5. Writer Identity, Literacy, and Collaboration: 20 Technical Communication Leaders in 2020

Ann Hill Duin and Lee-Ann Kastman Breuch
UNIVERSITY OF MINNESOTA

Abstract

In response to calls to strengthen the connections between academic research and technical communication practice, our research seeks an opportunity to learn from and collaborate with practitioners as a means to tap the expertise of advisory board members and begin to articulate the evolution of our field as we prepare students for work in these industries. A critical purpose of this study is to engage in continued work to address the gap between academic research and technical communication practice and articulate the evolution of our field. We examined this gap by exploring the practices of all 20 technical communication leaders serving on our programs' advisory board, interviewing each member to investigate their writing and technical communication identity, understanding and attention to sociotechnological literacies, and approaches to collaboration. The first phase of analysis included interview transcription and individual coding of common themes; the second phase involved discussion of results and how themes matched across our coding. We then shared results with advisory board members, inviting them to expand on findings through focus group discussions and later, review of an early draft of this manuscript to provide verification of the stated results and implications. Participants described and affirmed a shift in that technical writing and communication is no longer chained to product development but instead is connected to services and processes. Individual genres received less attention from our participants; rather, the workplace writing described by participants is much more about process and systems; they see themselves and the profession as integral partners "at the table." Identity involves multiple identities that are strategic and collaborative; literacy is about content, audience, tools, and usability; and collaboration is remote, involving multiple teams and structures. We apply the insights of these findings to develop and strengthen curricula and professional development opportunities that foster multiple literacies and collaboration to prepare students for the future writing workplace.

Keywords

Technical communication and composition scholars have long investigated writing in nonacademic/workplace settings, as contributions to these edited collections attest: *Writing in Nonacademic Settings* (Odell & Goswami, 1985), *New Essays in Technical and Scientific Communication* (Anderson et al., 1983), *Writing in the Workplace: New Research Perspectives* (Spilka, 1993), *Nonacademic Writing: Social Theory and Technology* (Duin & Hansen, 1996), and *Digital Literacy for Technical Communication* (Spilka, 2009). These collections depict an evolution of workplace writing in that they describe the multiple contexts and purposes of nonacademic writing (Odell & Goswami, 1985), examine readability and style of scientific and technical writing (Anderson et al., 1983), explore concepts of authorship and collaboration that influence writing in various workplace settings (Spilka, 1993), and conjoin social and technological approaches to the study of workplace writing (Duin & Hansen, 1996; Spilka, 2009). Workplace writing continues to be explored by scholars. For example, in interviews and observations of ten technical writers, Kathy Pringle and Sean Williams (2006) identified "information design" as a critical activity and noted that technical communicators will continue to rely heavily on technology in their work. In a case study of a technical writing team at a biomedical company, Lee-Ann Kastman Breuch (2008) examined the ways that single-source documentation practices challenge notions of individual and collaborative authorship among technical writers. Stuart Blythe, Claire Lauer, and Paul Curran (2014) gathered results from a national survey of technical and professional communicators to share ways Web 2.0 technologies impact the work of technical communicators. Themes in these earlier works include contexts, technologies, power, and authorship in technical communication workplaces.

A critical theme in technical communication scholarship that we are especially interested in exploring is the relationship between academic research and technical communication practice. Specifically, we are intrigued by the perceived gaps between these two realms and by findings that practicing technical communicators desire more clear connections between academic research and their work (Andersen & Hackos, 2018; St.Amant & Melonçon, 2016). For example, Rebekka Andersen and JoAnn Hackos (2018) emphasized that "building stronger relationships [between academia and industry] can . . . provide insights that facilitate effective education and training across the field" (p. 347). As a means to better understand the value and accessibility of academic research to practitioners, Andersen and Hackos (2018) asked 11 seasoned practitioners in technical communication, five of whom serve on editorial review boards, to read 12 peer-reviewed articles and six trade articles. They then conducted interviews to learn about the practitioners' experiences and perspectives. Results indicate that while practitioners assume that academic research applies to them, it is "not communicated in a way that makes the application clear" (Andersen & Hackos, 2018, p. 1). Andersen and Hackos (2018) noted "much agreement . . . in technical and professional communication, that mutually beneficial research can help foster productive relationships between academic and practitioner stakeholders" (p. 2).

However, they articulated a "major barrier to maintaining these productive relationships [as] the challenge of communicating research results . . . in ways that are understandable and that make immediately clear the value and relevance of the research" (Andersen & Hackos, 2018, p. 2). They also noted that academic researchers "know little beyond anecdotal stories" (p. 2) about what practicing technical communicators actually think about this research. Andersen and Hackos (2018) emphasized the importance of academic researchers to make practical applications and use cases clear and "to write with a practitioner audience in mind" (p. 1).

Kirk St.Amant and Lisa Melonçon (2016) also addressed the gap between academic research and technical communication practice. To better understand practitioners' perceptions and views as to what research topics merit focus, what approaches should be used when conducting research, how research might best be shared, and the value of collaborating on research, they conducted 30 asynchronous interviews. They chose practitioners who were familiar with academic research through their "conference presentations, presence within the field, publications, or references from other practitioners" (St.Amant & Melonçon, 2016, p. 350). They used purposive sampling as a means to identify practitioners whose "particular settings, persons, or events [are chosen] for the important information they can provide that cannot be gotten as well from other choices" (Maxwell, 1997, p. 87, cited by St.Amant & Melonçon, 2016, p. 350). Their interview questions addressed technology use, what it means to be a technical communicator, what specific audiences we need to understand in today's workplace/industry context, and current contexts "of the real world" and how these affect technology use. St.Amant and Melonçon (2016) found "major divides between the current academic research being published and the needs for research in [the practitioners'] jobs" (p. 357). They identified two immediate steps: 1) to identify and use venues for sharing research, e.g., to seek out opportunities to collaborate [with practitioners] when engaging in research and to "have practitioners review manuscripts and suggest how to add such applications" (St.Amant & Melonçon, 2016, p. 358); and 2) to "tap industry advisory boards" (St.Amant & Melonçon, 2016, p. 360).

In response to calls to strengthen the connections between academic research and technical communication practice, our research seeks an opportunity to learn from and collaborate with practitioners as a means to tap the expertise of advisory board members. A critical purpose of our study is to engage in continued work to address the gap between academic research and technical communication practice and articulate the evolution of our field. Therefore, we specifically examined this gap by exploring the practices of all 20 technical communication leaders serving on our programs' advisory board.[1] Our Technical Communication

---

1.   This study was reviewed by the University of Minnesota Institutional Review Board, #00008822, and was determined to be "not human subjects research."

Advisory Board (TCAB) is an intergenerational group of business leaders whose engagement with our undergraduate and graduate programs is twofold: to provide exemplary networking and experiential learning opportunities for students and to enrich the curriculum and visibility of our programs and students. Students interact with these members through "Connect" events, research showcases, mentor programs, panel presentations, and class visits. TCAB members work in companies including Maximus, Meditech, Mosaic, ComTech, 3M, Wells Fargo, Graco, Medtronic, Unisys, Dashe & Thomson, Facebook, and Boston Scientific or lead their own businesses related to technical communication. Three of the 20 members serve in higher education roles. Our students and programs have benefited greatly from TCAB member expertise and direction since this advisory board began in 2014. Members are instrumental in curricular development (Duin & Tham, 2018); mentoring (Breuch et al., 2022); and promoting strategic direction, e.g., to foster practice with global virtual teams and translation management (Duin & Palumbo, 2021; Palumbo & Duin, 2018).

Through our interactions with advisory board members, we have noticed the growing importance of aspects such as writer identity, sociotechnological literacies, and collaboration; therefore, we have designed this study to learn more about these aspects of practice, in an effort to continue work toward bridging a gap between academia and industry settings of technical communication. However, while the TCAB vision statement includes the goal that this work will also "increase the effectiveness of our TCAB members with their industries," we have not to date interviewed each member individually as a means to understand each member's evolving technical communication identity, literacies, and collaboration practices and to begin to articulate the resulting evolution of our field and increase effectiveness as we prepare students for work in these industries.

In previous research, each of us has studied technical communication identity (Breuch, 2002; Duin & Hansen, 1996), sociotechnological literacies (Breuch, 2002; Duin & Hansen, 1996; Duin & Tham, 2018), and approaches to collaboration (Breuch, 2008; Duin et al., 2021). While we have developed theoretical and pedagogical direction for research and teaching, this study taps practitioner expertise in 2020. We used this opportunity to interview each member to investigate their writing and technical communication identity, understanding and attention to sociotechnological literacies, and approaches to collaboration. Our specific research questions include the following:

- What do contemporary workplace writing spaces look like, and how do they impact writer identity?
- What literacies are required for contemporary workplace writers?
- What new types of collaborations are required in workplace writing?

Conducted amidst the exigency at the beginning of a pandemic, this study may provide a most unique chance to illuminate our understanding of writer identity, literacy, and collaboration for 2020 and beyond.

Identity, Literacy, and Collaboration in Technical Communication

We begin by reviewing key resources in support of examining identity, literacy, and collaboration to provide more context for our study and research questions.

■ Identity

We see identity as a key factor in understanding academic and industry perspectives of technical communication. By *identity*, we mean understanding the ways technical communicators define their work, whether through work contexts, job titles, practices, workplace communities, or field-based issues and questions. The most extensive mapping of the identification of the field of technical communication to date continues to be that by Carolyn Rude (2009), in which she examined 109 books that address technical communication to identify explicit or implicit statements about purpose or research questions: "Research questions, more than research methods or topics, define a field internally and externally by pointing to the knowledge making that is unique to the field" (p. 175). To launch discussion, she mapped studies around a central research question—"How do texts (print, digital multimedia; visual, verbal) and related communication practices mediate knowledge, values, and action in a variety of social and professional contexts?"—and sub-questions under four related areas: disciplinarity, pedagogy, practice, and social change (Rude, 2009, p. 176). Rude (2009) concluded that "The field's identity, however, resides not just in best practices for career practitioners but also in the knowledge that transcends practice. The identity and value of the field also reside in what it contributes to the world beyond better practices" (p. 205). Rude (2009) advocated for a shared sense of our common goals, of our identity, writing that "a shared sense of our common goals in research could contribute to the field's visibility, identity, status, and sustainability" (p. 207).

The Society for Technical Communication (n.d.) defined the field as being broad, with the "value that technical communicators deliver" being twofold: "they make information more useable and accessible to those who need that information, and in doing so, they advance the goals of the companies or organizations that employ them." The partial list of identities includes technical writers and editors, indexers, information architects, instructional designers, technical illustrators, globalization and localization specialists, usability and human factors professionals, visual designers, web designers and developers, teachers and researchers of technical communication, and trainers and e-learning developers. Similarly, Tom Johnson, in his August 9, 2018 blog post to https://idratherbe-writing.com/, emphasized the importance of supplementing tech writing with a hyphenation as a means to indicate the breadth of one's identity. Examples from his list of 28 identities include technical writer/content strategist, technical writer/usability specialist, technical writer/DITA specialist, technical writer/

information architect, technical writer/project manager, and technical writer/web analytics and SEO. Each of these sub-identities includes a set of literacies—social and technological skills and competencies—that distinguish the specific sub-identity.

Drawing on research literature in the field surrounding the changing workplace for technical communicators, William Hart-Davidson (2013) identified three major work patterns and identities: information design, user advocacy, and content and community management. As information designers, technical communicators must "learn to make texts that transform" (Hart-Davidson, 2013, p. 61); as user advocates, they must "get to know users, or better yet, get them involved" (Hart-Davidson, 2013, p. 62); and as content and community managers, they must "improve . . . coworkers' abilities to write together" (Hart-Davidson, 2013, p. 64). Hart-Davidson also highlights the work of Katherine Kellogg, Wanda Orlikowski, and JoAnne Yates (2006) called "boundary crossing," in which they note that successful boundary crossing involves strategic knowledge sharing to establish common ground along with specific methods for sharing "routines, languages, stories, repositories, and models" (p. 24). Successful boundary crossing also involves development of sociotechnological literacies.

■ Sociotechnological Literacies

In technical communication, discussions of literacy have primarily focused on technological literacy and, most recently, code literacy as a means to prepare students for the workplace (Duin & Tham, 2018). Stuart Selber's (2004) initial work to reimagine computer literacy through functional literacy (students as effective users of technology), critical literacy (students as informed questioners of technology), and rhetorical literacy (students as reflective producers of technology) provided a solid framework for organizing local learning environments that "integrate technology meaningfully and appropriately" (p. 1). Marjorie Hovde and Corinne Renguette (2017), drawing on the work of Selber and other technical communication scholars who have addressed technological literacy (Breuch, 2002; Brumberger et al., 2013; Cook, 2002; Northcut & Brumberger, 2010; Turnley, 2007), consolidated subsequent scholarship into functional, conceptual, evaluative, and critical levels of technological or digital literacy.

Looking outside our field, Peter Stordy (2015) articulated digital literacy as "the abilities a person or social group draws upon when interacting with digital technologies to derive or produce meaning, and the social, learning and work-related practices that these abilities are applied to" (p. 472). Developed in the UK through an extensive review of articles, reports, frameworks, specifications, and standards as well as interviews, the Joint Information Systems Committee (JISC) Digital Capability Framework (2019) defined digital literacies as "the capabilities which fit someone for living, learning and working in a digital society." In this framework, digital literacy capabilities include ICT (internet

and communication technology) proficiency; data and media literacies; digital creation, problem solving, and innovation; digital communication, collaboration, and participation; digital learning and development; and digital identity and wellbeing.

According to Lesley Gourlay and Martin Oliver (2016), use of JISC and other frameworks that seek to define digital literacy "based on capabilities or features of learners" may cause us to lose sight "of important aspects of student engagement with technologies" (p. 78). Gourlay and Oliver preferred the European Union's DigEuLit project definition provided by Allan Martin and Jan Grudziecki (2006):

> Digital Literacy is the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process. (p. 255)

This definition is useful as we examine literacy as articulated by technical communication leaders in the workplace since it notes the importance of awareness, attitude, and ability along with the use of tools; it includes context and the importance of enabling constructive social action along with reflection. In short, it integrates technological and social literacy (Duin & Hansen, 1996; Spilka, 2009).

A critical goal in preparing students for writing in the technical communication workplace is to

> teach students how to write for social contexts within a technological world, how to write for a world where an understanding of communicating across distance is imperative, how to write for audiences that inhabit virtual communities and workplaces. . . . A crucial goal . . . is to recognize the importance of sociotechnological issues. (Duin & Hansen, 1996, p.10)

Understanding of workplace contexts and authorship, analysis of power and politics, and connections of academic and nonacademic/industry sites via emerging technologies result in increased relevance and sociotechnological literacy. Scholar-instructors of technical communication "must equip [technical] writers with anthropological, social science, and linguistic skills . . . that will enable them to analyze their sociotechnological writing environments as well as participate in them" (Duin & Hansen, 1996, p. 13). Such baseline literacies allow technical writers "to enact change rather than depend on either academia or the professional site to alter it" (Duin & Hansen, 1996, p. 13). Participating in sociotechnological writing environments requires seeing collaboration as a foundational competency

in technical communication.

Collaboration

Technical communicators must be prepared to collaborate with engineers, subject matter experts, and programmers; they must be adept at using collaborative software and working with global virtual teams. In the move from the use of the desktop to mobile technologies to social media to desktop videoconferencing and online collaboration platforms, technical communicators increasingly work in collaboration with others and with the evolving technologies supporting such collaboration.

Isabelle Thompson (2001) located critical differences in how collaboration is considered in the academy and in industry after conducting a qualitative content analysis of articles on collaboration in technical communication. In workplace terms, Rebecca Burnett and colleagues (2012) asserted that "collaboration is important because virtually all workplaces rely on group-based decision making and projects, often increasing creativity, productivity, and the quality of both process and product" (p. 454). Empirical studies of writing in workplace settings (e.g., Allen et al., 1987; Cross, 2001; Jones, 2007; Lay & Karis, 1991; Winsor, 2003) further clarify the nature of workplace writing collaboration. In their work to synthesize the rhetoric, science, and technology of collaboration, Ann H. Duin et al. (2021) consolidated a guiding framework for understanding, teaching, and practicing technical and professional communication (TPC) collaboration. They emphasized the need for exposure to and practice with the complex contexts of workplace collaboration along with understanding of innovative approaches such as Agile project management and design thinking.

Ann Duin et al. (2021) shared that Jessica Behles, in her 2013 survey of the use of collaborative writing technologies by technical communication practitioners and students, identified wikis, online word processors, learning management systems, SharePoint, and Google Docs as tools used daily by practitioners. TPC professionals indeed get things done through the use of social, collaborative, and virtual tools, and a myriad of such tools now crowds the marketspace (Software Advice, n.d.). Abram Anders (2016) examined a prominent team communication platform (TCP), Slack (https://slack.com/), used by one million people at the time of his study, and now (in 2020) used by over 12 million people a day (https://slack.com/) across all types of industries and organizations. In his analysis of 100 self-published blog posts by Slack users, he found the platform to support knowledge sharing and collaborative workflows: "The communication visibility afforded by TCPs . . . had direct impacts on collaboration processes. Users noted that communication visibility—especially when supported by compartmentalization of groups, projects, and topics—enabled more distributed and self-organized styles of collaboration" (p. 247). The use of Slack also resulted in greater engagement and presence, context

awareness, generative role-taking, leadership awareness, and synchronicity. As Anders (2016) quoted a user, "'It [Slack] compresses a lot of the stuff you might otherwise do in meetings into a Slack channel, so that information is visible to everyone it should be visible to, and it saves people time: They don't necessarily have to meet but can stay updated on a project's status'" (p. 252).

As we consider the future of collaboration, we also must recognize our increased collaboration with artificial intelligence (AI) agents and nonhuman collaborators. In industry, Microsoft, Salesforce, and Oracle have integrated AI into their enterprise collaboration platforms, including Slack (Fluckinger, 2019). In a recent *Harvard Business Review* article on collaborative intelligence, H. James Wilson and Paul Daugherty (2018) found from their research of 1,500 companies

> that firms achieve the most significant performance improvements when humans and machines work together. Through such collaborative intelligence, humans and AI actively enhance each other's complementary strengths: the leadership, teamwork, creativity, and social skills of the former, and the speed, scalability, and quantitative capabilities of the latter. (p. 117)

A recent Deloitte analysis further supported this theme, finding "superteams" in which AI is integrated into teams "to produce transformative business results," with 70 percent of respondents reporting exploration and/or use of AI (Volini et al., 2020).

In summary, the 2020 technical communication landscape—its identity, literacy, and collaboration—evolved at lightning speed. We articulate this dynamic evolution through engagement with 20 technical communication leaders in 2020.

■ Method

We conducted 20 one-on-one synchronous interviews with our Technical Communication Advisory Board (TCAB) members. All 20 of our TCAB members participated; we attribute this full participation to member commitment to their advisory board roles. Interviews ranged from 30 to 60 minutes and addressed four questions involving identity, sociotechnological literacies, collaboration, and any other comments about workplace writing. Interview questions included the following:

- Please describe your work and "identities" as a technical communication professional.
- What social and technological literacies are most important as part of your work?
- Please describe your collaborative work. How has collaboration changed for you over the years? More recently?

- ▪ Please share any other points with us regarding the "writing workplace" of 2020.

We transcribed the interviews with assistance from auto-transcription connected to Zoom. Two student transcribers reviewed the transcripts and edited them for any corrections. Each interview transcript was viewed as one unit of analysis.

We as co-authors coded each interview transcript in two phases, as described by Johnny Saldaña (2013). The first phase involved coding each transcript individually for common themes, similar to "structural coding" described by Saldaña. Coding in this phase was open-ended and involved identifying themes directly in the transcripts as well as in a spreadsheet to indicate the frequency of each theme across interviews. Then, each co-author calculated frequencies in two ways: (1) number of times each theme was mentioned within each interview and (2) total number of interviews in which the theme appeared. Each co-author created a spreadsheet with this information.

The second phase involved discussion of first-phase results and a discussion of how themes matched across the two coders. This second phase of coding most closely matches Saldaña's (2013) "pattern coding," a common second-phase coding approach to solidify patterns across data. This second phase also involved inter-rater reliability, which was conducted by comparing themes and frequencies. We compared spreadsheets and identified similar themes through color coding. Our second phase demonstrated that frequency of theme mentions had high agreement, at 80 percent, with agreements around 14 categories of themes. Disagreements existed around (1) how to address "work" and "identity" themes, (2) identifying sub-themes within the larger categories, and (3) reviewing themes mentioned fewer than two times. As co-authors, we discussed and resolved these disagreements by including "work" as part of the broader category of "identity." Sub-themes were discussed for commonalities. We also added an "other" category for themes mentioned fewer than two times. Our identification of 14 categories or patterns of themes remained steady throughout this phase. Agreement about the number of times a pattern or category appeared across interviews was high, at 90 percent. Disagreements about patterns were identified as having more than two counts difference in the number of interviews in which a pattern or category appeared. These differences were discussed and resolved. Our findings resulted in 14 high-frequency categories related to identity, literacies, and collaboration, with an additional "other" category.

After interview analyses, we shared results with members, inviting them to expand on findings through focus group discussions. During the focus group discussions, we asked the following questions: What are the implications stemming from these results? Implications for your current and future work and identity as a technical communicator? Implications for TC field? Implications for your future colleagues (i.e., those we teach)?

Eleven of the 20 TCAB members participated in one of the two focus groups (held using Zoom). We each kept notes, sharing and discussing them with each other to determine overarching themes and begin drafting. We shared a pre-final draft of this chapter with all TCAB members for final comment and verification of findings and implications for workplace writing.

▌ Results and Discussion

Overall, participants in this study described and affirmed a shift in technical writing and communication work. That is, technical writing and communication described by these participants is no longer chained to product development but instead is connected to services and processes. Individual genres received less attention from our participants. Rather, the workplace writing described by these 20 technical communication leaders is much more about process and systems; they see themselves and the profession as integral partners "at the table." Our "gist" of the findings is as follows:

- Identity is about multiple identities that are strategic and collaborative.
- Literacy is about content, audience, tools, and usability.
- Collaboration is remote, involving multiple teams and structures.

Further explanation of our coding illuminates these findings. Our coding of interview responses resulted in 163 coded themes (in Phase 1 coding) and 14 high-frequency categories of themes, plus an "other" category for a total of 15 categories (Phase 2 coding). Table 5.1 shows that these categories include (in rank order of frequency of mentions by TCAB members) collaboration, tools, multiple identities, content, usability, strategic thinking, remote work, relationships and networking, educating, cross-functional work, translation, business, soft skills, legal and regulatory, and "other." Each category includes a breakdown of coded themes included in that category. We observed that some participants discussed a theme multiple times during their interview (for example, if translation work was key to their work, they may have mentioned translation multiple times). Thus, instead of reporting by frequency of mentions, we report the number of times each category and related themes appeared across interview participants.

Looking at the top five categories overall, we see that collaboration, tools and platforms, multiple identities, content, and usability were mentioned the most frequently among TCAB members. These categories addressed, primarily, the kinds of work our participants reported doing as regular parts of their jobs. The remaining ten categories addressed nuances of that work, such as strategic thinking, remote work, educating, and soft skills. These nuances demonstrated abilities that our participants noted as necessary for technical communication work today.

We shared these results with focus groups as well, and one participant mentioned that the results reflected three aspects: how people do their work (usability, teamwork), what they do (e.g., content), and the impact of this work

(sustainability, usability, strategy). Another member shared that while every individual should understand all 14 categories, it's important "to differentiate through focus on what strengthens you in that list."

Table 5.1. Coding Results From Interviews About Workplace Writing

Categories *	TCAB Members Mentioned	Coded Themes within Categories
Collaboration and teamwork	20/20	Collaboration, teamwork roles, teams, virtual team
		Cooperation, essential, global, lead, SMEs, environment
		Project management, people management, planning, Agile
Tools and platforms	18/20	Tool knowledge, media richness, tech use, tools
		Media, technology, Google, MS Teams, Slack, G, JIRA
		Collaborative platforms, using tech to collaborate, confluence
Multiple identities	14/20	Wear many hats, hybrid identities
		Information architect, user interface designer, learning experience designer, guide, chief learning officer, consultant, developer
Content, writing, authorship	12/20	Content, CMS, structured documentation, audits
		Writer, technical writer, writing, authorship/ownership
		Content strategist, design, management, reuse, officer
		Documentation, production, formatting, decisions, systems
		Publication, deliverables, output, version control, templates
		Changing authorship/ownership, identity
Usability / UX, audience	12/20	Usability testing, user partner, UX/UI, advocacy
		Usability, user advocate, satisfaction
		Audience understanding and analysis, people
Strategic thinking, influence	11/20	Strategic thinking, strategy, business partner, adding value
		Critical thinking, persuasion, politics, influence, silo

Categories *	TCAB Members Mentioned	Coded Themes within Categories
Remote work	11/20	Remote digital, flexible work, recruitment
		Video conference, video output, Skype, Zoom, teleconferencing
Relationships / networking	10/20	Networking, relationship building, relationships, CRM
		Social awareness, meetings, presence, diversity
Educating, training, coaching	10/20	Educating, educator, learning, learn, training, coaching partners
		Training, teaching, coaching partners, guide
Cross-functional work, negotiation, credibility	10/20	Cross-functional work, negotiation, w SMEs
		Credibility, trust, recognition, respect, partner, value, confidence
Translation, localization	9/20	Translation, translator, translation manager
		Localization
		Global work (time zones, language, partnerships)
Business, ROI, sustainability	7/20	Budget, ROI, sustainability, forecasting, efficiency
		Business, partner, business case, customer
Soft skills	7/20	Language forms (visual, nonverbal, eye contact)
		Softer skills, empathy, play, analyze, curiosity, diplomacy
		Communication, essential, helper, methods
		TC as listener, listening skills, transparency
Legal, regulatory	5/20	Regulatory compliance, labeling law, legal review
		Standards, ISO, requirements, regulatory, compliance, legal
Other	Varied	Curiosity, marketing, troubleshooting, social web, multitask, databases, readability, Quality control, systems, innovation, story, process

Categories are displayed in rank order of frequency of mentions by TCAB members.

Results indicate a clear broadening of TPC identities as the TPC workplace evolves. According to these participants, abilities critical to the 2020 technical communication writing workplace include working remotely; collaborating; thinking strategically; building relationships and networks; and expanding understanding of content authoring, tools and platforms, translation and localization, business ROI, legal and regulatory compliance, and usability/audience. Interviews were conducted during the 2020 COVID-19 lockdown; TCAB members

stressed how TPC professionals might best prepare for remote work, networking, and continued building of the profession.

To further discuss the results and consider implications, we organize the remainder of our discussion according to our original research questions:

- What do contemporary workplace writing spaces look like, and how do they impact writer identity?
- What literacies are required for contemporary workplace writers?
- What new types of collaborations are required in workplace writing?

What Do Contemporary Workplace Writing Spaces Look Like, and How Do They Impact Writer Identity?

Participants in this study asserted that technical communicators have multiple identities that are related to a collaborative workplace. As an example, one participant described technical writing work not as individual but as part of a team:

> What is expected from a technical writer has changed a lot. The idea that you can just sit in the background and get information and make a PDF is no longer what we do and I just don't think it's a valid way to look at technical writing. It's really changed to be more of a collaboration where we really are part of the team that does the work. We're part of the team that's held accountable. (P13)

Words used by participants to describe identities included "project manager," "trusted partner," "translator," "problem-solver," and "strategic partner." One participant included detail about project management and collaboration as they describe their identity:

> I was hired to be a technical writer and that was right after graduation. So then I was a technical writer for two years and then the technical publications information architect ended up leaving the company, and then it was, well, how do we fill this need? So I stepped in to help manage things and keep the boat afloat, which ended up being managing a lot of translation projects and our translation platform. (P10)

Another participant described a key identity as "problem solver":

> I would say the main identity would be a problem solver. That's what we're finding with our work that we have certain audiences that either can't find the information they want, don't understand the technical information, or it's not working. And so really, we've looked at how to problem solve. . . . So identity wise, we really look

at problem solver, and we personify that. We are a communicator next, because we are the glue that holds all of our subject matter experts together. We understand enough about a lot of different pieces of this content ecosystem. (P18)

Current and assumed future roles and the associated workplace writing spaces of participants in this study are clearly collaborative, requiring them to practice *many identities* on many teams, to be skilled in multiple project management methods, and to use multiple tools and collaborative platforms. Members shared about the multiple skills needed and how collaboration leads to increased accountability and problem solving:

I do wear a number of hats and that's very typical of a technical writer or technical communicator. You will change your hats and sometimes you're writing and sometimes you're editing, sometimes you're providing training and that would include writing. (P20)

So the kinds of skills you need within your group include requirements analysis, customer relationship management, information design, information architecture, content management, content development or writing, editing, graphic design, system testing of the information for users, usability testing, translation and localization, specific technical subject matter expertise, estimating scheduling and planning, project management, authoring tool expertise, content management tool expertise, and information maintenance. (P12)

One member emphasized that "technical communication has probably, for me, transcended words" and that "*authorship doesn't matter; ownership matters.*" She shared this scenario to illustrate "channeling" collaboration in her writing workplace:

Who is the author? You know, we really stopped using terms like authors, even when I speak to people I've come to use the term *owner*. Because the owner is really the key person. The owner has to make sure this document is completed, but that doesn't mean they're writing it or they're really authoring it, or really they're touching it at all. Authorship doesn't matter, ownership matters. And so if you create a great proposal, I don't care who wrote it, but who owned it. Who was the person that was responsible for getting this thing produced? (P2)

Another member shared a similar scenario in terms of transcending words and making sure to listen:

It's not that I don't care what the words are, but it's not my mind that determines what the word should be, but it's listening to the

product team and helping the product team figure out what it's trying to say. I'm not writing with my own voice so much as I'm writing what the product voice should be, and I don't think you can arrive at that without being collaborative. (P6)

Participants also discussed the need to serve as a *translator* of technical information:

And so the students that I'm coaching and instructing, I'm, I'm trying to help them develop skills in communicating this very technical content to mixed audiences and to do that in a way that, you know, essentially positions them as translators. (P14)

In contrast to the Society for Technical Communication's definition of technical communication identity as making information more usable and accessible, and in so doing, advancing the goals of the companies or organizations, these technical communication leaders emphasized that multiple identities play a prominent role in their current and future workplace writing. One member asked, "What does tech comm actually do? Are you just like PDF monkeys where we tell you what to do, and then you just go make pretty PDFs when you're done? Like, I think that's what tech comm was maybe 20 years ago, but it's not what we do today." He and others stressed the identity of being *a trusted partner*:

We are a part of the product design. We are a part of the requirements and the process at the beginning. We are a part of the development throughout the process. We are part of development and when we get to the end, we are handing off our final deliverables just like they are. We're not a service org. We're a trusted partner. And we have a level of expertise in what's required for the instructions for use, what's required by the different regulatory bodies, what's required by our business partners. (P13)

I have to have collaborative trust with the R&D specialists that they're telling me what I need to know, and I would say that the more specialized the area is the more you have to trust within your collaborative endeavors. (P19)

These findings confirm Hart-Davidson's (2013) emphasis on technical communicators as information designers and Kellog et al.'s (2006) earlier note of successful boundary crossing that involves strategic knowledge sharing. A number of members spoke of being problem solvers and strategic business partners, articulating the ways in which they changed identity "from being someone that helps people communicate to [someone who] helps someone strategize." One member, a consultant for a wide variety of industries, emphasized identity as being "an *active business partner*":

In probably the era when DITA was first coming out, you know that, well, we don't need this. We don't need to do that. I think that's changed now, because more organizations have decided that there's some need for structure and that you don't want to invent everything on your own, that there are ideas out there about how to do things and certainly you know managers come to meetings and talk to experts and talk to one another. And we're trying to learn about how to do things, but it's a slow process. (P7)

We need to move the identity from somebody who sort of plays in the background and isn't really seen, to an active business partner who is at the table and helping make decisions, not just in how things are worded or written or laid out on the page. . . . Now we're the user experience designers, and we're all of these other many things that have really brought the technical communicator to the table as a business partner. . . . We need to take ourselves seriously as a strategic business partner, and that means speaking up more. (P5)

What Literacies are Required for Contemporary Workplace Writers?

Many participants articulated this "additional set of skills" in response to the question about sociotechnological literacies. While members discussed "writing" as being an important part of their job, including issues of authorship and ownership, focus shifted to "content" as a way to describe the multiple writing tasks and contexts. For example, participants discussed content management, content strategy, content reuse, and ways that content may be created collaboratively.

I guess, is a literacy around content strategy, the ability to define a means by which we are saying yes or no to the next plausible idea that comes along we could do. That takes work, and it takes practice and an awareness of the importance of that strategy. (P16)

Content was also described as an endeavor involving teams, rather than individual writers, thus affecting shifts in how writing was approached in workplaces.

I mean, a lot of our work, we say in interviews, it's maybe 60 or 70 percent project management. It's not a lot of sitting down and typing. It is a lot of negotiating those schedules, figuring out what the dependencies are, figuring out configuration management. The same content gets leveraged in like ten different manuals. But this version needs to say this, and that version needs to say that. So how do I keep track of all those pieces? (P13)

In addition, the use of *tools* was a common theme in the interviews, including collaborative platforms, structured authoring tools, content management systems, and collaborative technologies such as Google and Slack. Technology was a clear factor in affecting literacies, and the collaborative component certainly underscores the importance of sociotechnological literacies, or the ability to understand the impacts and applications of collaborative technologies.

> Certainly right now with COVID-19, technological literacy is really important, but even absent COVID-19, that technological literacy is really important. . . . One really important technical literacy that's embedded within technology is the ability to use technology to curate our data sets that we have to talk about and write about. (P19)

> I'm starting to see that even within user experience, where there's an increased specialization. You know, you might be very invested in UI [user interface] development and then your digital literacies are going to be prototyping tools, wireframing tools, you know, an expertise with mocking up screens and doing HTML or XML, you know, and actual web building. But if you're more of a strategic user experience researcher, those digital literacies don't emerge as much, and what you need to be proficient at [are] the soft skills of effective user research. (P16)

As the quote above illustrates, literacies were also highlighted in terms of *softer skills*, including problem-solving, networking and building relationships, strategic thinking and communication, working with cross-functional teams, and connecting sociotechnological literacies such as listening, practicing empathy, and clear verbal and nonverbal communication. Soft skills around relationship building underscore the collaborative nature of technical writing and communication described by these participants:

> The networking and the relationship building is a very important part of what I do. (P4)

> I think one of the things we're looking for is can you build those relationships? Can you establish yourself as a partner? Can you get so people know who you are? (P13)

In addition, soft skills related to listening and problem-solving support the ideas of technical communicators as trusted partners:

> Listening is definitely one of those skills that I think is more important than ever. That's part of being present, and I've heard that a lot from people in the field, from managers especially. To listen to others, to understand where they're coming from, to really be able to understand the situation before jumping in to respond or reacting. That's really, really important. (P17)

> The notion of being able to articulate that solution in a way that adds value to it is huge. And so I think it's changed my identity from being someone that helps people communicate to someone who helps people strategize. (P2)

> Inherently part of my job is strategy, and so I spend time on strategy [and] create frameworks for people to engage their work. Some of that might be, how are we looking logically, how are we looking at this problem right, and what do we want to call things? How do we want to label things? (P15)

Some participants explicitly mentioned the soft skill of empathy, both in terms of working with other colleagues and in thinking about end users who would benefit from information designs they were creating.

> I think a capacity for empathy is really important. That either comes naturally or you can systematize it through a process like design thinking. Where you start with empathy and that means, to me, that means understanding a day in the life of your audience and so that you can think holistically about what they need, when they need it, where they need it. How to serve it up, right, so that whatever objective you have in your written piece you're taking the most ideal attempt to serve it up in a way that your inner audience needs it. (P11)

> Certainly that element of being empathetic, advocating for users, is still something that unites all of us. . . . And within the Agile environment, right, we're relying on our designers to be advocates for the user, to promote user-centered design within the Agile environment, and to really be that stand-in, making sure that users are present throughout everything we're doing. (P8)

These responses align with broader definitions of literacy from outside our field, e.g., as Stordy (2015) articulates digital literacy as "the abilities a person or social group draws upon when interacting with digital technologies to derive or produce meaning, and the social, learning and work-related practices that these abilities are applied to" (p. 472). In addition, members clearly recognize the importance of sociotechnological issues, i.e., their understanding of workplace contexts and authorship (see above "scenario" quote), and their ability to be a viable part of business strategy to enact change.

What New Types of Collaborations are Required in Workplace Writing?

As shown in Table 5.1, collaboration was the only theme discussed by all participants in our study, which demonstrated its prevalence among our participants. The greatest amount of input surrounding new types of practices in the workplace writing setting involved discussion of *remote work* as it relates to identity, literacy, and collaboration. One member who has the broadest pulse across Twin Cities' technical communication businesses pointed out that this shift was well in place prior to COVID-19:

> I'm seeing more companies be receptive to remote work. It is a huge shift in just the last several years. For example, in companies like Medtronic or United Healthcare, it is now very common to work remote. Related to this point, some companies are hiring across the country rather than in one geographical location. They may start with a local search. However, if they cannot find the talent they need, they may have to expand their search outside the immediate geographic area and hire someone who lives wherever. (P1)

Others mentioned being part of a team as a consistent part of the work of technical writers, in addition to working remotely in teams (e.g., "virtual teams"):

> There's a sea change happening with collaboration. Especially before coronavirus, more and more people were working remotely. And it's kind of hit a tipping point here where you know, all these people who never worked from home are now being compelled to do so. And it's actually come at a very, the timing has been very fortuitous, because we have these tools like Zoom and Microsoft Teams where these, and Slack, they've kind of been in this, we're kind of on the leading edge of the bell curve. (P8)

> So, in this industry, you need to be able to work remotely, independently, and also as a team member because translation always involves multiple people with multiple responsibilities. It could be like a project manager, translators, vendor managers, quality managers, and if the project is large, you might have multiple translators. . . . All this communication is done remotely, but as a team. So from the social perspective, you need to be able to work independently, remotely, but in a team, like a virtual team environment. (P3)

COVID-19 also was on everyone's mind:

> I think that navigating [COVID] and even learning about how to do that effectively is going to become more and more important as we go through things like this, to be honest. Right now, since we have to meet, it's usually now more formalized meetings, because people are blocking their calendars, especially if you're home with your family to balance personal and professional life. So I think training and

learning more about what the new workplace is or is going to be. I think that's gonna affect workplace writing in my opinion. (P18)

One member articulated his unit's pivot amidst COVID-19 as "experiencing a scene in progress" that involves "brand new assumptions" for users and for getting things done. This exemplifies sociotechnological literacy:

> The workplace writing decisions we're making now that might have sounded like business as usual last month, will be viewed with brand new assumptions. Our readers, our users have new things on their minds. They may be preoccupied with attending to sick family members or their kiddos. They might be experiencing unemployment or underemployment. They might be cooped up in an environment where it is harder to achieve the conditions necessary for attention and concentration. . . . I feel as though as a technical communicator it's easy to point to now as an example of why we have been focused on the right thing all along, and now we're all experiencing the hypotheticals we kept talking about. (P16)

And others stressed the continued importance of collaboration in working with others to create content products:

> When you collaborate and become more of a communicator or problem solver, you're pushed out of your comfort zone as an actual technical writer. I would love to sit down and just be able to work on documents or videos, but really it's engaging with those around us to create the best product that, and by product I mean document, video, interaction, content, if you will. And so in regards to workplace writing, a lot of that is done now in a group collaborating. (P18)

As a means to verify the stated results and implications from this study, we shared a pre-final draft of this manuscript with TCAB members during mid-June 2020. One member emphasized the role as a communications consultant, coach, and practitioner throughout his work in support of individuals, teams, and groups as they assess their communication goals and improve communication skills. Another member, in response to reading the final section of this manuscript, wrote the following:

> I especially think your Epilogue is extremely important right now. I wonder if the concept of social justice could be more expressly correlated with the section describing empathy and soft skills? I'm seeing an encouraging, if overdue, acceleration of the import of concepts of social justice in our work. Accessibility and inclusive design, for example, are becoming central elements of my team's

identity. My team has researched necessary modifications to our software to be more inclusive with gender identities. I expect this to continue to become a more paramount element of our identities and key literacies. (P9)

Needless to say, while we were working to articulate the evolution of workplace writing in technical communication, everyone instead was working to make sense of the world.

▮ Conclusion

This collection on workplace writing afforded us the opportunity to interview each TCAB member individually as a means to understand each member's evolving technical communication identity, literacies, and collaboration practices and begin to articulate the resulting evolution of our field as we work to increase effectiveness as we prepare students for work in these industries.

In 2006, Pringle and Williams asked, "Has technical communication arrived as a profession?" predicting that technical communicators "will begin participating more frequently in the development cycles of technology" (p. 368). Our results clearly indicate that the technical communicator is expected to be "at the table" performing multiple roles as shown in Table 5.1. Amid a technical communicator's main identities and sub-identities (Johnson, 2018), they are seen as a trusted, strategic business partner. Our results show that contemporary technical communication workplace writing spaces are remote, collaborative, content-focused, usability-driven, and strategic, involving multiple structures. Literacies include knowledge of tools along with understanding the concepts behind the tools as the tools themselves continue to change. Soft skills, especially listening and practicing empathy, are critical to communicate and work well in teams.

In contrast to the recent research of Andersen and Hackos (2018) and St.Amant and Melançon (2016), none of these 20 technical communication leaders mentioned a "major divide" between this academic research and their needs for research in their jobs or that this academic research did not apply to them. All asked to be engaged as part of their commitment to building the profession. We credit such engagement to these leaders' service as members of our TCAB. TCAB began in 2014, and all but two of the original members have chosen to continue service throughout this time. Lora Anderson (2019), in her call for proposals for this edited collection, writes that while "a smattering of journal articles have examined workplace writing in the 21st century . . . no sustained engagement (i.e., monograph or edited collection) has been produced on workplace writing since 2000." In our case, TCAB members exemplify sustained industry-academia engagement for the purpose of student success and professional development.

However, we note that an important limitation of our study is that our participant sample is not random. Because all participants are also members of our

advisory board, participants may be already predisposed to academic environments. Said differently, we cannot claim that our participant responses are representative of the larger technical communicator population. Yet, our participants engage in technical communication work across a range of companies and organizations (and some are self-employed), and our interviews suggest that technical communication has evolved by its practitioners becoming active partners in these respective workplaces. According to these participants, the future involves understanding technical communication as a highly collaborative profession which affects identity and literacies. Amidst the exigency of a pandemic, this study provided us with a chance to reduce confusion and illuminate our understanding of writer identity, literacy, and collaboration for 2020 and beyond. A clear implication of this study is that sustained collaboration with advisory board members is key to bridging the gap between academia and industry. This sustained collaboration may include continued discussions with advisory board members and mentor programs to continue connections with students, and finding ways to foster reciprocal relationships that benefit both advisory board members and students in our programs is critical.

The insights we received through these interviews have helped us see the future of technical communication; that is, students have to see themselves as entering a profession with multiple roles. Collaboration is a professional imperative as is understanding technical communicators as strategic business partners. We will apply the insights of these findings to develop and strengthen curricula and professional development opportunities that foster multiple literacies and collaboration to prepare students for the future writing workplace.

■ Epilogue

We wish to provide an epilogue regarding the killing of George Floyd, which occurred on May 25, 2020 as we were working on this project. In fact, we conducted focus groups two days after George Floyd's death, before protests began in Minneapolis. As many people in this study live and work in the Minneapolis area, we are aware of the profound impact George Floyd's death has had on our community. We struggle to understand unjustifiable acts of violence toward Black Americans that have occurred in our own community and across the country. After the conclusion of our interview project, we began to have discussions with some TCAB members about integrating social justice more meaningfully into the work and partnerships with TCAB, such as inviting more people of color and focusing on ways to reach out to students of color in our programs. We will continue these discussions and work together with TCAB members to identify ways we can address social justice in our work. We also support statements by our national organizations, including the Association of Teachers of Technical Writing, Council of Programs in Technical and Scientific Communication, and the National Council of Teachers of English.

So, has technical communication arrived as a profession? No, not yet. Again,

our interviews suggest that technical communication has evolved by its practitioners becoming active partners in respective workplaces. However, intense scrutiny of the past and present is necessary so as to work toward a future of greater diversity, equity, and inclusion, of greater social justice across our profession. In December 2019, our Department of Writing Studies approved an Equity and Diversity Statement; this is the opening paragraph:

> The Department of Writing Studies at the University of Minnesota-Twin Cities recognizes that equity, diversity, and inclusion must be addressed on individual and group levels. The Department is also aware that relations of privilege and oppression are institutionalized on a systemic level but commits the principle of social justice for all. The Department recognizes that society is often unjust but that the Department (and its individual members) can play important roles in mitigating these injustices and become a space that better embodies equity, diversity, and inclusion. Thus, the Department encourages equity, diversity, and inclusion in representation as well as development of personal awareness, and the Department actively seeks to engage in creating socially just learning and workplace environments and opportunities.

Amidst the exigency of a pandemic and the trauma of racism, we know that TCAB members will continue to guide, to direct our profession and its workplace writing identities, literacies, and collaboration. As we continue to build the profession, we will strive to "arrive" at a socially just writing workplace.

▮ Acknowledgements

▮ References

Allen, Nancy, Atkinson, Dianne, Morgan, Meg, Moore, Teresa, & Snow, Craig. (1987). What experienced collaborators say about collaborative writing. *Journal of Business and Technical Communication*, *1*(2), 70-90. https://doi.org/10.1177/105065198700100206

Anders, Abram. (2016). Team communication platforms and emergent social collaboration practices. *International Journal of Business Communication*, *53*(2), 224-261. https://doi.org/10.1177/2329488415627273

Andersen, Rebekka, & Hackos, JoAnn. (2018, August 3). *Increasing the value and accessibility of academic research: Perspectives from industry* [Paper presentation]. SIGDOC'18, Milwaukee, WI, United States.

Anderson, Lora. (2019). Call for Proposals—Rewriting work. [CFP]

Anderson, Paul V., Brockmann, R. John, & Miller, Carolyn R. (Eds.). (1983). *New essays in technical and scientific communication: Research in theory and practice*. Baywood.

Behles, Jessica. (2013). The use of online collaborative writing tools by technical communication practitioners and students. *Technical Communication*, *50*(1), 28-44.

Blythe, Stuart, Lauer, Claire, & Curran, Paul G. (2014). Professional and technical communication in a Web 2.0 world. *Technical Communication Quarterly*, *23*(4), 265-287. https://doi.org/10.1080/10572252.2014.941766

Breuch, Lee-Ann. K. (2002). Thinking critically about technological literacy: Developing a framework to guide computer pedagogy in technical communication. *Technical Communication Quarterly*, *11*(3), 267-288. https://doi.org/10.1207/s15427625tcq1103_3

Breuch, Lee-Ann K. (2008). A work in process: A study of single-source documentation and document review processes of cardiac devices. *Technical Communication*, *55*(4), 343-356.

Breuch, Lee-Ann K., Duin, Ann H., & Gresbrink, Emily. (2022). Real-world user experience: Engaging students and industry professionals through a mentor program. In Kate Crane & Kelli Cargile Cook (Eds.), *User experience as innovative academic practice*. The WAC Clearinghouse; University Press of Colorado. https://doi.org/10.37514/TPC-B.2022.1367

Brumberger, Eva R., Lauer, Claire, & Northcut, Kathryn. (2013). Technological literacy in the visual communication classroom: Reconciling principles and practice for the "whole" communicator. *Programmatic Perspectives*, *5*(2), 171-196.

Burnett, Rebecca E., Cooper, Andrew, & Welhausen, Candice. A. (2012). What do technical communicators need to know about collaboration? In Johndan Johnson-Eilola & Stuart A. Selber (Eds.), *Solving problems in technical communication* (pp. 454-478). University of Chicago Press.

Software Advice (n.d.). *Find the best collaboration software*. Retrieved June 9, 2020, from https://www.softwareadvice.com/collaboration/

Cook, Kelli C. (2002). Layered literacies: A theoretical frame for technical communication pedagogy. *Technical Communication Quarterly*, *11*(1), 5-29. https://doi.org/10.1207/s15427625tcq1101_1

Cross, Geoffrey A. (2001). *Forming the collective mind: A contextual exploration of large-scale collaborative writing in industry*. Hampton Press.

Duin, Ann H., & Hansen, Craig J. (Eds.). (1996). *Nonacademic writing: Social theory and technology*. Lawrence Erlbaum Associates.

Duin, Ann H., & Palumbo, Giuseppe. (2021, July 8). *Redesigning TAPP for developing critical understanding for managing Global Virtual Teams* [Paper presentation]. AELFE-TAPP International Symposium, Barcelona, Spain.

Duin, Ann H., & Tham, Jason. (2018). Cultivating code literacy: A case study of course redesign through advisory board engagement. *Communication Design Quarterly*, *6*(3), 44-58. https://doi.org/10.1145/3309578.3309583

Duin, Ann H., Tham, Jason, & Pedersen, Isabel. (2021). The rhetoric, science, and technology of 21st century collaboration. In Michael J. Klein (Ed.), *Effective teaching of technical communication: Theory, practice and application* (pp. 169-192). The WAC Clearinghouse; University Press of Colorado. https://doi.org/10.37514/TPC-B.2021.1121.2.09

Equity and diversity statement. (2019). Department of Writing Studies, University of Minnesota.

Fluckinger, Don. (2019). AI in enterprise collaboration platforms: A comparison. Tech

Target Network. https://www.techtarget.com/

Gourlay, Lesley, & Oliver, Martin. (2016). It's not all about the learner: Reframing students' digital literacy as sociomaterial practice. In Thomas Ryberg, Christine Sinclair, Sian Bayne, and Maarten de Laat (Eds.), *Research, boundaries, and policy in networked learning* (pp.77-92). Springer.

Hart-Davidson, William. (2013). What are the work patterns of technical communication? In Johndan Johnson-Eilola & Stuart A. Selber (Eds.), *Solving problems in technical communication* (pp. 50-74). The University of Chicago Press.

Hovde, Marjorie R., & Renguette, Corinne C. (2017). Technological literacy: A framework for teaching technical communication software tools. *Technical Communication Quarterly*, *26*(4), 395-411. https://doi.org/10.1080/10572252.2017.1385998

Johnson, Tom. (2018, August 9). If writing is no longer a marketable skill, what is? *I'd Rather Be Writing*. https://idratherbewriting.com/2018/08/09/writing-no-longer-a-skill/

Joint Information Systems Committee (JISC). (2019). *Jisc digital capabilities framework: The six elements defined*. http://repository.jisc.ac.uk/7278/1/BDCP-DC-Framework-Individual-6E-110319.pdf.

Jones, Scott L. (2007). How we collaborate: Reported frequency of technical communicators' collaborative writing activities. *Technical Communication*, *54*(3), 283-294.

Kellogg, Katherine C., Orlikowski, Wanda J., & Yates, JoAnne. (2006). Life in the trading zone: Structuring coordination across boundaries in postbureaucratic organizations. *Organization Science*, *17*, 22-44. https://doi.org/10.1287/orsc.1050.0157

Lay, Mary M., & Karis, William M. (Eds.). (1991). *Collaborative writing in industry: Investigations in theory and practice*. Baywood.

Martin, Allan, & Grudziecki, Jan. (2006). DigEuLit: Concepts and tools for digital literacy development. *Innovation in Teaching and Learning in Information and Computer Sciences*, *5*(4), 249-267. https://doi.org/10.11120/ital.2006.05040249

Maxwell, Joseph A. (1997). Designing a qualitative study. In Leonard Bickman & Debra J. Rog (Eds.) *Handbook of applied social research methods* (pp. 69-100). .

Northcut, Kathryn M., & Brumberger, Eva R. (2010). Resisting the lure of technology-driven design: Pedagogical approaches to visual communication. *Journal of Technical Writing and Communication*, *40*(4), 459-471. https://doi.org/10.2190/TW.40.4.f

Odell, Lee, & Goswami, Dixie. (Eds.). (1985). *Writing in nonacademic settings*. Guilford.

Palumbo, Giuseppe, & Duin, Ann H. (2018). Making sense of virtual collaboration through personal learning networks. In Birthe Mousten, Sonia Vandepitte, Elisabet Arno, & Bruce Maylath (Eds.), *Multilingual writing and pedagogical cooperation in virtual learning environments* (pp. 109-136). IGI Global.

Pringle, Kathy, & Williams, Sean. (2006). The future is the past: Has technical communication arrived as a profession? *Technical Communication*, *52*(3), 361-370.

Rude, Carolyn. (2009). Mapping the research questions in technical communication. *Journal of Business and Technical Communication*, *23*(2), 174-215. https://doi.org/10.1177/1050651908329562

Saldaña, Johnny. (2013). *The coding manual for qualitative researchers* (2nd ed.). Sage.

Selber, Stuart. (2004). *Multiliteracies for a digital age.* Southern Illinois University Press.

Society for Technical Communication. (n.d.). *Defining technical communication*. Retrieved November 14, 2023, from https://www.stc.org/about-stc/defining-technical-communication/

Spilka, Rachel. (Ed.). (1993). *Writing in the workplace: New research perspectives*. Southern

Illinois University Press.

Spilka, Rachel. (Ed.). (2009). *Digital literacy for technical communication: 21st century theory and practice*. Routledge.

St.Amant, Kirk, & Melonçon, Lisa. (2016). Reflections on research: Examining practitioner perspectives on the state of research in technical communication. *Technical Communication*, *63*(4), 346-364.

Stordy, Peter. (2015). Taxonomy of literacies. *Journal of Documentation*, *71*(3), 456-476. https://doi.org/10.1108/JD-10-2013-0128

Thompson, Isabelle. (2001). Collaboration in technical communication: A qualitative content analysis of journal articles, 1990-1999. *IEEE Transactions on Professional Communication*, *44*(3), 161-173. https://doi.org/10.1109/47.946462

Turnley, Melinda. (2007). Integrating critical approaches to technology and service-learning projects. *Technical Communication Quarterly*, *16*(1), 103-123. https//doi.org/10.1080/10572250709336579

Volini, E., Denny, Brad, & Schwartz, Jeff. (2020). *Superteams: Putting AI in the group*. Deloitte Insights. https://www2.deloitte.com/us/en/insights/focus/human-capital-trends/2020/human-ai-collaboration.html

Wilson, H. James, & Daugherty, Paul R. (2019). Collaborative intelligence: Humans and AI are joining forces. *Harvard Business Review*, *96*(4), 114-123.

Winsor, Dorothy A. (2003). *Writing power: Communication in an engineering center.* State University of New York Press.