18. Knowledge

Jason Swarts
North Carolina State University

As a concept, knowledge is central to technical communication. Technical communicators deliver knowledge (as in scientific and technical) in a form that readers can use. Technical communicators also produce knowledge, as insights about data, work processes, and ***user experiences***. This characterization of knowledge, as a thing that exists in the world, revealed through language, and as a thing created through the interaction of language with the world is central to understanding developments in the field of technical communication. The *Oxford English Dictionary* offers an accessible starting point. Two of its definitions for *knowledge* focus on how knowledge connects with technical communication.

First is *knowledge of*, or the act of knowing: "The apprehension of fact or truth with the mind; clear and certain perception of fact or truth; the state or condition of truth" (Oxford University Press, n.d.). Under this definition, knowledge is an act of ascertaining truth about the world with certainty and clarity. Technical communication has been portrayed as a way to do exactly this: reveal truth by allowing access to the world and what is truly there. The technical communicator does not get in the way of this transmission. This use of knowledge is positivistic in that it references a correct/formal process by which one acquires knowledge of the world. When used properly, language reveals the world without distortion.

A second definition of *knowledge* is more constructivist: "The fact or condition of having acquired a practical understanding or command of, or competence or skill in, a particular subject, language, etc., esp. through instruction, study, or practice" (Oxford University Press, n.d.). Here, knowledge is seen as something one acquires by engaging in actions that produce knowledge. Knowing involves intentionality, engagement, and situatedness. Language is the medium through which we express intentions and make sense of our engagements, making language essential to the creation of knowledge.

Technical communication has long grappled with these approaches to knowledge, as practitioners have sought to articulate their role in the process of knowledge creation. Some of the earliest forms of technical writing, technical descriptions from the late 15th century, on medicine and navigation, came about as ways to preserve knowledge that was experiential and detailed, knowledge that was difficult to transmit orally with any degree of comprehensiveness or reliability (Tebeaux, 1991, p. 61).

The need for transmittable knowledge grew alongside publication technologies that circulated content widely and helped professions enrich their knowledge base. These professionals required technical writing to capture developments

DOI: https://doi.org/10.37514/TPC-B.2023.1923.2.18

using specialized technical terms (Tebeaux, 1991, p. 106). The need served by technical writing in these contexts held constant throughout the development of technical writing as an area of instruction in the 19th century, where its purpose was to ensure clear transmission of specialized ***information*** among engineers (Connors, 1982). In these contexts, technical writing was "the skill of subduing language so that it most accurately and directly transmits reality" (Miller, 1979, p. 610), a relationship between technical writing and reality that Carolyn R. Miller (1979) called the "windowpane theory of language" (p. 611).

If technical writing is to be a windowpane on the world, then the writing itself must be highly formalized and words must be chosen carefully to be direct, to the point, and to mean one and only one thing (Britton, 1965, p. 114). This view on knowledge is prevalent today among practicing technical communicators who describe their work as "that of transferring information from those who have it (subject matter experts or SMEs) to those who need it . . . packaging that information to be more accessible and more readily understood by the user" (Hughes, 2002, p. 275). This position "implies that the source information 'exists' and someone 'has' that information" (Hughes, 2002, p. 275).

The function of technical communication to create knowledge by revealing truth is also captured in Jennifer Daryl Slack, David James Miller, and Jeffrey Doak's (1993) typology of technical communicator roles. Among the three roles, "transmitter" stands out as being linked most closely to a positivistic outlook on knowledge. A transmitter is one whose words frame knowledge in the world, reveal it, and move it from one place to another with little or no signal loss. In the second role, "translator," the technical communicator still encodes knowledge in a format that reflects the source, but they must now interact with receivers who actively decode that content. Meaning is negotiated (Slack et al., 1993, p. 20). The third role, "articulator," moves us closer to a constructivist concept of knowledge in technical communication, where more power is invested in the technical communicator and knowledge is recognized as something that is created through language and situated within a location and nexus of identities and positionalities. The articulator role becomes possible if we take the knowledge that technical communicators deal with to be socially constructed, rather than strictly revealed through objective and formal means.

This social, constructed view of knowledge parallels thinking in ***science*** and ***technology*** studies, such as David Bloor's (1976) work on the Strong Programme, which views social influence on scientific knowledge not just as the source of error but the source of success as well. Social conditions must inhere for any kind of knowledge to develop. A similar perspective is echoed in Ludwig Fleck's (1981) social explanations of scientific facts as well as, famously, Thomas Kuhn's (1996) discussions of "paradigms."

Knowledge construction is particularly evident where interpretations of the world intersect and disrupt what Richard Rorty (1979) describes as "normal discourse," or that use of language "which is conducted within an agreed-upon set

of conventions about what counts as a relevant contribution" (p. 320). Normal discourse is kept in tension by the work of edification, the "project of finding new, better, more interesting, more fruitful ways of speaking" (Rorty, 1979, p. 360). Across these views of knowledge, language is understood to be constitutive of reality (Berger & Luckmann, 1967), of what we know and care to remember (Havelock, 1988). Technical writing in particular "becomes, rather than the revelation of absolute reality, a persuasive version of experience" (Miller, 1979, p. 616).

The swing toward constructivist notions of knowledge characterizes much of technical communication scholarship throughout the late 20th century. Marilyn Samuels (1985) describes this turn as one that characterizes technical communication as a creative enterprise, crafting "reality for special purposes" (p.11). The language of science is just an example. Other contexts, like the technological and political, can also reflect in technical communicators' choices of language. Those contexts and the languages associated with them reflect discursive norms within different domains of practice while also reinforcing norms of knowing and acting entailed by those discourses (Thralls & Blyler, 1993, pp. 254, 259). An example might be procedure writing, from a technological context, that positions users as those who must bend their expectations to fit a technology's ***design*** constraints (Norman, 2002).

Within this space opened up by a constructivist approach to technical communication, scholars saw ways to raise the profile of situated knowledges that accompanied ways of being in the world (e.g., Durack, 1997). Paul Dombrowski (1995) saw the move as a way of focusing on knowledge creation, especially forms of knowledge that have been "excluded, suppressed, and marginalized" (p. 265) as well as knowledge that has been misconstrued, ignored, or otherwise silenced (Jones, 2016). When knowledge is understood to be socially constructed, writers must give attention to forces of "knowledge legitimation (i.e., whose knowledge do we value, whose knowledge do we seek and solicit, and whose opinions do we include)" (Jones, 2016, p. 479). Mary Lay (1991) also saw value in resisting positivistic notions of knowledge to create room for feminist approaches that valued situated experience and collaborative, community-based ways of knowing, where knowledge is negotiated (p.356, 365), socially achieved (Winsor, 1990, p. 12), and strongly informed by lived experience (Jones, 2020).

A constructivist outlook on communication foregrounds the role of the receiver and acknowledges that knowledge is not passive (Winsor, 1990, p. 13). Instead, receivers actively interpret and create knowledge as they read (Redish, 1993). As a result, technical communicators increasingly think of themselves less exclusively as generators of knowledge and sometimes also as "information managers," who help bridge different "content spaces" (Regli, 1999, p. 32; see also Wilson & Herndl, 2007). A focus on the social as a source of knowledge production is also evident in the field's turn toward user involvement, as clients are deliberately integrated into the knowledge-creation process, whether through interviews, focus groups, usability testing, or other means (Johnson, 1997).

A constructivist approach to knowledge production is also foundational to technical communicators who position themselves as "knowledge workers," trading in the creation and circulation of knowledge within particular communities (Johnson-Eilola, 1996). More recently, scholars have looked at this knowledge work as supportive of users but also as supportive of knowledge communities within organizations (Hart-Davidson, 2013; see also Smart, 1999). Knowledge is what technical communicators facilitate, and they do so through their contact with different social actors that they help put into conversation (Read & Swarts, 2015). Knowledge is literally in and between the minds of the actors that we engage with in social settings and connect through language and text (Winsor, 2001).

This constructivist outlook on knowledge creation positions technical communicators as social agents of knowledge creation. Over time, the field has developed techniques and heuristics for generating this kind of social knowledge. Technical communication sees itself as a "problem-solving activity" (Johnson-Eilola & Selber, 2013, p. 3), and its practitioners solve problems by learning through the use of heuristics, which are "rough frameworks for approaching specific types of situations" (Johnson-Eilola & Selber, 2013, p. 4). There are heuristics for understanding audiences and users (Redish, 1993), usability (Mirel, 1998), ***project management*** (Dicks, 2003), content strategy (Halvorson & Rach, 2012), and information architecture (Rosenfeld & Morville, 2002), to name a few. But as Johndan Johnson-Eilola and Stuart A. Selber note, these heuristics must account for differences in the cultural, economic, and political contexts where they are applied.

Heuristics like audience and task analysis, user profiles, scenarios, content maps, and content plans are used to create knowledge, but in doing so, one must be aware of how those heuristics engage in a process of creating and recreating normal discourse that belongs to particular regimes of power (Thralls & Blyler, 1993, p. 254). Knowledge making through communication helps create a reality for those who use it—it is an ***ethical*** activity (Cooper, 2005, p. 37). The problem, as scholars in technical communication are coming to realize, is that while we respect the instrumental value and utility of standardized approaches to language use (see Moore, 1996), if we are not critical of our heuristics, they can overemphasize an ethos of efficiency and effectiveness, which flattens and simplifies readers and contexts of communication, at the expense of building local, situational knowledge that will be more complex and diverse than heuristics aimed at efficient data collection and processing will allow. The danger in the zealous pursuit of efficiency is precisely presented in Steven Katz's (1992) work on technical communication in Nazi Germany. And Natasha Jones and colleagues (2016) broadly characterize the issue this way:

> The official narrative of our field indicates that TPC is about practical problem solving: a pragmatic identity that values effectiveness. But this is not the whole story. The narrative should be reframed to

> make visible competing (i.e., a collection of nondominant) narratives about the work our field can and should do. (p. 212)

The values associated with effectiveness and efficiency are central to our pragmatic, disciplinary identity and are characteristically present in the heuristics that we use to create knowledge. Procedurally, we rely on our heuristics to create methodological distance from which we pretend to get a true view of the readers and contexts we are trying to reach. All the while, we may not realize how the heuristics are themselves constructions that reinforce ways of knowing and seeing from a particular vantage point. The danger is that if we do not acknowledge the partiality and positionalities from which we generate knowledge, we run a risk of essentialism by overlooking ways that culture is socially constructed and local (Agboka, 2012, p. 174). Heuristics and other tools, especially when deployed to understand other cultures, tend to treat culture as "a set of habits and traits that one can learn and regurgitate" (Agboka, 2012, p. 169). A better approach to knowledge creation is local and participatory (Agboka, 2013, p. 42; Longo, 2014, p. 24).

The meaning and pursuit of knowledge in technical communication continues to be a matter of importance for how we see ourselves and our work. New information and communication technologies, as well as new information environments, require technical communicators to face new demands for creating and sharing knowledge. Ongoing discussions about knowledge and knowledge creation will also help us become better at articulating our relationships to other fields and industries.

References

Agboka, G. (2012). Liberating intercultural technical communication from "large culture" ideologies: Constructing culture discursively. *Journal of Technical Writing and Communication*, *42*(2), 159-181. https://doi.org/10.2190/TW.42.2.e

Agboka, G. Y. (2013). Participatory localization: A social justice approach to navigating unenfranchised/disenfranchised cultural sites. *Technical Communication Quarterly*, *22*(1), 28-49. https://doi.org/10.1080/10572252.2013.730966

Berger, P. L., & Luckmann, T. (1967). *The social construction of reality: A treatise in the sociology of knowledge*. Anchor Books.

Bloor, D. (1976). *Knowledge and social imagery*. University Of Chicago Press.

Britton, W. E. (1965). What is technical writing? *College Composition and Communication*, *16*(2), 113-116. https://doi.org/10.2307/354886

Connors, R. J. (1982). The rise of writing instruction in America. *Journal of Technical Writing and Communication*, *12*(4), 329-352. https://doi.org/10.1177/004728168201200406

Cooper, M. M. (2005). Bringing forth worlds. *Computers and Composition*, *22*(1), 31-38. https://doi.org/10.1016/j.compcom.2004.12.013

Dicks, R. S. (2003). *Management principles and practices for technical communicators*. Longman.

Dombrowski, P. M. (1995). Post-modernism as the resurgence of humanism in technical communication studies. *Technical Communication Quarterly*, *4*(2), 165-185. https://doi.org/10.1080/10572259509364595

Durack, K. T. (1997). Gender, technology, and the history of technical communication. *Technical Communication Quarterly*, *6*(3), 249-260. https://doi.org/10.1207/s15427625tcq0603_2

Fleck, L. (1981). *Genesis and development of a scientific fact*. University of Chicago Press. https://doi.org/10.7208/chicago/9780226190341.001.0001

Halvorson, K., & Rach, M. (2012). *Content strategy for the web*. New Riders.

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

Havelock, E. (1988). *The muse learns to write: Reflections on orality and literacy from antiquity to the present*. Yale University Press.

Hughes, M. (2002). *Moving from information transfer to knowledge creation: A new value proposition for technical communicators*. Society for Technical Communication.

Johnson, R. R. (1997). Audience involved: Toward a participatory model of writing. *Computers and Composition*, *14*(3), 361-376. https://doi.org/10.1016/S8755-4615(97)90006-2

Johnson-Eilola, J. (1996). Relocating the value of work: Technical communication in a post-industrial age. *Technical Communication Quarterly*, *5*(3), 245-270. https://doi.org/10.1207/s15427625tcq0503_1

Johnson-Eilola, J., & Selber, S. A. (Eds.). (2013). *Solving problems in technical communication*. University of Chicago Press.

Jones, N. N. (2016). Narrative inquiry in human-centered design: Examining silence and voice to promote social justice in design scenarios. *Journal of Technical Writing and Communication*, *46*(4), 471-492. https://doi.org/10.1177/0047281616653489

Jones, N. N. (2020). Coalitional learning in the contact zones: Inclusion and narrative inquiry in technical communication and composition studies. *College English*, *82*(5), 515-526.

Jones, N. N., Moore, K. R., & Walton, R. (2016). Disrupting the past to disrupt the future: An antenarrative of technical communication. *Technical Communication Quarterly*, *25*(4), 211-229. https://doi.org/10.1080/10572252.2016.1224655

Katz, S. B. (1992). The ethic of expediency: Classical rhetoric, technology, and the Holocaust. *College English*, *54*(3), 255-275. https://doi.org/10.2307/378062

Kuhn, T. S. (1996). *The structure of scientific revolutions*. University of Chicago Press. https://doi.org/10.7208/chicago/9780226458106.001.0001

Lay, M. (1991). Feminist theory and the redefinition of technical communication. *Journal of Business and Technical Communication*, *5*(4), 348-370. https://doi.org/10.1177/1050651991005004002

Longo, B. (2014). Using social media for collective knowledge-making: Technical communication between the Global North and South. *Technical Communication Quarterly*, *23*(1), 22-34. https://doi.org/10.1080/10572252.2014.850846

Miller, C. R. (1979). A humanistic rationale for technical writing. *College English*, *40*(6), 610-617. https://doi.org/10.2307/375964

Mirel, B. (1998). "Applied constructivism" for user documentation alternatives to conventional task orientation. *Journal of Business and Technical Communication*, *12*(1), 7-49. https://doi.org/10.1177/1050651998012001002

Moore, P. (1996). Instrumental discourse is as humanistic as rhetoric. *Journal of Business and Technical Communication*, *10*(1), 100-118. https://doi.org/10.1177/1050651996010001005

Norman, D. (2002). *The design of everyday things*. Basic Books.

Oxford University Press. (n.d.). Knowledge. In *Oxford English Dictionary*. Retrieved June 4, 2020, from https://www.oed.com

Read, S., & Swarts, J. (2015). Visualizing and tracing: Research methodologies for the study of networked, sociotechnical activity, otherwise known as knowledge work. *Technical Communication Quarterly*, *24*(1), 14-44. https://doi.org/10.1080/10572252.2015.975961

Redish, J. C. (1993). Understanding readers. In C. M. Barnum & S. Carliner (Eds.), *Techniques for technical communicators* (pp. 15-41). Macmillian.

Regli, S. H. (1999). Whose ideas? The technical writer's expertise in inventio. *Journal of Technical Writing and Communication*, *29*(1), 31-40. https://doi.org/10.2190/73VW-YBUC-YHXW-WU0C

Rorty, R. (1979). *Philosophy and the mirror of nature*. Princeton University Press.

Rosenfeld, L., & Morville, P. (2002). *Information architecture for the World Wide Web*. O'Reilly.

Samuels, M. S. (1985). Technical writing and the recreation of reality. *Journal of Technical Writing and Communication*, *15*(1), 3-13. https://doi.org/10.2190/V6M7-43G5-9PT7-C5BH

Slack, J. D., Miller, D. J., & Doak, J. (1993). The technical communicator as author: Meaning, power, authority. *Journal of Business and Technical Communication*, *7*(1), 12-36. https://doi.org/10.1177/1050651993007001002

Smart, G. (1999). Storytelling in a central bank: The role of narrative in the creation and use of specialized economic knowledge. *Journal of Business and Technical Communication*, *13*(3), 249-273. https://doi.org/10.1177/1050651999013003002

Tebeaux, E. (1991). The evolution of technical description in Renaissance English technical writing, 1475-1640: From orality to textuality. *Issues in Writing, 4*(1), 59–109.

Thralls, C., & Blyler, N. R. (1993). The social perspective and pedagogy in technical communication. *Technical Communication Quarterly*, *2*(3), 249-270. https://doi.org/10.1080/10572259309364540

Wilson, G., & Herndl, C. G. (2007). Boundary objects as rhetorical exigence: Knowledge mapping and interdisciplinary cooperation at the Los Alamos National Laboratory. *Journal of Business and Technical Communication*, *21*(2), 129-154. https://doi.org/10.1177/1050651906297164

Winsor, D. A. (1990). The construction of knowledge in organizations: Asking the right questions about the Challenger. *Journal of Business and Technical Communication, 4*(2), 7–20. https://doi.org/10.1177/1050651990004002001

Winsor, D. A. (2001). Learning to do knowledge work in systems of distributed cognition. *Journal of Business and Technical Communication*, *15*(1), 5-28. https://doi.org/10.1177/1050651901015001001