Memo

To:	Dr. Derek Ross, Dr. Leigh Gruwell, Dr. Stewart Whittemore
From:	Carolina Bell
Re:	Introductory Memo
Date:	April 7, 2025

Science Communication as Social Justice in TPC

This portfolio represents my work in the Master of Technical and Professional Communication program at Auburn University. This memo details my view of major issues in the discipline and how I am positioned to address them through my completion of the degree.

Technical and professional communication (TPC) has long been concerned with defining and mapping the bounds of the field. Technical communication can be defined as an applied communication designed to perform certain tasks or help an audience solve problems (Lay et al, 1999). Technical communication is not only the communication about technology, but also "communication *as* and *in* technology" (Johnson-Eilola & Selber, 2012, p. 2).

Expertise

My first exposure to the field occurred when I was an undergraduate student majoring in biology at Virginia Tech. While I initially was drawn to the field of technical communication for its ability to explain the relationship between activists and institutions, I found science communication to be a promising opportunity for social justice. As an undergraduate, I was immersed in Indigenous science communication projects that helped redistribute power to communities. My orientation in the field of technical communication has always been focused around social justice and science communication.

As a technical communicator I am trained in audience analysis and understanding important historical, sociocultural, and political context that impact communication needs. With a background in community organizing, I understand how institutional language intersects with power. Combined with my undergraduate training in STEM, my expertise in technical communication allows me to work on complex topics and seamlessly integrate into projects with subject matter experts. I am experienced in transforming complex information into clear, understandable communication for a variety of audiences.

Transmission, Translation, and Articulation

3 major components of communication are the transmission, translation, and articulation views. Slack et al. (1993) trace the different views and their impact on technical communicators. Since the formal origin of the profession, writing for engineers, technical writers were seen as engineer surrogates and did not add meaning. This represents the transmission view, where knowledge is encoded by the sender and decoded by the receiver. Under the translation view, technical communicators make work on potential misunderstanding and mediate meaning between sender and receiver. Slack et al. explain that while meaning and power are understood to be

fluid, the technical communicator is not authoring meaning. Under the articulation view, communication is an ongoing process that is articulated and rearticulated within a given context, meanings, and power relations. This view expands the understanding of authorship to include technical communicators. These three views explain the different conceptions of the field and visibility of technical communication work.

TPC in the Workplace

The value of the field is heavily impacted by perceived power and legitimacy (Willers, 2025; Henning & Bemer, 2016). Under a transmission or translation view, technical communicators have a lower status because they are not recognized for authorship. When technical communicators are seen as the stand-in for the sender (Slack et al., 1999) they cannot be valued for their own expertise. The invisibility of TPC knowledge work (Willers, 2025; Kimball, 2017; Peterson, 2017) is a barrier for the field, especially in industry where TPC is seen as a value add, rather than a necessity. Brumberger & Lauer (2020) outline "the silent tech writer/editor" persona, which shows how some TPC practitioners have a narrow range of influence. When technical communicators are only acknowledged for document design, the full scope of competencies are made invisible. TPC scholars argue for the visibility of the field to combat devaluation (Henning & Bemer, 2016; Lanier, 2018; Peterson, 2017). Technical communicators have both practical and conceptual skills, such as rhetorical training, audience awareness, critical thinking, ethics, usability & testing, and project management among others. The view of TPC practitioners as knowledge workers allow stability amongst changing roles (Lanier, 2018) and changing industries (Kimball, 2017).

Science Communication as Visibility and Justice

Science communication is an opportunity for TPC practitioners to expand the visibility and value of the field. Given historically unjust practices (Goldenberg, 2016; Skloot, 2017), political polarization (Collins & Evans, 2002; Simis et al., 2016; Whyte & Crease 2010; Wynne, 2003), and distrust in science (Itchuaqiyaq et al., 2023; Jordan et al., 2011; Wynne, 1992), there is a substantial need for communicators who can traverse difficult contexts and histories. TPC scholars and practitioners are well suited for this work, with the skills to negotiate power and relationships between science and the public.

My expertise in community engaged work, science, and technical communication positions me to be an asset in community science and outreach initiatives. In the age of distrust in science, I am prepared to do meaningful work to engage communities and develop both trust and accountability.

Beyond the Deficit Model

While science communication has grown in support, the knowledge deficit model (Wynne 1992) is still the dominant theory (Simis et al., 2016). Wynne (1991,1992) outlines how the belief that the public is uninformed or ignorant overlooks the contextual nature of public relationships to science. Communication of science requires the negotiation of meaning, authority, and legitimacy in the public domain (Wynne, 2003). He argues that the problem of legitimacy stems from the expert construction of public meaning and presumed truths.

Under a deficit model, institutions and publics cannot fully engage, and the result is a lack of trust between the two. Simis et al. (2016) found that the majority of the scientists they surveyed viewed the public as an "other," which they suggest creates an "us-them" dichotomy (p. 408). In

Queering Science Communication, Orthia and de Kauwe (2023) explain this as the science/public binary. These conceptions uphold unequal power hierarchies that further prevent the public from engaging in the scientific process. Whyte & Crease (2010) assert that distrust cannot be eliminated, but it can be successfully managed through checks and balances with communities.

Goldenberg (2016), for example, argues that vaccine hesitancy in the MMR vaccine and autism controversy stemmed from mistrust of scientific institutions rather than ignorance. By operating under the deficit model, the pro-vaccine documentation and messaging from experts focused on the scientific integrity of research, whereas parent concerns centered around their individual children. The messaging relied on dominance and mass public compliance, which was ineffective because it ignored the perspective of worried parents.

In a case of scientific intervention with Cumbrian sheep farmers in the UK following Chernobyl fallout, Wynne (1992) argues that trust and credibility are dependent on evolving relationships and social context rather than public deficiencies. In this example, the farmers had specialist knowledge from years of sheep farming, whereas the scientists lacked experiential knowledge of sheep farming methods. The scientist's designation as experts allowed them to ignore the farmers' robust specialist knowledge, in part because the knowledge was not formally codified and thus not recognized in scientific culture. The fraught relationship between scientists and farmers in Wynne (1992) shows the social nature of these power dynamics and underlying mistrust of institutions.

Whyte & Crease (2010) provide the Nunavik Research Center in Northern Quebec as an example of successful community engaged research. Designed by local Inuit, the center opposes histories of extractive research, the practice in which researchers take meaningful information from communities, often marginalized, to present to a third party and the findings are not shared with the community (Gaudry, 2011). Through integration of Indigenous Knowledge and community input throughout the entire research process, distrust in scientific research is effectively managed.

Simis et al. (2016) explains that the deficit model persists because it presents an easier solution, more education, to problems in science communication. In contrast, a more nuanced model requires attention to trust in scientific institutions, religious values, political ideology, and other complex, intertwined factors. The inclusion of technical communicators in research would allow for negotiation between community and expert with consideration to these factors. Itchuaqiyaq et al. (2023) argue that "TPC, because of its focus on equipping people and organizations to act in socially just ways, is well-positioned to lead other fields toward reducing oppressive outcomes in research practices" (p. 18). Technical communicators can disrupt institutional scientific culture by questioning these assumed meanings and power structures to redirect towards more meaningful dialogue, beyond the deficit model.

Science communication is a core example of how technical communication can be used for social justice action. Walton et al. (2019) argue that TPC work can shift uneven distributions of power, which is needed under the current science/public binary (Orthia & de Kauwe, 2023). Collins & Evans (2003) note that community members are only allowed to enter expert conversations when they adopt the personae of scientists and learn the language of relevant science. With increased recognition of Traditional Ecological Knowledge (Huntington, 2000; Naess, 2013) and community engaged research practices (Itchuaqiyaq et al. 2023; Jordan et al., 2011), there are even more opportunities for technical communicators to arm community members for expert conversations. Science communication work can help redistribute power

from institutions to communities by creating accessible public facing documentation, advocating for consideration of communities or users, and facilitating community engaged research.

Connections to the Field

The impact of science communication work in TPC is twofold: it can help the field gain visibility, while also furthering commitments to social justice action. Growing distrust in science (Goldenberg 2016; Whyte & Crease, 2010; Wynne 1992) requires technical communication beyond a translation view. The opportunity to take on the complex relationship between the public, scientists, educational institutions, and government allows for visibility of the field and its inherent knowledge work. TPC scholars have identified public facing documentation as places of (in)justice (Bartolotta, 2019; Moeggenberg et al., 2022; Sims, 2022). When TPC practitioners are given a wider purview, there is agency towards enacting the theories present in the academic social justice turn (Walton et al., 2016).

Sims (2022) calls for more research on how TPC practitioners should "balance the needs of vulnerable audiences with the interests of powerful stakeholders" (p. 31). Miller (1979) emphasizes that technical writing occurs in relation to government and industry under bureaucratic hierarchies, corporate capitalism, and high technology. With acknowledgement of TPC practitioners as knowledge workers (Petersen, 2017), technical communicators have more power for negotiation and agency in advocating for equity within the systems they work under.

Through my previous experiences and my completion of this program, I am equipped to tackle these complex problems of technical & scientific communication, community engagement, and trust building.

Portfolio Work

Beyond the role of a silent technical writer, my work seeks to engage communities in the issues impacting them. The selected documents showcase the dynamic role TPC practitioners can have in furthering social justice and science communication initiatives.

Undergraduate Studies Guide
This guide was edited from a leadership transition document from the outgoing Director of Undergraduate Studies in the Auburn English Department. I transformed it into an evergreen, usable resource for all English faculty that are involved in advising undergraduate students.

PFAS Infographic
This infographic is an academic poster about personal care products and the dermal exposure to per- and polyfluoroalkyl substances (PFAS), an emerging health concern and previously unregulated group of chemicals (Novak et al., 2023).

PFAS Testing Fact Sheet
This document is adapted from the U.S. Environmental Protection Agency Method 537.1, a procedure for testing for PFAS in drinking water. The one-page fact sheet illustrates the sampling process.

ADPH User Research Project
This document is the final report on usability research conducted on the Alabama Department of Public Health website and the implications on Alabamian access to healthcare.

AI, Disability, and TPC Research Paper
This paper connects research on artificial intelligence (AI) across technical communication, disability studies, and science, technology & society to outline responsibilities technical communicators have in ethical and equitable technologies.

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