Ethics of Engagement: User-Centered Design and Rhetorical Methodology

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This article explores the shift from observation of users to participation with users, describing and investigating three examples of user-centered design practice in order to consider the new ethical demands being made of technical communicators. Pelle Ehn's participatory design method, Roger Whitehouse's design of tactile signage for blind users, and the design of an online writing program are explored for the creation of a dialogic design ethic. The development of effective collaborative design methods requires meaningful communication between users and designers, and dialogic ethics can guide the development of effective and humane technological design methods.

New design models are transforming usability from a late-stage design testing mechanism to an integral part of collaborative design. These new design contexts shift the focus of usability from evaluation of user action to engagement with users. Theories of dialogic interaction effectively inform collaborative models, constituting a dialogic ethics that guide self-conscious technical communication practice. This critical praxis incorporates usability and rhetorical analysis throughout technology design processes, inviting two-way communication between technological designers and users. Indeed, introducing dialogue into technology design requires reconsideration of accustomed definitions of expert designers and novice end-users.

This article explores the shift from observation of users to participation with users, describing and investigating three examples of user-centered design practice in order to consider the new ethical demands being made of technical communicators. First, the article discusses Pelle Ehn's participatory design, also known as Scandinavian Design, with particular attention to its political implications. Participatory design seeks to establish democratic workplaces where users are recognized as experts in their job while the expertise of designers is seen as a separate but equal expert knowledge. Situated in contexts
with strong labor representation, guilds, and political representation, workers are highly skilled and have much at stake in technological design. The second context for a dialogic ethic of design is Roger Whitehouse's description of information design for a unique audience. In "The Uniqueness of Individual Perception," Whitehouse describes a process of designing directional signs for blind users. His model for user-participatory design constructs users as expert in responding to design prototypes. For Whitehouse, users are experts at providing feedback for continued design improvement. Finally, I describe the design of a Web-based first-year composition system (TOPIC) for the way it develops user-participation and user-centered design to negotiate the needs of very different groups of expert users. These user groups possess expertise in pedagogical design, software design, organizational (systems) design, and end-user needs, and the design team balanced the needs of these different expert user groups. I recount the collaborative design method employed by a team at Texas Tech University to create a computer-based writing system that not only relies on participation with users, but defines designer, expert, and user roles in innovative ways. Each design strategy incorporates users early in the design process and continues to rely on user participation, utilizing dialogue to ensure ethical communication between designers and users.

Collaborative design methods challenge technical communicators to invent and define new roles for themselves in new collaborative design processes. As interaction with users becomes increasingly valued, usability methods for observing users become secondary to negotiating processes with user-collaborators within the constraints of design context. Describing processes clearly and effectively for specific audiences will continue to be a central part of technical communication. However, technical communicators will also need a strong ethical understanding of collaboration as users are encouraged to participate throughout design processes. As usability issues become more complex, users become increasingly valuable sources of information and guidance in the design process, and where participatory design is used, users can no longer be viewed as generic. Designers need to communicate with target users, and these users need to be engaged in the design process. Therefore, this article investigates dialogic ethical principles developed in rhetoric theory that inform and support collaborative design. The development of effective collaborative design methods requires meaningful communication between users and designers, and dialogic ethics can guide the development of effective and humane technological design methods.

**Usability and User Engagement**

As usability testing becomes an accustomed part of product design, practitioners may seek to apply usability principles outside the prov-
enance of accustomed design processes. The allure of usability's perceived success has led to experiments in alternative design models. User-centered and user-participatory methods are two design models that redefine the expert's role in technology design. They challenge definitions of the product design cycle as well as the placement of usability testing at the end of the design cycle. Trends in design place more emphasis on interaction between designers and users rather than the expert measurement of users, which Paul Adler and Terry Winograd characterize as a shift from expert-centered to user-centered:

These expert-centered approaches may have made sense when the key usability issues were primarily physiological and lower-order cognitive ones. But when the effectiveness of a system depends on how well it supports higher-order cognitive activities and social interaction, there is often no substitute for direct user participation in the design process. (5)

Expert-centered approaches consolidate power in the technological production-end of design, relying on the observation of users and information the expert designer deems valuable. User-centered and user-participatory approaches, on the other hand, rely upon the user to provide information that the designer may not have even considered. These approaches require the designer and usability tester to redefine their roles, allowing for expertise to reside in the user as well as designers. The user becomes part of the design team, an integral part of exploring possibilities for effective technological design.

Widespread adoption of usability as part of the design process, of course, does not ensure user-centered design. Usability can be appropriated and diverted from genuinely including users in the design process to representing users as things rather than as people who have a stake in technological design. Dialogic ethics, however, can inform usability practice, assuring full user-participation rather than mere user-representation in the design process. Martin Buber develops the philosophical and theological theory of dialogue in I and Thou, in which he contrasts I-to-you with I-to-it relationships. When one encounters another not as a means to an end, but as another human being, one enters into a dialogic relationship. If one uses another to reach a particular end, one constructs the other as an object, an “it.” While one cannot always interact with others dialogically, there is ethical value in striving to become more self-consciously dialogic.

Mikhail Bakhtin is often used to represent the dialogic perspective in rhetorical theory. He asserts that ethical relations are defined at the moment of interaction between the self and the other. Developing parallel theories with Bakhtin, Emmanuel Levinas (a student of Buber’s), argues for a secular dialogic ethic. Where Bakhtin is concerned with linguistics, Levinas is concerned with identity, suggesting that one's ability to recognize the humanity of the other defines one's ethical self. Regard for the other is the central principle for dialogic ethics, requiring that one see one's self in the place of the other.
Bakhtin and Levinas together have been cited by Jeffrey Nealon as creating a possibility for dialogic ethics, an ethics appropriate for a postmodern world in which traditional ethical foundations are toppling. Philip Lewin further clarifies dialogic ethics in a postmodern context:

In authoring one’s actions, one also becomes answerable for them. A position consistent with this understanding of responsibility is that of Emmanuel Levinas, who locates the ground of ethics in the infinite responsibility the self assumes for the Other. Bakhtin complements Levinas at this point. The Bakhtinian suggestion is that the Other already inhabits the self as the multiplicity of voices one already speaks as a member of a variety of social collectivities. To acknowledge heteroglossia within oneself is an epistemic act, an act of self-knowledge. This epistemic act, in turn, informs the answerability of the ethical stance.

In dialogic ethics, the self is constituted through its interactions with the other. Identity is created in the interplay between self and other, a making of one’s self through communication. When one engages another person as an individual, as a person, one recognizes the humanity of the other. This recognition makes it possible to know the other’s needs, which is the point of participatory design: to know from the other’s perspective what is needed to improve the usability of the design.

By invoking dialogic ethics, this article asserts an ethical responsibility on the part of the usability professional: to maintain a dialogic relationship between technology producers and consumers. While it may seem that my argument has traveled a long way for a complicated bit of philosophical information, dialogue is valuable to technical communication because it offers an important ethical concept that is not available elsewhere in technology or methodology research. Developing a dialogic ethics for usability resists appropriation of usability practices by commercial interests, most powerfully an overriding interest in efficiency above all other concerns, in order to ensure user-representation and participation in the design process. Dialogic ethics becomes a counterpoint to the ethic of expediency (Katz, “Ethic”) which so often drives technology design. Aligning dialogic rhetoric with usability creates a background for understanding usability as ethical design praxis rather than an efficient mode of technological design and manufacture.

While popular definitions of usability testing and user-centered design (Norman) have helped to establish usability as an important element of technology design processes, definitions of usability can change from context to context. Each group of practitioners has its own design preferences and goals, each affords different levels of interaction to the user and to the process of data collection. While each discourse community defines usability, it is important to retain an ethical basis for usability: a dialogic relationship between technological producers and technological consumers.
In her essay on the perceptions of usability testing in the United States, Patricia Dorazio warns technical communicators to remain critical of the gap between the perception of usability and its actual practice. Usability studies have developed significantly through the 1990s and usability has, in many ways, become a common workplace process. However, in “Usability Practice in the United States: Perception versus Reality,” Dorazio warns of technology producers’ co-optation of usability, turning the user-centered ethic of usability testing into a marketing tool:

We have constructed our idea of usability practice in the United States from company publicity, from the usability reports we see touted in the trade journals, and from the history of human performance engineering. We have read about, seen, or heard of American companies doing usability . . . and therefore producing usable products from the accumulated information we perceive an explosion of usability practices in American businesses and industries. (170)

Writing for an English audience (hence the repetition of reference to American practice), Dorazio explores perceptions of usability versus the realities in the United States. While there is not space in this article for an extended exploration of the epistemological limits of the author’s definition of the “realities” of usability in a postmodern age, Dorazio’s point is sound: readers of this essay understand usability to be a balance between a concern for users and concern with the group designing technological and communication artifacts. In this context, usability is a valuable process of making technological designs conform to users’ needs, as technical communicators represent the needs of users.

Dorazio’s article questions whether this understanding of usability is transferable without exploring the context in which usability will be deployed, without concepts being renegotiated in that particular context, and without investigating the actual practices labeled “usability testing.” Company publicity and marketing documents use the term usability without describing the processes that define the term. Trade journals celebrate products and the “usability process” leading to their design without detailing the changes made to the design. To these producer-centered documents, Dorazio responds, “each one of us involved in usability has a different perception of what constitutes usability and when it should occur . . .” (171, emphasis in the original). Yet we are quick to assume that the spread of acceptance for usability can only be good for technical communication and for the professionalization of its practitioners. If a product has been “usability tested,” many assume that it is better than one without that label and assume the product has undergone a design process incorporating human factors. Yet, Dorazio asserts, we cannot judge this perception without knowledge of the usability processes used in design.

Without a clear link between dialogic ethics and usability testing, the technological user’s needs may never be expressed to the techno-
logical producer and the design never altered to account for these needs. Usability testing may be employed not to create a better technological product, but to market the same faulty product. The user will rightly expect the product to perform better, yet the relationship between producer and consumer will not have changed. The producer will offer the same design to users, with the assurance that the device and/or procedure has been “usability tested.” Such co-optation reifies the unequal relationship between producer and consumer that usability testing was designed to address.

A challenge exists in the co-optation of participatory and dialogic rhetorics by producers. Opening discussion requires honest communication, two-way communication, across a difficult communication divide. Called the différend by Jean François Lyotard, this divide separates management from labor, users from producers, insiders from outsiders. Equipped with an understanding of this complex and politically charged rhetorical situation, technical communicators can develop effective strategies that will increase dialogue and increase levels of participation in the design process. The right level of participation is difficult to gauge because we have too few examples of participatory or dialogic design. Once alternative models are established and given opportunity to compete, direct comparisons will be possible. Meanwhile, more communication between producers and consumers is necessary in order to determine desirable levels of participation in design. However, from Robert Johnson to Steven Katz to Levinas to Bakhtin, the rhetorical tradition argues that silencing of the other is unethical. The user has been so effectively silenced in technological design processes that we have only just begun to listen to user demands, first in limited moments of usability testing in which users are represented by usability experts, and later in very few participatory models in which users are offered important roles in the development of technologies. If only to listen to users, we need to open additional participatory space in order to create a dialogue about technological design and usage.

Pelle Ehn and Participatory Design

Participatory design, then, is one possible solution on a continuum of dialogic relations between technological producers and consumers. In Ehn’s construction, participatory design is a politicized discourse located at the point of contact between two very different discourse communities: between workers and managers. Ehn’s work and participatory design generally exist at this one point, balancing the needs and constraints of this particular communication situation. In Lyotard’s construction, participatory design is a new idiom of communication meant to bridge a gap between two different discourse communities (Différend). Perhaps without participatory design, there would be no way for workers to communicate their technological (or
any other) needs to management. Likewise, management's needs could not be meaningfully expressed to workers.

Through dialogic interaction, Ehn's version of participatory design allows communication between two conflicting discourse communities. In attempting to create a relationship between two groups of people, recognizing their humanity and their need for expression and regard in the wrangling over technological decision making, participatory design makes possible a new kind of relationship between management and workers. Participatory design relies on mutually respectful communication. Although everything does not always go smoothly or easily, communication has been established between these different groups despite a history of mutual misunderstanding and animosity. Ehn, addressing these concerns, asserts that "[his] research was based on a conflict view of industrial organizations in . . . society," adding that his design team "deliberately made the choice of siding with workers and their organizations." Describing the conflict between workers' perception of the design process and management's, Ehn concludes that his design team "... found it necessary to identify with the we-feeling of the workers' collective rather than with the overall we-feeling 'modern management' attempts to create in order to elicit greater effort from the work force" (47-48). Siding with workers, Ehn and his research team became strong user advocates, coming to understand the workers' design concerns as well as their political and social concerns.

Ehn has made a self-conscious choice to act on the side of workers and to labor towards establishing a more democratic workplace. This worker-first ideology of participatory design differs from, yet has similarities to, usability practice. Ehn's Scandinavian design goes beyond user-centeredness, and the designer begins to adopt the user's own perspective, attempting to see through the workers' eyes and deliver designs that not only meet their needs but also advance their place in the organization. However, without engaging in dialogic discourse with users, it is unclear how usability testing can deliver appropriate technologies to users. Dialogic ethics insists that engagement with users cannot end with representing users. Rather, dialogic ethics requires engagement with and two-way communication between producers and consumers of technology.

Participatory design is one kind of dialogic engagement. At the specific sites of participatory design, Ehn describes, as an exemplar of this design practice, engagement with users and designers—communication between workers, designers, and management—as imperative to the success of technological design. In the Scandinavian context, workers would refuse to perform their jobs if not included in the design processes and would be supported by the force of law. However, in numerous other situations such directly active design collaboration between users and producers may not be possible. Yet, even in these situations, there may be opportunities to increase user participation and user-centered design and thus to develop the ethical sense of
technical communicators, to engage as directly as possible with the stated, rather than observed, needs of user representatives. Usability can become a critical research practice as well as a design mechanism, and technical communication can become a dialogic practice, a goal technical communication has declared for itself in theory but which is far from being realized in actual practice in the United States.

If technical communication is to maintain itself as an intellectual field of inquiry as well as a practical application of knowledge, technical communicators have to self-consciously develop its rhetoric and its ethics. Johnson, in the TCQ special issue on technical communication methodology, makes a self-conscious call for technical communicators to resist the appeal of assigning themselves the limited role of "instrumental" scribe. Johnson writes, "We have a responsibility to more than just the technologies that we write about, and to the developers who so generously give them to us at the end of the design-development-packaging cycle" (76). He challenges assumptions about technical communication's responsibilities and the places in the design cycle that technical communicators occupy to effect technological design. Indeed, technical communicators have re-envisioned themselves as usability testing specialists and human-technology interface designers, challenging the traditional position of the technical communicator at the end of the design and marketing cycle. However, even when technical communicators design and carry out usability tests, and even when they perform their roles admirably and effectively, and accurately represent the needs of users, still technical communicators regularly find themselves at the end of the design-development-marketing cycle. Even when they perform rhetorically sophisticated usability tasks, technical communicators often reinforce the passivity of technological consumers. They remain on the side of the producers, re-inscribing the dichotomy between technological producers and consumers.

Other models of technological production, particularly participatory design, offer an alternative to the expert design model. Participatory design offers a user-centered strategy that invites users to join a process of democratic design. Ehn's experience with participatory design in a Scandinavian context does not exhaust the possibilities of dialogic engagement: his is one model of dialogic design. Although the political and cultural forces at work in the United States are quite different, there has been some effort to inform American design practices with participatory design. Aimed at creating workplace democracy, participatory design politicizes the design process, self-consciously adopting a worker-centered perspective. It is important to remember, however, that technical communicators may not be able to claim the mantle of worker-centered design as labor does not have the backing of national law as it does in northern Europe. To blindly back a worker-centered design philosophy would most likely backfire, as the political and social climate in the U.S. differs so much, particularly
with emerging models of globalization and multinational competition. Johndan Johnson-Eilola’s “Relocating the Value of Work,” for example, explores the relation of globalization to labor in the U.S. Labor issues are so different in the American workplace that it is unclear how one might seek to become worker-centered in the United States at the dawn of the twenty-first century.

Although we cannot move Ehn’s design strategy from its Scandinavian context and directly apply it in new circumstances, participatory design has much to teach American usability practice. As the role of the technical communicator changes, moving from one of user-observer to one of mediator between technology producer and consumer, technical communicators are caught between the desire of the design team and the needs of end-users. The difficulty remains a communication problem: How does a technical communicator explain the financial, technological, and organizational constraints of the design team to the end-user? How does the technical communicator communicate the needs of the end-user, while representing the user's problems of usage, experience, and contextual limitations, to the designers? Although practices have certainly improved, usability testing remains ill-equipped for the situation.

Again it is Johnson who challenges technical communicators to build better models for technological representation and design: “The ethical dimension of technology is squarely in our laps, and to complicate technology in a given situation of use may feel uncomfortable” (77). Yet creating discomfort is precisely what is necessary in order to improve both the design of technological systems and the very practices of technological design—to share the discomfort of users with the technological producers, communicate the frustrations and discontent users have with ineffective and nonresponsive design. And in developing a broader view of technology as a cultural artifact, technical communicators have an obligation to inform management, designers, and users when a design problem is complicated not by technical limitations, but by communication and organizational limitations. In looking beyond technical limitations, the technical communicator must adopt a methodology that approaches the cultural studies model described by Bernadette Longo, in which long-term cultural and social implications of technology can be considered during the design process.

Participatory design thus offers mechanisms for becoming user- and worker-centered in critical ways. A new relationship between producers and consumers will be established, as well as a new relationship between workers who today feel silenced by the introduction of new technologies (without their interest, consent, or input) and managers who feel betrayed by workers' noncompliance. It is true that technical communicators must work to create better representations of technologies, but they must also work with designers to create better technologies.
The Uniqueness of Whitehouse’s Design

Dialogic ethics requires engagement with users. It does not seek to create the modernist separation between the observer and the observed. While this stance does not offer much scientific validity to the methodology, it does reflect the rhetorical nature of technical communication broadly and of usability testing and user-centered design more specifically. It is a production-oriented methodology for communicative documents and tools, enabling technical communicators to be more effective user-advocates in the production process. The field of technical communication continues to develop, growing in importance in high-technology culture. And whether one accepts that the future is an information age, a postmodern economy based on the commodification of information, or another definition of the future shape of technology design, technical communicators and their teachers will encounter possibilities for future design practices in a post-industrial age.

Informed by ethics-driven values, technical communicators’ critique and input regarding these practices will be increasingly valued as providing insight into the values recreated in the production cycle. Even if micro-production models and just-in-time production fail to replace mass production, if these processes represent minor but viable alternatives to mass production, exploring user-participatory design and its ethical demands remains an imperative for technical communication practitioners and teachers.

Dialogic interaction does not yield universal principles nor does it provide widely applicable design principles. However, it provides a means to respond to specific conditions particular to the design situation at hand. It is a situated knowledge, depending upon the ability of the technical communicator (and/or the technical communication team) to flexibly adapt good rhetorical practice with knowledge, understanding, and respect for local conditions. This methodology reflects two major trends in information design. The first is described in Patricia Sullivan and James Porter’s Opening Spaces, the second in a text that may not be as familiar to technical communicators, Whitehouse’s recent chapter “The Uniqueness of Individual Perception” appearing in Robert Jacobson’s collection Information Design. In Sullivan and Porter’s book on postmodern methodology, the authors encourage technical communicators to map their research onto a disciplinary terrain rather than follow a scientific methodology, similar to the observer-location strategy described by Longo. Whitehouse presents a moving account of a situated, dialogic research practice that leads to a user-participatory dialogic design process.

Sullivan and Porter’s Opening Spaces is an important text in postmodern development of rhetoric and writing studies because it offers methodologies without shying away from postmodern difficulties. The historical relation between science and method (and the almost ubiquitous use of “The Scientific Method” as the only measure
of useful inquiry) have often made nonscientific inquiry easily assailable. However, Sullivan and Porter effectively explain the importance of rigorous methodology in postmodern research. Rather than discovering knowledge, Sullivan and Porter suggest that we build knowledge. Because this is a constructive activity done over time, it becomes imperative that researchers locate themselves within the research apparatus they are reporting. This demand on the researcher is similar to Donna Haraway's critique of scientific objectivism. Rather than build the illusion that the scientist is objective, Haraway suggests that scientists should objectify themselves by placing themselves in their own research. Although not interested in conducting scientific research, Sullivan and Porter offer a similar revealing of the researcher's own position—the researcher's subjectivity. Important to Opening Spaces is the necessity to continue asking why. Why does the field ask the questions it does? Why do we use sample populations as we do? Why do certain ethical dilemmas interest us while others are left unspoken? Asking why we perform research the way we do, coupled with the continuous self-reflection of the researcher in the material conditions of literacy research, offers us a wealth of postmodern research methodologies which seek not to discover truth but to build knowledge we accept is limited and contextual.

Whitehouse's essay accomplishes many of the important elements Porter and Sullivan require in Opening Spaces. Whitehouse describes the methodology he and his information design consultants constructed for a project with the Lighthouse, an office dedicated to serving the needs of the blind and sight-impaired. He is designing tactile signs for a special population of users who need to navigate the office space. With no established protocols for designing navigation aids for blind users, Whitehouse's group creates numerous unique information objects for the clients.

Whitehouse describes the creation of a font for tactile signage. Rather than assume his clients would all be able to read Braille, the design group decided to ask a user pool for information about their needs. The first insight users provided was that many of the users of the Lighthouse office space do not read Braille. Moreover, the variety of users astounded the information designers: clients lost their sight late in life, in middle age, in their teens, and some were born blind. Numerous users lost their sight due to diabetes, and as such some users had lost sensitivity in their fingertips, a problem associated with the poor circulation many individuals with diabetes experience. Users had loss of sight in common, but very little else, being of all ages, socioeconomic backgrounds, levels of experience with developing hearing and touch to compensate for sight loss. In this case, scientific research methods simply did not apply. What allowed the designers to create useful information-rich products for this situation was their interaction and communication with their clients.

Although Whitehouse does not call his methodology rhetorical, it parallels dialogic rhetorical methodology. The design team created
mock-ups of signs and tactile guide products they thought might work based on the "best practices" of information design. Then these products were extensively tested: but the designers did not treat their users as usability testing "subjects," separated from designers with one-way glass, their actions captured on videotape. Designers collected empirical data regarding the amount of time different users took to interpret different signs. However, there was never pressure to create scientifically valid or repeatable observations. The results were applied to the design of these signs in this environment, with no plans to bring the particular design to any other sites. If other sites were interested in having similar signs, I would expect that Whitehouse and his team would want to employ the same design methodology in the next situation, accounting for that unique context’s particular population, circumstances, constraints, and history.

In the absence of the need for broader applicability—in the new realm of micro-manufacturing—there is little need for the stringent requirements of scientific validity. There is no need to mass-produce identical items for broad populations in varieties of circumstances. And so there is little need for the kind of mass standardization that such economies of scale require, as there is little need for the scientific apparatus to support mass standardization. In conversation with the users of the navigation system, designers created a custom product that serves this group's needs quite well. Based on a dialogic pattern of interaction, users participated in the design process, and the designers depended upon the continuous input of users to make sense of the unique design constraints of creating tactile navigational and informational signs for the Lighthouse. This design regime blurs the distinction between design and usability testing.

The Lighthouse community in Whitehouse's essay is unique, and particular aspects of the project make it interesting and appealing to readers. However, while other applications of user-centered design (and in this case, user-participatory design) may not have the pathos of designing tactile signs for sight-impaired users, the methodology used is admirable. It begins with designs of the highest potential based on designers' best practices. Then, users respond to the designs, resulting in user feedback that is then directly applied to redesign. The process must recur numerous times, resulting not in efficiencies in production but efficiencies in use. What good would tactile signs be if the target users cannot use them effectively or within reasonable amounts of time, with reasonable effort? But so too would technical documentation, Web sites, and other technical communication products (and potentially the technical products they are associated with) be improved with additional user participation in the design process. The distinguishing characteristic of dialogic methods of design and what sets them apart from scientific methods is reliance on information provided in the form of feedback. It is not scientific, not neat or particularly efficient in the design process, but it makes for much improved use of the products being designed.
TOPIC: Designing for Multiple Experts

At Texas Tech, between 1998 and 2000, I participated in the development of the TOPIC (Texas Tech Online-Print Integrated Curriculum) system for writing instruction (Salvo). The task was to design a Web-based instructional system to support department-wide writing instruction for a large state university. The system needed to account for the local history of technology-rich writing instruction but also required minimum instructor or student training and preparation. The design team knew many such attempts had resulted in failure for numerous reasons. Chief among these factors was the inability to integrate progressive student-centered pedagogy into the digital structures of online teaching programs.

While the specific pedagogical and programmatic goals of TOPIC are beyond the scope of this article, it is important to understand that the design team was working to balance the disparate needs of students, graduate student and non-tenured instructors, tenured and tenure-line faculty, and writing program administrators into one system. To realize these rather ambitious goals, the TOPIC design team relied upon a dialogic design process intended to keep the development of the project on track while developing a system that met the needs of and was built to the specifications of these diverse user groups.

TOPIC development became a recursive loop. The programming team would create Web pages that acted as an interface to a database designed for student-to-student interaction. TOPIC pedagogy was based on the text-sharing pedagogy developed first by ENFI under Trent Batson’s direction at Gallaudet and that later was given shape by Daedalus (Kemp). With these pedagogical goals as a base, a rough system architecture design was realized. The next stage asked classroom teachers to experiment with a very early version of the software, inviting both teachers experienced with computer-based classrooms and those with little or no experience in the Computer-Based Writing Research Project (@Project) at Texas Tech. With their insights communicated, the programming team redesigned the TOPIC system and, in the fall of 1998, teachers began using TOPIC in their classrooms. (See http://english.ttu.edu:5555 for more regarding the system.)

Throughout 1998, teachers in the department were surveyed regarding their computer knowledge and comfort level with teaching technology. Selected sections of composition students were surveyed for their knowledge and comfort level with writing technology. Administrators were also surveyed. These formal patterns of interaction are not the important elements of the methodology, but instead represent more common usability testing and information-gathering techniques employed by technical communication researchers. Indeed, these more formal mechanisms for interaction were not the most helpful or most interesting: while they were important for other research goals in the project, the most important interaction was the
use of focus groups that fostered dialogic interaction between developers and different user groups.

Although the dialogic interaction between users and designers in the development of TOPIC was not scientific and the information was situated and not generalizable, the dialogic interaction between designers and users became a valued part of the design process. The interaction demonstrates the ethical dimensions of dialogue developed in Nealon's essay on dialogic ethics as well as Katz's articles critiquing the "ethic of expediency." TOPIC could have been (and professional software design processes assert that TOPIC should have been) developed first, debugged, and finally released as a beta version roughly in the time that the first rough version was being critiqued by the first focus group. However, as Katz argues, although this methodology would have brought the product to market faster and more efficiently, there is little evidence that so many users' needs would have been filled in a more traditional software design process. Indeed, with no larger market than the campus it was written for, it is unclear what advantage TOPIC would have gained from shorter development timelines and less user interaction—a situation that limits the efficacy of rapid prototyping design.

The system resulting from traditional design methods would have erased the users from the design process, adding hours to teachers' busy lives and relieving the design team of its difficult strategic brokering (Reich) between conflicting user demands. These rather modest savings of time and production efficiency would have come at the cost of the TOPIC system itself, resulting in a generic software tool without the distinctive markers of its design origins. Without the mark of the Texas Tech @Project history, without the hard and valuable work of building software solutions for conflicting user needs, like those of students and classroom teachers, without the discussions and solution-building processes that took place between administrators and classroom teachers, TOPIC would not have been a custom solution that addressed the particular needs of this unique and complex user group. Informed by its users and, indeed, as a product of its users, TOPIC continues to provide a space for the daily operation of a hundred and fifty annual sections of composition instruction for students and classroom teachers. It is also a vehicle for program assessment by administrators and fodder for research by graduate students.

A dialogic design ethic directly confronts an ethic of expediency as well as the Taylorist ethic of efficiency that pervades American culture. The research team assembled at Texas Tech was unique in many ways and may not be reproducible at other institutions. However, what is reproducible is the inclusive methodology of dialogic interaction that creates a path between user-centered design and user-participatory design. User-centered design is a process of collecting data from users, creating feedback in the form of information, and then delivering that information to designers. User-participatory design, while related to user-centered design, puts users in much closer contact with designers and often blurs the boundaries between feed-
back, usability, and design. Changes users suggested in the feedback process often quickly became new design elements, making the distinction between feedback and new information blurry, uncomfortably blurry at times. Users would claim ownership of changes suggested in feedback focus-group sessions while coders thought they were responsible for having created the expression of the change in HTML, SQL scripting, JAVA, and Visual Basic. Meanwhile, the program coordinators thought they had a right to claim the change because the suggestion would not have been communicated from user to coder in traditional design processes. Efficiency would have eliminated this noise from the system.

In the pedagogical context of the university, the ownership of the system is less important than the quality of the system. Technically owned jointly by Texas Tech, the English department, and the composition program, the students who use the system retain ownership of the writing and commentary they load into the database. Classroom teachers retain their rights to the syllabi, exercises, and comments they load unto the pages. The composition program analyzes these texts anonymously, allowing the collection and quantitative measurement of program goals while retaining the privacy and goodwill of teachers and students. Indeed, TOPIC has been designed by committee. An old cliché states that a camel is a horse designed by a committee, and while TOPIC certainly is not a horse, neither is it a camel. The composition program at Texas Tech required a unique solution to its unique situation, and like the Lighthouse project that Whitehouse describes, there was nothing commercially available that could even approach the capabilities of the TOPIC system.

Whatever the reader's opinion of student-centered text-sharing pedagogy or even of computer-based writing instruction, the TOPIC system succeeds in its realization of a nontraditional development process, a dialogic interaction among different user populations using the database system for a variety of purposes. The different users were also able to understand a systems-perspective view of this complex writing program and its many stakeholders. In many ways, the interaction resulted in greater understanding of the writing program at Texas Tech. This system view of the composition program, as understood by participants at very different phases of its activity, is as valuable to the department as the software product has been, giving additional value to the process. That process was guided by ethical principles of dialogic engagement.

Conclusion

Dialogic ethics informs the development of methods of participatory design, methods that grow from user-centered design. Rather than represent users through complex quantifiable methods with questionable rhetorical applicability, participatory design requires designers to engage with users and to incorporate users into the design
process, reflecting the shift from "lower-level" to "higher-order" design concerns (Adler and Winograd). On a continuum, participatory design can be imagined as a measurable quantity of interaction. Much like Bakhtin describes dialogic interaction, there is more or less dialogic interaction in every situation, with silencing of the other at one extreme and anarchy of disparate voices at the other. The goal of this article has been to argue for increasing the amount of participation with the user in the technology design process. There is no clear sense yet of how much feedback will overwhelm the design process because there is not enough information about user-participatory design, performed dialogically, to begin describing limits. We simply do not have enough examples of participatory design efforts to begin to measure such limits. While this article primarily argues for valuation of dialogic interaction on ethical grounds, this research is also intended to encourage more experiments with dialogic interactive usability methods in order to enable such descriptions.

Following Sullivan and Porter, I believe one of the primary responsibilities of the researcher is to articulate the field of research as well as the method of research. With an ethic of dialogue, it is desirable to increase the level of interaction between designers and users. This leads to the formation of participatory design, which goes beyond the representation of users in a user-centered design. It might help to think of participatory design as a user-centered design strategy with a high degree of dialogic interaction. Methodologically, in the postmodern context Sullivan and Porter describe, the first step in research is to map the landscape of research.

One element that seeks to be mapped is the level of interaction between the research and the subject, the level of dialogue desired, planned for, and ultimately experienced. As with any map, the researcher chooses what to represent, highlighting one thing over another. In calling for researchers to foreground their mapping, Sullivan and Porter ask researchers to tell their audience what they found important in the search for information: not only what they were looking for but how they looked for it. And in a postmodern age, with a dialogic disposition, it becomes an ethical imperative to increase feedback from users to designers. Another way of looking at the relationship is to say that users ultimately have a hand in design. This methodology argues against efficiency in a Taylorist or Fordist sense (Katz, "Ethic," "Aristotle's"; Faigley). It also is quite outside the mainstream of current design theory and practice. In my own mapping of these research sites, I have argued that sites of information design, of technical writing, are not generalizable sites for which reproducible methods associated with science are applicable. Rhetorical methodology, based on enthyemes and probabilities, remains a powerful ally for the technical communicator, helping to analyze context and engage different interests expressed in design. It is an active and critical rhetoric that makes dialogic engagement possible as it determines the stakes, stakeholders, and consequences of design decisions. Only with active argument for inclusion of users as a
valuable design resource will more possibilities for participatory design open because few designers otherwise will see the value of complicating design. Expertise is rearticulated in participatory design, but this expertise is no less necessary for success: engineers, scientists, technicians, managers are very important players in dialogic processes. Dialogue itself will help participants rearticulate their roles.

Boundaries indeed bleed between researcher and subject, tester and tested. The best possibility before us would be to have the usability test disappear into the design process seamlessly, but only insofar as the design process would then become a sustained dialogue between user and designer, when noise becomes the material for information feedback rather than a distressing problem to be avoided or solved. The technical communicator has an important role to play in moving the design and usability processes together, in increasing the role and importance of the ethic of dialogic interaction, and in blurring the distinction between the design and testing phases of product design.

Ultimately, the responsibilities of technical communicators are pedagogical and rhetorical: we help producers articulate their design rationales and conceptual designs for users while shaping user feedback so that it can be interpreted by producers. Thus technical communicators increase the potential for this shared information to be heard, understood, acted on, and applied by both parties. In developing new design models, technical communicators have an ethical responsibility to help users become more informed users while making producers more responsive producers, and the clearest route to this goal is to raise the interaction, the dialogic interaction, between these populations.

Works Cited


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