in which their rhetoric interplays with their instrumental activities, like taking samples and measuring and doing physical analysis. And it was absolutely the making of me. It hugely, exponentially expanded my understanding of how science works. I don't know that I would ever achieved that kind of understanding, or it would have been at much greater cost, if I had not been able to be behind the scenes.

AK: I saw on the website that you're in charge of the internship program. Is that correct?

RC: I was the internship director for six years. During the time I was director, we had internships from all kinds of places. When I was director, I expanded it from being just a sci-tech writing program internship into a whole English Department internship.

I think it's really an incredibly important experience for students to have internships. I always very, very strongly advocate and recommend that my advisees take at least one internship while they're students because it's really a valuable, applied, authentic, unscripted situation where you have to learn to write in response to real situations. There's nothing in the classroom that can really duplicate that—the hugely nuanced, vast

learning that students do when they're in a situation like that.

AK. Do you have any insight into the job market for tech writers in general?

RC: Well, the US Bureau of Labor Statistics keeps tabs on the fastest-growing jobs … and trends in the job market. There are two job titles that pertain to the classes I teach: one is tech writer, and one is editor. Both of those jobs tend to be listed over and over again as among the fastest growing, so they predict growth in those job markets in the next 10 years. I'm pretty sure it's still one of the fastest-growing sectors—so, more demand than there is now, within the next 10 years, if that makes sense.

AK: What is your advice to students interested in pursuing a career in writing or editing? You mentioned the internship. Is there anything else that you would mention?

RC: Find ways to get involved in your community. There's a great deal of need for people to help solve public problems, and along the way you'll get amazing hands-on experience responding rhetorically to real-world situations that I guarantee will be useful to you in the future. I have a colleague with a wall full of reports and various kinds of tech writing she's done over the course of decades as a freelancer. Organizations come to her and say, "we just got a grant to do this kind of initiative in our community—can you help us design the needs assessment or the strategic plan?" It's obvious that there's a great deal of need in the community for people who can write. There's a need in every industry for people who can write because the number of people who are able to write cogently and coherently and in

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a rhetorically savvy manner is a tiny, tiny minority of the human population. And it puts us in demand because we can do this.

So, get involved in things that you have passion for anyway, and opportunities to get involved in the writing elements of those projects are going to come up. Take those opportunities because you can put that in your portfolio, make

"The big challenge for new technical communicators is quickly mastering subject matter areas so that they understand more or less as much as the people they're trying to help communicate."

connections with people, and meet people so you can develop networks and word of mouth. Then, you'll have people who can write glowing and nuanced, detailed reference letters.

Internships are essentially a way for universities to prestructure those

opportunities for students and developing connections for students to give them a boost. If you somehow find yourself in a place where internship opportunities don't exist, you have to make them yourself. You have to go out in the community and talk to people and find out what needs they have.

AK: Very good advice. Moving on broadly to the topics of technical communication—when I say technical communication, I'm referring to scientific as well. Do you see a strong role of innovation in the field, either now or in the future?

RC: Yes, there's ever-increasing digital literacy that's required for this job. The technological delivery of any kind of scientific or technical method is increasing—there's going to be innovation there. So people have to stay on top of that.

I'm not a practitioner anymore, so I don't worry about things like Twitter. But if I were out on the job market and/or a practicing technical communicator right now, I would not only need to know, but I would be trying to figure out ways to implement and use it in a rhetorically effective way.

It's the same with all the kinds of software we have for visuals. We don't just teach alphanumeric modalities of communication; we also teach visual modalities. That art piece, the graphics, is important—possibly more important than straight text. That's not anything new, but what is new is the various digital technologies that let you deliver them. I don't have my students write very many papers anymore, so they're largely creating PowerPoints, or they're creating films. So, there's the animation, the motion

dynamic, there's as much graphic and visual as an auditory component in films. Most schools, I'm sure, are doing this. We have to try to keep up with new ways that people are communicating material.

**AK: It sounds cutting edge to me, the idea of a film rather than a paper.**

RC: Yes. Just last fall, in an honors course I taught, not a scientific and technical writing course, we were using some newer digital mapping technologies—GPS, GIS—a "digital photo map" is what it's called. People who've been doing digital photo mapping for the last eight years are going to laugh—this is not that innovative—but it's technology I didn't know existed when

I was in grad school. We're always trying to ensure that we're keeping up with relevant technological ways to deliver information because those keep changing.

Every spring I teach my editing course, and I teach layout and design, so we have a lot of publication design assignments. We always have. But the technology that we're using has changed. Now, it's InDesign. And they have printers that can print cars. OK, that's mind-blowing—wow, what do we do with that? And if you have a printer that can print a car, that hugely expands the way you can think about what a message can be.

AK: And of course, with all those advancements come challenges for people who are doing documentation.

RC: Right. Exactly. Now, who looks at the manual? Who looks at a paper manual anymore? We have help, we have chat, and we have those little help snippets.
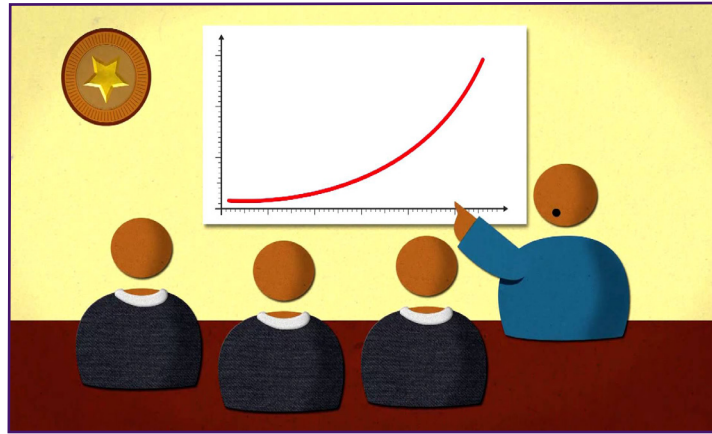
Land Collation, Land Acquisition Animation Land Grabs, YouTube

AK: What are some of the challenges that technical communicators are facing now and/or in the future?

RC: Well, this is an interesting juxtaposition with the last question because what I would say is that the challenges continue to be the same that they've always been. You have situations that call for very specific responses, and you have to understand the situation to be able to craft an appropriate response. That has always been the big challenge for technical writers—understanding who are they writing for, what purpose are they writing—audience, purpose, context. That is never going to change.

Students are going to teach themselves the hot, new technologies. My students all know Twitter; they don't need me to teach them that. But what students have trouble with is understanding how to take information they may fully understand and put it into a message that a person who doesn't already understand is going to be able to use to get something done. You do it all the time, Asia. This is what you do all day, every day, right? So, those are the challenges—they remain the same. You've got human beings. They have information needs. You have to understand how and when people need information and then craft the

message accordingly. It's the hardest thing to do.

AK: I agree, especially if you're very new to it.

RC: The big challenge for new technical communicators is quickly mastering subject matter areas so that they understand more or less as much as the people they're trying to help communicate. That's always going to be a particular challenge. We're taught the broad principles of good communication in our classrooms, and we have to prepare students for any job market—an agricultural sector job, a nuclear physics sector job, computer documentation jobs. We have to be generalists: students have to be able to map those broad, general principles to the specific places they're going to be working. As you're finding, once you get involved in a particular area and you develop some expertise, that starts to be something you spend less time worrying about, and it just becomes background knowledge and expertise that you have. Wouldn't you say that that's probably the case?

AK: Certainly, yes. When I started out editing a lot of business papers, I had little to no knowledge of anything business related, but I developed that knowledge over time.

RC: Yes, you know terms now that I don't know ... and you understand concepts and how things work together, and it makes you a more valuable employee. That's always going to be the big challenge—and the one specific to new learners.

An Interview with Arlandis Jones

By Liliana Cano

Arlandis Jones is a native of Chicago, Illinois. He received his BA in English and from Dillard University in New Orleans, LA. After completing his BA, Arlandis taught Special Education, Language Arts, and Social Studies for the New Orleans Public Schools. He was moved from the classroom to assist the administration in school reported data. He served as a Data Specialist for two years before attending Minnesota State University, where he completed a MA in English-Technical Communication and Literature.

After completing graduate school, Arlandis served in the US Army in support of Operation Iraqi Freedom. Once his term with the military was complete, Arlandis was offered a position with Central Texas College (CTC) as an Adjunct English Instructor and Richard Milburn Academy as the Data and Curriculum Specialists. After two years at Central Texas College, He was offered a fulltime position with CTC International Campus. Arlandis was responsible for teaching Developmental Writing, Composition I, Composition II, and Technical Writing on deployed US Naval Ships. Teaching on Naval Ships was the most rewarding experience in his career thus far. Arlandis had the opportunity to visit almost 30 countries including islands in the Atlantic and Pacific Ocean.

Arlandis now teaches at Tarrant County College as an English Instructor. He is a member of several professional and civic organizations, some includes: The Society of Technical Communication, Phi Beta Sigma Fraternity, Inc., Sigma Tau Delta International English Society, The Modern Language Association, and National Council of Teaching English.

Arlandis recently completed a Master of Fine Arts degree in Creative Writing from Southern New Hampshire University. He is currently seeking admission into Southern Methodist University doctoral of liberal studies program.

Arlandis shares his experience and advice after graduating from Minnesota State University –Mankato.

Liliana Cano (LC): You're coming up on a big anniversary aren't you?

Arlandis Jones (AJ): Yes. I completed my studies on May 12, 2006. So, 10 years! It's a big one.

LC: What are you (or have you been) doing with your Master's Degree in Technical Writing?

AJ: I am currently an English Instructor. I teach Technical and Business Writing among other college level English courses. In addition, I'm a Subject Matter Expert (SME) for online institutions' Technical Writing courses and assessments. In my thesis, I

> *"We're moving more towards presenting and displaying more content in a digital world. With this comes a new style of writing and communicating that must be fast and quickly accessible—you get a thirty second window."*

explored how employers perceived candidates with of online degrees.

Here, at Tarrant County College (TCC), my courses collaborated with our Marketing and Website departments to conduct usability testing on the District website.

Before TCC, I was an Instructor at Sea with the U.S. Navy teaching Technical Writing (mostly policy and procedural writing).

LC: Has your career path changed since you graduated?

AJ: No. Not really at all.

LC: What other projects or jobs have you completed with your degree?

AJ: I collaborated with Apple to conduct usability testing on the MacBook Air. I have edited and proofread four full novels, built and maintained websites, document software, and many projects that have required original graphics (posters, flyers, invitations, announcements, etc).

LC: What innovations have you seen develop in the technical writing field and how have you used them?

AJ: We're moving more towards presenting and displaying more content in a digital world. With this comes a new style of writing and communicating that must be fast and quickly accessible—you get a thirty second window. If you haven't gotten a busy reader's attention, they move on to other faster markets to get what they are seeking.

This is why Google is so popular, the speed and access—how quickly you can gain information without opening the link. Look at how Huffington Post or CNN presents the news in mobile applications.

My colleagues and I are currently studying how students engage with digital rhetoric and digital media. As the world moves towards more digital content, I believe that different systems and applications will require a new way of presenting and communicating information. I'm discovering innovative

ways to incorporate as much digital content into the classroom as I can. Our campus magazine is now online. We reach more readers and students have total creative control.

LC: What innovations would you like to see develop in your field?

AJ: Software that does not require updates (smiles).

LC: Can you elaborate?

AJ: It can make current documentation obsolete, but it also provides job security. So, I'll take it.

LC: Where do you see your career going? What plans do you have with regard to technical writing?

AJ: I plan to stay in the classroom and get more students into the field, especially those tech savvy students. I would like to see more community colleges offer technical writing as a degree. The skills that students gain are exactly what they will need on the job.

LC: What did you learn after graduating that you wish would have been covered while you were in school?

AJ: I wish there were more courses and labs on using professional software, such as Adobe. Most, if not all, organizations rely on tech writers being able to comfortably use Adobe programs (Adobe Presenter, Frame Maker, RoboHelp, Captive Reviewer… etc).

LC: Finally, what advice would you give a new graduate in this field?

AJ: Be open to new experiences–learn to work with people.
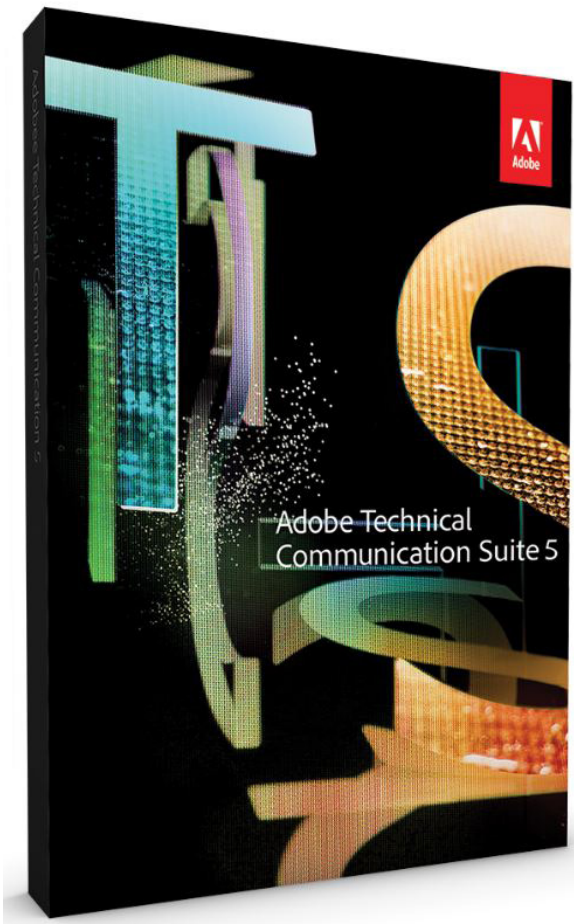
Martin Spethman, Translation Workflows With Adobe Tech Comm Suite

blog.globalizationpartners.com

Content Marketing & Technical Communication

By Kathleen Romero

Technical communication and marketing have a history of being immiscible, like oil and water. Often at odds, members of each side have launched, over an invisible yet perceptible boundary, complaints and accusations against the other's skill sets and professional dispositions. However, a dramatic change in technology created new challenges and related needs uniting both professions as a means to adapt. This union resulted in an innovation in technical communication known as content marketing which, as a new method for communicating content to consumers, provides technical writers an opportunity to expand their skills and remain competitive in a profession greatly affected by inevitable and rapid changes in technology.

Content Marketing: What It Is and Is Not

Content marketing is a marketing strategy for "treating technical documentation and marketing as one integrated experience; converting users into brand loyal advocates; leveraging technical content into marketing blogs, webinars, sales booths, and other contexts; seeing marketing efforts as informative to creating documentation. It involves learning what users want, need, and expect and empower them with what they seek" (Johnson 2015). As a means to establish a lasting relationship with consumers, content is communicated to the consumer prior to the development and release of a product and without mention of the product. By providing content that helps potential and current consumers answer questions and solve problems, or that serves particular consumer interests, content marketing functions as an "un-marketing" strategy. The content is less formal and technical than technical documentation, but it is reliable and serves a purpose (Content Marketing Institute 2015).

A History Shared

Although seemingly disparate, historical evidence demonstrates that marketing and technical content have partnered over the years in both theory and practice, "since the caveman tried to sell his first rock" (Content Marketing Institute 2012) and described to potential customers the "six ways a spear can save you from a wild boar" ("The Story of Content: The Rise of the New Marketing" 2015).

In 1895, marketing and technical content were linked in John Deere's publication of The Furrow, a magazine that continues to provide farmers unbiased information to help them run their businesses ("The Story of Content: The Rise of the New Marketing" 2015). Since then, other businesses have provided consumers content that perpetuated relationships of "quality, honesty, and loyalty" ("The Story of Content: The Rise of the New Marketing" 2015). The Michelin Guides helped drivers attend to car maintenance and lodging, and Procter & Gamble's soap operas and The Jell-O Recipe Book informed housewives about cleaning products and recipes. Consumers interested in action figures and comic book superheroes were entertained by G.I. Joe comic books created by Hasbro and Marvel Comics, and Red Bull delights and engages fans of extreme sports by producing videos of the sport with unique and up-close camera angles not previously attempted. In 2000, at a time when funding for "custom content" equaled $20 billion, Joe Pulizzi, founder of the Content Marketing Institute, coined the term content marketing (Content Marketing Institute 2012). This provided a consistent name with which to label this new marketing strategy whose goal was to inform and entertain consumers solely through meaningful content, as opposed to overwhelming them with superficial hyperbole and misrepresentation.

Unity

Although marketing and technical content have partnered in the past, the Internet is solely responsible for their recent, formal union and the recognition of content marketing as an innovation in technical communication. The Internet created specific, yet related, challenges and needs for marketing and technical communication that were best met when the two worked in tandem.

For marketing, the Internet provided thousands of channels through which businesses could gain the attention, loyalty, and currency of consumers, channels that well exceeded what magazines, newspapers, and television had previously provided (Content Marketing Institute 2015). Although a seemingly good problem to have, marketers were then faced with an immediate need to increase the amount and frequency of useful content needed to attract and satisfy the needs and interests of an even larger consumer population.

The same increase in connectivity also allowed businesses greater opportunities to communicate technical information to consumers, but in doing so, the Internet also opened the door for competition in the field of technical communication. Without involvement of a third party (e.g. magazine, newsletter, radio or television station), non-professional technical writers began providing technical information and support to consumers in the form of blogs, forums, and websites. This caused technical writers to question the future of their profession, and resulted in a need for technical communicators to expand their skill sets by learning new ways to compose content different from that found in technical manuals.

It prompted the need to write less formally and more creatively without sacrificing content, and also provided an opportunity for these professionals to apply and share their technical and editing expertise with the marketing sector (Johnson 2016).

Examples from the Field

An interview with Jonathan Carlson, a web designer and technical writer at the Practice Café, a dental marketing agency, revealed an example of effective content marketing. Jonathan's team published a blog post, "Naming Your Dental Practice," that Jonathan described as "the most viewed page on our website." The number of views was substantial because Jonathan and his team "found that a large number of dentists looking to start a practice seek out various sources for help in determining a name for their practices, and the post was written to just that need, offering various tips and advice to [sic] deciding on a practice name" (Carlson 2016).

Innovation through Adaptation

Due to changes in technology and increased competition, technical writers have feared for the survival of their profession. So, how can technical writers adapt to the host of changes affecting their profession and secure their place in the professional food chain? Content marketing and technical writers with related experience offer some suggestions.

Be prepared. Technical writers should engage in continuing education that addresses current and future trends in the field. They should research the Internet in the form of blogs, forums, and websites, as well as peer-reviewed journals, participate in webinars or conferences, and network with professionals to stay in touch with current and forecasted changes taking place nationally across the field of technical communication.

Hone basic skills. It is important that all technical writers compose "good

content" (Johnson 2016). This may seem obvious, but technical writers can become victims of workplace routine and complacency and forget the fundamentals of effectively written communication. Therefore, technical writers will do well to regularly review and consult resources like the Handbook of Technical Writing, and participate in continuing education opportunities that serve as skill refreshers.

Be open-minded. Technical writers, especially those who have spent years engaged in writing rigid, formal technical documentation, may resist or feel unprepared to write "good content," specifically that which is less technical and more creative (Johnson 2015). In content marketing, there is a requirement for writers to create a "story" that is focused on what the consumer loves and cares about (Content Marketing Institute 2015). The good news is that story already exists within documentation (Neita

> *"By providing content that helps potential and current consumers answer questions and solve problems, or that serves particular consumer interests, content marketing functions as an 'un-marketing' strategy."*

2015). In fact, creative and technical writing benefit each other. Despite technical writing's rigid structure and strict guidelines, it has the ability to "persuade the reader to act in a detailed, yet concise and clear manner" (Neita 2015). This requires the technical writer to fully understand the audience and judiciously select information based on importance, and write with a style that is "universal and

gets the point across without sounding monotone" (Neita 2015).

Technical communication evolved as an adaptation to change in technology beginning with the advent of the computer and the subsequent need to provide instructional and helpful documentation to the user. Likewise, content marketing offers technical communicators a new niche and opportunities to adapt to change. Content marketing for technical communication is an innovative adaptation. Similar to the adaptive traits of organisms, it has evolved as a result of "natural selection," and it perpetuates the existence of technical communication.

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The Necessity of Technical Knowledge and Experience for Tech. Comm. Majors

By Wendi Coleman

Technical communication graduates may assume that attaining their degree will lead to glasses cheered up, horizons broadened, and quick strides to a financially-secure and comfortable career as a technical writer. With the best intentions, academic advisors instruct their students as to what courses to take for their degree, but seldom, if ever, mention additional courses that students should take to advance their potential success – or even entry – into the marketplace of employment. I realized this one particular afternoon, equipped with apron and shiny black shoes. I was slipping pieces of paper into their respective laminated slots in the food menus I helped construct as a Ford line worker, or server-in-training, preparing for the grand opening of BJ's Restaurant in Miamisburg, Ohio. I had thought writing menus, let alone constructing them, was an activity beneath someone with my education. Although I cannot recommend studying their menu or its accompanying literature, I did learn quite a bit about beer. I realize now, as a graduate student, that technical communication majors must distinguish themselves from the rest of the competition, who are often writers with nearly a decade of experience, or engineers or other professionals in the sciences who are experts in their fields and have migrated to technical writing.

I walked out of my server job three days in. I took a job as an electronics technician two weeks later and have recently been promoted to quality technician. I am well on my way to the technical writing department, but the journey has been neither kind nor pleasant. I could not get a job with my English degree, despite submitting over 100 resumes in less than three months, not offered one interview, so I fell back on my AS degree. I have been climbing the ropes since, my arms weak, my hands raw. Even with my subject matter knowledge, some expertise,

and years of experience working with subject matter experts (SMEs), I have not yet been able to gain employment as a technical writer. This is why I have decided to invest in attending graduate school. I find it difficult to conceive that one could be employed as a technical communicator if they lacked specific technical knowledge. I know plenty of other graduates that were lucky enough to land jobs in their field, but I also know nearly as many who have gone on to pursue other, more inviting career paths that don't require much of an education. "Your future may lead you to pumping gasoline if you don't plan to attend graduate school." These words, one professor's motivational speech to his students, still echo within me today as I work toward my degree. I do strongly believe that it is not up to a company to teach their new employees job skills, but that responsibility lies on the institutions that students have paid

> *"'Employers want candidates that understand their subject matter, who have expertise in it, and who have written about it.'"*

outrageous costs to attend, and, in order to do so, have often burdened themselves with enormous debt, believing they will get back what they have put in. Unfortunately, this is not always the case.

A significant proportion of professionals employed as technical writers neither have a degree in English nor do they have any formal education pertaining to technical writing. Their writing skills come secondhand to their area of expertise. According to the Bureau

of Labor Statistics, some technical communicators begin their careers as specialists in technical fields and eventually develop the communication skills to become professional technical writers. Because technical communicators must be able to both understand and communicate highly complex technical information, "Many technical writers need a background in engineering or computer science…" This realization begs the question, why even pursue a degree in technical communication?

Educators of technical communication are still, and have been for many years, trying to better understand what their students need to know when they enter the workplace, many times not only to be prepared for the work environment, but also the initial task of getting a job. Clinton Lanier explains, "Some suggest we should teach applied practical concepts, such as the latest software or methodologies. Countering this approach are those who believe that students should be taught important rhetorical theories as a foundation on which workplace skills can later be built (probably in the workplace)," and suggests that both approaches are equally important (51). Lanier's study was unlike any other in this field in that he analyzed the skills and qualification listed in employment ads on Monster.com. Miles Kimball, on the other hand, focused his study by questioning and surveying Society of Technical Communication (STC) board members about what skills they think are most valuable to graduating students. His findings, although similar to those of Kimball, strongly suggest that technical communication students need more software experience as well as experience and knowledge of a specific technical field in order to successfully market themselves the competitive environment of

technical writing. While the main difference in these two studies is that Lanier analyzed hundreds of job advertisements, Kimball's study used only five participants. There are some general statistics available that support Lanier's findings, namely those from the US Department of Labor.

The Occupational Outlook Handbook for technical writers, available through the Bureau of Labor Statistics website, provides a good deal of information pertinent to technical communication graduates. The industries with the highest levels of employment are computer systems design and related services; management, scientific, and technical consulting services; employment services; architectural, engineering, and related services; and software publishers. Many of these industries involve a good deal of technological knowledge and the authors place a focused importance on technical skills needed by technical communicators. The authors state that technical writing positions are concentrated in engineering and computer industries, and, in addition to a college degree, "experience with a technical subject, such as computer science, Web design, or engineering, is important" in order to gain employment. Employment is accelerated by the increasing expansion of scientific and technical products and job opportunities are especially good for candidates with technical skills. They summarize, "Technical writers often work with computer hardware engineers, scientists, computer support specialists, and software developers to manage the flow of information among project workgroups during development and testing. Therefore, technical writers must be able to understand complex information and communicate the information to people with diverse professional backgrounds." Beyond possessing an English degree, many jobs also require "both a degree and

knowledge in a specialized field, such as engineering, computer science, or medicine." There have been several studies conducted over the years to pinpoint exactly what technical communication curriculum should include; that provide further insight on the Bureau's recommendations.

Miles Kimball interviewed technical communication managers from companies including Adobe, IBM, Google, Oracle, and so on, all of which served on STC's Advisory Board from 2013 to 2014. He concludes by stating that the participants valued technical writing skills and degrees relating to the field over more technical skills and degrees in the sciences (144). Kimball also stresses the need for employers to provide specialized training for new graduates, or that individuals seek further training and credentials on their own. Despite Kimball's opinion that traditional writing skills are more important than technical skills for technical communication

"A significant proportion of professionals employed as technical writers neither have a degree in English nor do they have any formal education pertaining to technical writing."

majors, several statements from the STC Advisory participants of his study seem to suggest otherwise.

Three participants in Kimball's study suggested the importance of "technical skills or domain knowledge in other professions, such as engineering or product management" (140). One participant stated, "People are hiring technical writers who can write and who have a very strong technical background. Technical expertise and good grammar are the linchpins to getting a job" (140). Therefore,

although these participants agreed with Kimball's recommendation for additional training, they placed more emphasis on technical skills over writing skills.

Another study, conducted by Clinton Lanier, analyzes sought skills listed in technical writing job postings. This particular analysis showed some significant deviations from conclusions made by other scholars, especially those downplaying the significance of technical skills or a background in science and engineering. Listed below are relative percentages of qualifications or skills either desired or required in the job listings he analyzed. Some categories overlap, but the percentages are a good representation of the significance of the data:

38% Technical writing experience

33% SME knowledge and experience

34% Writing about specific subject matter

17% Knowledge of markup languages

26% Significant SME knowledge (beyond general knowledge)

24% Familiarity with industry-specific knowledge

16% Knowledge of online help software

25% Knowledge of graphic software

20% Industry-specific software

34% Knowledge of specialized desktop publishing software

Although Clinton Lanier's study was conducted six years prior to that of Kimball, his study analyzes a relatively

large portion of data taken directly from job ads, rather than interviewing a handful of professionals. The advantage of this method is a plethora of information that is directly relevant to the recent graduate undertaking the daunting task of landing a job in their career field. Lanier acknowledges that previous studies have downplayed the importance of specific technology skills and knowledge, but concludes that his study shows understanding technologies and technology-specific tools should be considered priorities for recent graduates (60): "Employers want candidates that understand their subject matter, who have expertise in it, and who have written about it. It is not that they expect potential employees to show up with an expert's understanding, but they do expect a level of familiarity… understanding a technical subject matter about which they write will both increase their value… and emphasize an important knowledge set: communication about that subject matter."

Gaining employment as a technical communicator is more problematic than many students realize. The field deals with specific and complex technical knowledge, which does not involve the same basic writing skills that perhaps a position in marketing may require. The field requires information specific to the subject matter the writer will be conveying to many different audiences. Technical communicators cannot simply relay information from SMEs, they must unravel the jargon and complexities and gain a full understanding of the subject matter in order to effectively communicate that information to others.

Technical communication students should be made aware of the sorts of skills and expertise required early on and design their education around their specific area of interest. Students should be encouraged to minor in technical subjects such as computer science, engineering, graphic design,

and such, as well as consider a double-major. High school students could also take advantage of Associates degrees in STEM programs, provided by community colleges, many working in conjunction with school systems. As professionals working in technical industries, they must also be prepared to continue to build on their knowledge and skills through training, certifications, and joining societies for engineers and technical writing professionals.

There are plenty of good reasons to pursue a degree in technical communication, but without the proper skills and knowledge, graduates may be surprised to find themselves "pumping gasoline" or working at a soldering bench.

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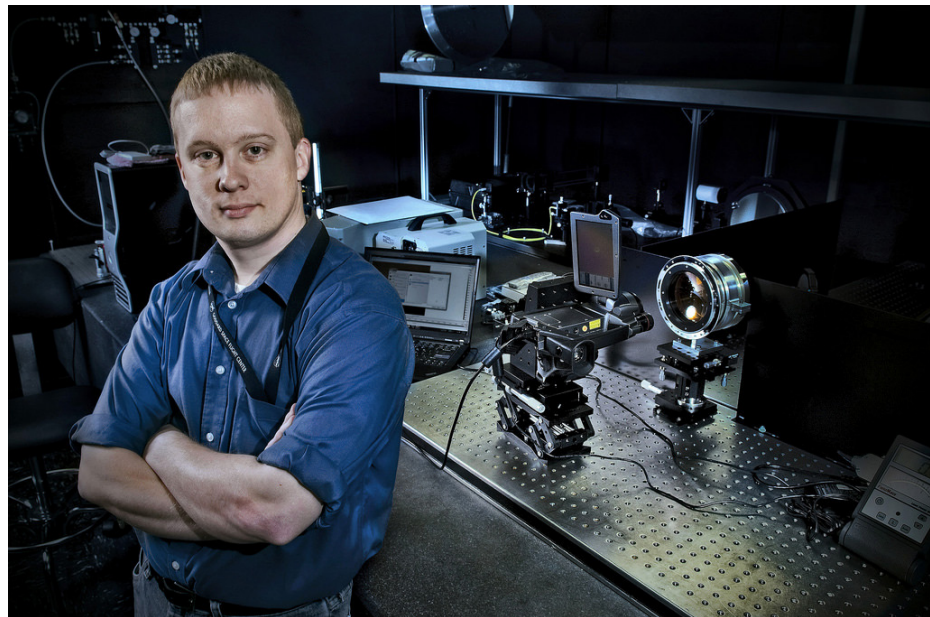
NASA Goddard Space Flight Center, Credit: NASA/GSFC/Chris Gunn

Spring 2016

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