

Filter. Remix. Make.: Cultivating Adaptability Through Multimodality

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Abstract

This article establishes traits of adaptable communicators in the 21st century, explains why adaptability should be a goal of technical communication educators, and shows how multimodal pedagogy supports adaptability. Three examples of scalable, multimodal assignments (infographics, research interviews, and software demonstrations) that evidence this philosophy are discussed in detail. Asking students to communicate multimodally drives them to effectively filter information, remix modes, and remake practices that are core characteristics of adaptable communicators. Beyond teaching students how to teach themselves as an essential part of living in an information society, contending with new and unfamiliar tools also prepares students for their roles as empathic mediators in the workplace.

Keywords

multimodality, pedagogy, adaptability, mediators, technical communicator, assignment design

Introduction

As responsible 21st century workers, technical communicators must be engaged, empathic mediators and flexible problem solvers. The technical communication

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classroom needs to adapt to the shifting communication practices of the information workplace. Beyond the traditional classroom focuses, we need to help our students deliberately shape their rhetorical decisions and communications strategies to unfamiliar contexts and tasks. As Johnson-Eilola asserts, “[E]xisting models of both communication and work tend to support relatively linear, orderly, modernistic activities and objects.” He adds that “work in the information age, however, increasingly requires a different approach—one that we have succeeded in cobbling together, but with only partial and limited successes” (Johnson-Eilola, 2005, pp. 9–10). To create effective communicators, then, we should adopt pedagogy that challenges inherited notions of communication, media, and modes. Asking students to communicate multimodally drives them to effectively filter information, remix modes, and remake practices—core characteristics of adaptable communicators. For example, an instructor might design an infographic assignment that challenges assumptions about visual and written communication and reinforces system thinking, a research assignment that challenges students’ belief in linear data gathering and reinforces strategic alignment of communication modes and the intended audience, and a software demo that challenges students’ assumptions about presentations and instructions and reinforces purposeful decision making. Overall, this article will establish traits of adaptable communicators, explain why adaptability should be a goal of technical communication educators, show how multimodal pedagogy supports adaptability, and give three extended examples of scalable, multimodal assignments that evidence this philosophy and impact students’ success.

The 21st Century Workplace

The Partnership for 21st Century Skills identifies a shift toward “solving complex, multidisciplinary, open-ended problems that all workers, in every kind of workplace, encounter routinely” and further notes that “[o]ften, this work involves groups of people with different knowledge and skills who, collectively, add value to their organizations” (2008, p. 10). This advocacy organization, whose members include corporations and nonprofit agencies in communication, technology, and educational publishing, reports on the evolving nature, meaning, and processes of work in the 21st century. Confronting these changes and successfully navigating them is not merely a matter of learning specialized content or mastering a particular software or digital tool but requires a more layered approach that includes acquiring literacies and competencies across humanistic and technological fields.

In the RAND Corporation’s report, *The 21st Century at Work: Forces Shaping the Future Workforce and Workplace in the United States*, Karoly and Panis (2004) examine three interdependent trends that will have significant impact on the composition of the workforce and structure of the workplace by 2020: (a) technological innovations in fields such as communications,

nanotechnology, and biotechnology; (b) decentered and integrated national and international economies; and (c) increased diversity in the workforce, particularly in regard to age, race, ethnicity, sex, and disability (pp. 8–9). As globalization remains directly and peripherally present in our professional and personal lives, these trends are neither new nor surprising. Collaborative workplace practices will thus entail cross-cultural information sharing, dialogue, and decision making that require empathy, keen listening, and other interpersonal skills, as well as technical knowledge. For technical communicators, each rhetorical encounter in the 21st century workplace becomes a unique situation requiring assessment of the context, stakeholders, and purpose to employ the most effective communication strategies.

In the closing decades of the 20th century, there was an increased volume of data and circulation of information that eclipsed routinized, industrial production, which dominated the prior decades. Local and global transformations in workplace structure, function, and organization are predicted to continue intensifying through the 21st century as is the importance of workers being able to maintain professional relationships in linguistically and culturally diverse environments (Anderson & Gantz, 2013; Partnership for 21st Century Skills, 2008). Karoly and Panis (2004) explain:

The evolution of organizational forms in the next 10 to 15 years is not expected to converge rapidly on any one particular model. Instead organizations are expected to adapt in the future in response to the nature of innovation, markets, networks, and information costs. (p. xxxiii)

The vertical hierarchy, common in many organizations, is likely to dissolve as new markets, financial objectives, and resources move production, operations, and services to other locations. The effect of this structural change on internal and external communication among organizations and stakeholders is a shift away from centralized and “predictable, monodirectional flows of information and services” toward distributed work in which information and services flow “multidirectionally” across geographic, disciplinary, and cultural borders (Spinuzzi, 2007, p. 269).

The increasing interdependence of economic, technological, geographic, and cultural conditions have altered forms of workplace collaboration, produced new methods of data collection, widened the circulation of information, geographically dispersed our work sites, and created more individualized relationships among workers, clients, and other stakeholders. Workers must simultaneously function in different roles as information designers, advocates for users, and “as stewards of writing activity in organizations” (Hart-Davidson, 2013, pp. 51–52). In these different roles, the presence of technical communicators “go[es] beyond just providing information to now being responsible for generating and conveying knowledge needed for decision making” at many

moments in a project or service (Károly & Panis, 2004, p. xxiii). The new expectation for communicators to also be multimedia designers and local/global collaborators significantly enlarges technical communicators' responsibilities.

"To use a cliché," assert Johnson-Eilola and Selber in the introduction to their edited volume *Solving Problems in Technical Communication*, "the only constant in [technical communication] is change" (2013, p. 3). The understated complexity of this statement encompasses the volume, depth, and intricacies of local and global circumstances impacting technical communication in the 21st century. Not only have communication deliverables and processes of work been reconfigured by these changes, but so, too, has their significance and meaning. Johnson-Eilola explains how "[i]n an information age [communicating and working] are not about order or production, but about manipulation, contingency, semi-random movement, and reinterpretation" (2005, p. 10). Students will be entering a workplace where technology is continually evolving; adapting to it will be one of their most valuable skills (Rainey, Turner, & Dayton, 2005). In the midst of this instability, our goal as technical communication educators is to teach students how to retain their agency as reflective decision makers, problem solvers, analysts, and mediators in this workplace (Córdova, 2013, p. 144).

The constant discussion about pedagogical approaches and the competencies we ought to teach our students (Rude, 2009) attests to our collective investment as a field in understanding the changes in the workplace and considering their impact on technical communication curricula. According to International Data Corporation (IDC), the top required skills in high-wage, high-growth positions, sampled across 14.6 million job descriptions during several months in 2013, are "cross-functional" (rather than "occupational") and include oral and written communication, detail-oriented, problem-solving, organizational, project management, analytical, bilingual/multilingual, and strong interpersonal skills (Anderson & Gantz, 2013, p. 8). Our pedagogy must reflect these changing expectations so students understand not only how to produce and develop content but also how to find and filter information from diverse sources; design useful and usable documents; and actively locate, select, and learn pertinent research and design tools. As adaptable 21st century communicators, they must be able to approach and manage unfamiliar communication modes, tasks, and technologies and become strategic and transformative mediators.

What Are Adaptable Communicators?

In the information workplace, communicators are actively learning, developing competencies, and acquiring skills throughout the duration of their professional lives. Anderson and Gantz (2013) align workplace skills and interactions with strategies of job readiness rather than job training. In a job training model, workers are taught skills, often in isolation and associated with completion of a discrete task, whereas a job readiness perspective "layers [skills] into many

learning objectives” (p. 13). Employees retraining in the workplace must do more than pick up new skills; they must exercise curiosity, acquiring knowledge for each new professional situation. By “teach[ing] the arts of inquiry and innovation,” the 2007 National Leadership Council study asserts, students learn not memorization and application of information but rather “foste[r] habits of mind that enable students to continue their learning, engage new questions, and reach informed judgments” (p. 30), characteristics of adaptable communicators.

Two interrelated and interdependent traits make effective, adaptable communicators, and both are defined by willingness. First, adaptable communicators must be *willing* to engage with the unfamiliar. This allows them to challenge established communication practices and reengage preexisting skills in new ways. Second, adaptable communicators must be *willing* to become excellent mediators. They must mediate between the communicator’s purpose and the audience’s needs; negotiate mode, medium, and message; and invite the audience to become a partner in the communication. These two traits foster inventive remixers who know the principles of sound communication but are strategic in their approach to each unique rhetorical situation or possibility.

An example of a single assignment that develops these two traits is a paired assignment: developing a best practices manual for a specific discipline (e.g., using graphs and charts in engineering documentation) and then remixing to adapt the manual, transforming it into instructional material for youth (e.g., creating tally charts and bar graphs). To be successful, the students must be *willing* to change, letting go of what they have already produced to better address their rhetorical situation. This paired assignment approach challenges students’ assumptions about communication for children by combining technical subject matter with an unfamiliar and truly novice audience. As strategic mediators, they must find new ways of conveying their information and change their method of delivery to communicate with their nonexpert audience that includes both children (users) and parents/teachers/librarians (purchasers). The changes students make to the manual in visual design, content, and modes of transmission are often startling and thoughtful; students who created standard pdf-style manuals for adults are suddenly creating flipbooks, short instructional videos, workbook activities, and more, all of which demonstrate their growing rhetorical awareness. To successfully complete their manual transformation, students must become mediators concerned with ethical and humane relationships (Dombrowski, 1994). Creating for child audiences means pleasing adult authorities and engaging child participants, while keeping children’s vulnerable status in mind, all at the same time. In assignments such as these, student communicators engage in empathic problem solving, preparing them to join the 21st century local/global workplace.

Multimodal assignments foster both characteristics essential to adaptable communicators, the willingness to confront the unfamiliar and the willingness to be conscientious mediators. By the time students reach their college

communication courses, they are bogged down in received notions of common (but necessary) writing skills; students are certain they know what it means to summarize, research, argue, persuade, and reflect. Students have spent their formal education building foundations in writing that then often become barriers to redeploying skills as part of a flexible strategy rather than a static rule. Introducing multimodal assignments makes students uncomfortable because the assignments challenge the established boundaries students have built around what writing is. Students who create infographics (see section *Assigning Infographics*), for example, engage with the processes of summary, data analysis, storytelling, and audience engagement that they need to perform in their traditional writing, but the multimodal components of an infographic make students willing to think about the processes differently. When reflecting on this assignment, one student stated:

Report writing can benefit greatly by using the lessons learned from infographics. **Abstraction** can be used to convey information to an audience at a level that they are comfortable understanding. It will remove unnecessary details from the topic and leave the reader with a high level understanding of the material. . . . **Redundancy**, on the other hand, can help to reinforce the point that the author is trying to make by reminding the reader of it multiple times. It should be used for key points only, and the material should be reworded, as the reader will not want to read the same thing multiple times. (Name Redacted, 2014)

This student was able to reconsider how the visual design elements learned during the infographic assignment might be applied to more traditional forms like reports. Students' initial uncertainty about creating multimodal artifacts reinforces their role as technical and humanistic mediators. Students' struggles with image manipulation software and visual design theory enable them to see communication as flexible knowledge work.

Adaptable Communicators Engage With the Unfamiliar

If 21st century workers need to “identify, rearrange, circulate, abstract, and broker information” (Johnson-Eilola, 1996, p. 255), technical communication assignments need to capture and reinforce these actions. Students must be able to use written, oral, visual, and nonverbal communication in interconnected ways (Burnett & Cooper, 2010). For most students, this emphasis on a confluence of modes, rather than singling out each mode in a separate assignment, is a new and frustrating experience. It is, however, a productive one. Exposing students to unfamiliar modes of communication and inquiry and asking students to interweave modes help them to examine critically and value the process of communication as well as to appreciate the need to adopt multiple communication strategies.

Students should confront the unfamiliar because it improves their ability to learn how to approach new communication tasks. From the inexperienced student's point of view, technical communication will be a course where assignments involve applying templates to write a few reports or memos and possibly give a presentation. With this mindset, students fail to think strategically about their available communication and design choices. Instead, they fall back on previous assignment templates and simply recycle that experience, essentially cutting and pasting their answers into the appropriate box. For instance, writing a research report on communication in the workplace often allows students to fall back into their Googling practices and take a simplistic approach to data gathering. If instead they are asked to conduct interviews to generate their own data and use that research to create multimodal artifacts (see section Assigning Research Interviews), students find their experiences as interviewees (usually for jobs or internships) are inadequate to help them produce the data they need to create deliverables. Students quickly find they must understand their interviewee's context to develop effective questions that elicit meaningful responses, which provide enough information to create usable deliverables. Actively developing interview questions and facilitating an interview requires students to assume a less familiar role; their discomfort makes them more productive listeners, more aware of their comportment, and more intentional when remixing the interview data. Assignments such as this provide a platform that illuminates the process of learning.

Johnson-Eilola and Selber (2013) discuss why "adaptability is crucial" to successful communicators as they should "not merely learn skills; they must also learn how to learn new skills, upgrading and augmenting their abilities as they mature . . . analyzing the matches and mismatches between what they currently know and what a communication situation demands" (p. 3). When confronted with and asked to use unfamiliar media and modes, students have to learn how to learn. They find that they have to incorporate time for learning new tools, spend time understanding how these tools fit their established practices, and consider the possibilities these tools provide for innovation and transformation. While students are grappling with the process of how to learn new genres and tools, they also become more aware of how their audiences are similarly struggling with the content the students have authored. Entrenched as users rather than designers or developers, students unfortunately employ "technologies on a surface level, utilizing the obvious feature, not questioning the settings or appropriateness of the result to the task at hand" (Brumberger, Lauer, & Northcut, 2013, p. 181). By incorporating multimodality in multiple assignments and by using modes together rather than isolating them in a single *design* assignment, we ask students to become reflective problem solvers who can use technology as one component of their strategy to communicate. Instead of devoting time to teaching students specific software, for example, we must instead help them learn how to select, critically review, and use any software (Rainey et al., 2005).

Because students assume familiarity with traditional written forms like letters, memos, and emails, they often take important elements of the rhetorical situation for granted and fall back on habitual choices. For example, it is precisely the unfamiliarity of the software demonstration that makes this assignment valuable (see section Assigning Software Demonstrations). The student has to grapple not only with the software she will demo but also with screencasting, video, and editing software used to create the deliverable as well. This confrontation provokes students to consciously think about why they have selected their tools, what effect these tools will have on the reception of their deliverables, and how to structure their demonstrations to meet both the instructional and analytical goals of the communication. Students have been trained to produce written assignments for 12 to 15 years, and the familiar patterns of items like summaries and organizational forecasting are not approached as thoughtfully as they are when an assignment challenges the student to think multimodally.

Instructors can also restrict specific modes of communication in multimodal assignments to challenge students' inherited notions about working with their audience, one of the hardest tasks educators and technical communicators face. For example, a paper prototype assignment compels students to use only the visual and written modes to explore the ramifications of their decisions and reinforces the need to empathize with their audience and practice adaptability. In this assignment, students design a vending kiosk to dispense low-cost products. The prototype is entirely hand drawn. The prototype must adhere to specific requirements. It must be capable of dispensing a variety of foodstuffs on request, accepting various types of currency, meeting a specific spending limit, adhering to usability standards of being satisfying, efficient, learnable, memorable, and recovering from errors. Students create written processes for all of these interactions using their prototype and then test their prototype on their classmates. Novice teams designing the prototype struggle to turn their ideas about the kiosk into usable and easy-to-understand processes and instructions.

During prototype testing, an audience member (buyer) attempts to purchase something based on the paper prototype's detailed interface. The team members then perform the functions of the machine (e.g., tally a multi-item purchase, update the order, move the items to the front for pickup, dispense products, and collect currency), while the paper prototype serves as the interface to the buyer. The team members are not allowed to use verbal or nonverbal communication during these tests, yet they must recreate all of the actions necessary to facilitate the buyer's experience. When teams cannot have a conversation with the users to comfortably *correct* their interaction, they learn first hand what happens when their instructions are unclear and their processes are poorly planned. If the prototype is not functional, the students quickly realize how much mediation is required between creators, users, and machine. The act of communication is defamiliarized, and they must reevaluate their written and visual strategies in light of this change. This assignment highlights the difficulty of capturing one's

intellectual ideas and transforming them into a usable form for others to access. Removing students' verbal and nonverbal communication with the users challenges their inherited notions that they can fix or clarify by breaking in verbally to say, "Oh what I meant was . . ." After eliminating the comfort, facility, and familiarity of conversation from this interaction, the students must use other modes (here the written and visual) to further the communication process. Assignments, such as the paper prototype, teach students to expertly manipulate various modes—a key strategy for 21st century communicators.

Adaptable Communicators Act as Excellent Humanistic and Technical Mediators

Adaptable communicators must be both technical and humanistic mediators. As technical mediators, they are savvy selectors of media. They act as filters and remixers of information, using modes and media dynamically to shape their message. As humanistic mediators, they must be willing to engage as problem solvers individually and in teams and to effectively develop empathy for their audiences. This empathy allows communicators to make more effective rhetorical choices, create reader-centered deliverables, and become better collaborators. Technical and humanistic mediation emphasizes many of the core competencies of information workers including strategic thinking and ethical practice. Our technical communication curricula should challenge students to navigate conscientiously among modalities and be considerate problem solvers.

Operating in team-centered and globalized work environments is essential to adaptable communicators. Starke-Meyerring, Duin, and Palvetzian (2007) state that technical communicators are developing an "extended sense of citizenship" (pp. 142–143) because of their role in connecting an ever-expanding network of other communicators, nonexperts, customers, clients, and stakeholders. Excellent technical and humanistic mediators, then, also need to have "the ability to sense a problem, diagnose what forces within a context are causing the problem, and develop and implement a change within the context that addresses the problem" (Johnson-Eilola & Selber, 2013, pp. 3–4). This ability to envision the audience's needs and to contextually create change requires both technical expertise and a savvy understanding of stakeholders and their diverse contexts.

Adaptable communicators must competently and independently operate in what Johnson-Eilola calls the datacloud: "[A] shifting and only slightly contingently structured information space. In that space, we work with information, rearranging, filtering, breaking down, and combining" (2005, p. 4). Datacloud communicators' roles as collaborators and nodes in communication networks rely on their abilities as humanistic mediators.¹ However, to keep the various groups in contact in the unstable datacloud, adaptable communicators must also be strong technical mediators with an expanded repertoire of skills, competencies, and literacies; they must demonstrate an understanding of "communication

in the twenty-first century as multimodal and intertextual” (Fordham & Oakes, 2012, p. 314). In a global context, communication and information sharing requires “a multilingual dialogue not only with one another, but with other texts, tools, objects, and ideologies” (Fraiberg, 2013, p. 24). Beyond teaching students to teach themselves, contending with new and unfamiliar tools also prepares them to be better mediators in the workplace.

As strong technical mediators, adaptable communicators must be willing to bring together processes from their previous experiences and deploy these in a new context. Traditional assignments often isolate a single task, medium, or mode and leave the student to generalize these skills into strategies on their own. By promoting multimodal practice, we instead ask students to think about the interrelationships among modes before they communicate. Multimodal assignments help make mediators adaptable because they encourage students to focus on how changing the balance among media and among modes produces significantly different results. When asked to complete a video demonstration rather than a presentation (see section *Assigning Software Demonstrations*), students had to strike a balance among visual, oral, and written modes. Student Francis Kallon (2014) said:

Through this [video software demonstration] assignment I have discovered the challenges one faces when creating an autonomous presentation. Prezi makes it easy to add voiceovers for each frame and to command the presentation to proceed without any user prompt. While this is a great feature, it helps if one is well-adjusted to speaking into an audio recording. I myself know now that recording audio clips for voiceovers is harder than it seems; there is more pressure and more of a daunting aura surrounding the task because one hears his voice immediately after. We are our own worst critics, and it is hard to know when the audio clip is acceptable and when just a few more attempts might make a large impact. I found that the best method is to write a script for each recording and rehearse before any attempts to actually record are made.

Kallon’s experience made him more thoughtful about the integration of modes in his deliverables. His reflection also shows that the assignment made him think about the value of revision in a new way. Assignments such as these encourage students to filter and remix in order to reenvision the possibilities of communication.

As strong humanistic mediators, students must feel empathy for users. However, this is difficult because students are often unable to inhabit the role of an outsider and use that perspective to create deliverables. Multimodal pedagogy helps students develop greater empathy for their audience. Recall the example of students creating paper prototypes; that assignment fosters empathy for the communication’s audience by putting the teams in both the position of designers and users. Having empathy makes datacloud workers more

responsible, humanistic communicators. They pay more attention to shaping their communications based on the audience's needs, are experienced in feeling the discomfort of unfamiliarity and uncertainty that a user might feel, and are more willing to put time and energy into better design. By focusing students' attention on how modes of communication are woven together and reflecting on defamiliarized, complex processes, students are more able to operate as ethical datacloud workers.

Bringing together both humanistic and technical concerns requires layered and nuanced strategies of reflection and knowledge work described by Mehlenbacher (2013):

Effective technical communicators understand and reflect on their own problem solving and learning processes. They understand and invest in their role and knowledge as communicators and are able to contribute sociotechnical designs that mediate technologies and audiences. Future technical communicators will serve as knowledgeable team members, learning, researching, organizing, and synthesizing the many support materials that are required to mediate between communication design, humans, and complex technological processes and products. (p. 205)

While there are many ways to create communicators who embody these traits, multimodal assignments bring these concepts into sharp relief. The novelty and complexity of multimodality makes students feel empathy for the audience and develop effective problem-solving strategies that serve them well in the workplace.

Multimodal Pedagogy

Multimodality can be incorporated into any technical communication course. Traditionally, a technical communication course concentrates on one of three popular models: simulation, client-based, or case study. In simulation courses, instructors ask students to fictitiously place themselves in a context that stimulates and necessitates communication. In client-based courses, students work with an external audience to accomplish a specific set of communication objectives. With case study courses, students review previous communication examples and extrapolate strategies, leveraging the audiences, contexts, and purposes provided by the cases. Regardless of the classroom model, the goal is to provide a context for students to situate their communication tasks. Each model helps to place focus on an external user, removing the instructor as the primary audience. And, as the goal of most technical communication classes is to lay bare the rhetorical situation for students, each model can easily incorporate multimodal components.

The 21st century workplace is a "multimodal communication environment" (Fordham & Oakes, 2012, p. 315), and the technical communication classroom,

no matter the model, should account for that in its praxis. While audio, visual, and electronic media are widely used for exchanging communication or disseminating information, multimodal tools and strategies are increasingly employed in processes such as research and data collection, project management, client development, and training. Multimodal composing is not simply about adding in multimedia but rather “the conscious manipulation of the interaction among various sensory experiences—visual, textual, verbal, tactile, and aural—used in the processes of producing and reading texts” (Bowen & Whithaus, 2012, p. 7). These sensory experiences, their interpretation, and the means to document and represent them require an understanding of not just the affordances of one or two modes but the synergistic potential of several.

Multimodal pedagogy in technical communication emphasizes defamiliarization, problem-solving, and system thinking. As noted by Brumberger (2007), using mixed mode assignments helps to call attention to the things we no longer notice and helps to demystify concepts and “see the normal—the mundane, the familiar—in new and unusual ways” (p. 384). Multimodal assignments strip away familiarity, revealing our assumptions about our communication processes and its underpinnings. This process is the very essence of problem-solving; finding an answer to an unknown issue by putting previous knowledge or experience to use. One easy way to create this shift is to require students eschew the use of common presentation software (e.g., PowerPoint, Keynote, Google presentations) and instead explore other tools such as Prezi or Emaze for presentations. This small change demands students revisit the interface for their content. Instead of simply picking a template they may have used previously, often without thought, they must consider (or revisit) which interface best accomplishes their communication goals and works within the existing rhetorical frame. This defamiliarization makes students stop, step back, and really examine the problem. Students are challenged to ask and answer questions about accomplishing their goals: Who is my audience? What is my purpose? How will I communicate it? How will my audience perceive it? Students must rebuild a process that had become rote.

Multimodal assignments encourage students to think deeply about the interplay of information and design, core concepts in problem solving and system thinking. Problem solving and system thinking are interrelated: With the former, disparate parts are analyzed for their value, whereas the latter examines the function of the parts in relationship to the whole. Wicked assignments, according to Mehlenbacher (2013, p. 191), help emphasize system thinking or the ability to “recognize and construct relationships and connections in extremely broad, often apparently unrelated domains” (Johnson-Eilola, 1996, p. 261). Multimodality makes us contemplate complexity in relation to clarity, asks us to draw connections, and helps us see correlations. The flashy components of multimodal assignments often belie complex or *wicked* tasks needed to complete them. Consider, for example, a video assignment. An instructor might assign a

mini-Pecha Kucha style video where students are instructed to introduce themselves to a job recruiter in their field. They must respond to one question by addressing their knowledge in that area, explaining how they put that knowledge to use, and giving an example from their experiences. Students are limited to 10 slides for exactly 20 seconds, each using Prezi to deliver their content. On the face of it, creating a video of 10 slides seems a relatively easy process: select a video capture method and record 10 scenes with narration. By introducing multimodality, we make a simple question that someone might answer in a job interview a complex and wicked task.

To make their self-introduction video, for instance, students must consider structure and organization in a deliberate way and plan how visuals and audio will work together to convey their ideas. They must also develop a theme and metaphor through visuals using voiceover and screen capture as well as establish precise timing. This multimodal assignment challenges students to create a video with a specific set of communication goals, which allows the medium's inherent complexity to assert itself. In addition, students must consider other components related to but not exactly a part of video creation, including software and technology management and file deployment. Videos are messy, wicked problems like many other multimodal projects. Making connections between seemingly disparate areas, working across specific task domains, and planning, executing, and distributing results using various technologies all with differing considerations foster problem solving and system thinking.

This does not mean that traditional written assignments do not address these important communication strategies or even worse, that written assignments neglect these concepts. Instead, multimodal assignments shine a spotlight on these concepts, exposing them to scrutiny. For example, the report genre uses the same sets of "meaning-making combinations" as an infographic (Maier, Kampf, & Kastberg, 2007, p. 454). Reports advance a strong argument bolstered and supported by data, and thus carry a thematic component addressed, for example, through the careful selection and representation of data and organization. Few novice report writers understand the interplay of persuasive elements evident in the report genre. However, after these elements and ideas are exposed through a multimodal assignment, students not only are acquainted with the vocabulary but also are better equipped to address the concepts in this and other genres. As student John Franklin (2014) stated in his reflection upon completing an infographic assignment:

The amount of information I researched for the infographic could have easily [fit into] a written 5–7 page report on the topic. The use of persuasion is also the same as writing a report. An infographic such as mine will have a thesis in the title and then progresses in a linear fashion to persuade the audience the thesis is correct.

... At its core an infographic is a visual report that can be digested and understood much faster and in a more engaging way.

The use of multimodal components in assignments helps students recognize processes rendered invisible by familiarity and better understand how to modify individual elements of deliverables to shape overall audience perspectives (Brumberger, 2005).

Example Multimodal Assignments

We are at a key moment in the integration of multimodal composing in composition and communication classrooms; much of the published scholarship reports anecdotal and qualitative assessments that use pedagogical strategies for specific multimodal assignments. We are continuing to add to this tradition in hopes of increasing the visibility of multimodal assignments in technical communication and other communications-related courses. While Paul Baepler's and Thomas Reynolds's 2014 study has started to collect quantitative data about video-specific multimodal assignments, we join them and many other scholars in calling for more quantitative studies examining the relationship between student learning and multimodal classroom practices (Jones, 2010; Sankey, Birch, & Gardiner, 2010; Schilling, 2009). Technical communication courses should include multimodal assignments that prepare students to be adaptable communicators who are savvy data and information workers. Multimodality helps students become comfortable confronting unfamiliar modes and engaging in unfamiliar practices. The following three sample assignments show that by defamiliarizing common processes (such as summarization, organization, and data gathering) and deliverables (such as reports, visualizations, and presentations), students become stronger, more empathic communicators who act as mediators and problem solvers. Each assignment below illustrates ways to infuse courses with multimodal practices. They can each stand alone in a technical communication course or be integrated into an interlinked sequence of assignments.

Assigning Infographics

The infographic assignment responds to the call for visual design pedagogy in the technical communication classroom (Brumberger, 2005), while also attending to system-thinking and decision-making practices facilitated by multimodal assignments. As a smart mix of content and design, the infographic is an unfamiliar pathway to understanding the underpinnings of the rhetorical situation by emphasizing audience, clarity of message, data narratives, and sophisticated design and data choices.

Due to the newness of the genre, the assignment is often scaffolded by separate activities. These activities occur after lectures and class discussions about situated communication. In one of the first lectures, we define an infographic by addressing the affordances of the genre and articulating its core concepts. According to Cairo (2013, pp. 27–28), an infographic must do the following:

- Present: provide proper information and select appropriate data
- Compare: draw clear and comprehensible connections between appropriate data
- Organize: provide clear pathways for understanding text, data, and information
- Correlate: display relationships that are clear and easy to understand

Next, in small groups, students examine infographics through a number of linked activities termed: Examine, Remix, and Make. In the first activity, Examine, students perform an analysis of similarly themed infographics using appropriate design and visual rhetoric terminology garnered through readings. This is done either with the entire class or in small groups. In the second activity, Remix, students are provided with prints of poorly executed infographics. The group brainstorms how to remake and improve the infographic. Then, with whiteboards (or large sticky flipcharts), students redraw the infographics to include the improvements. The final activity, Make, asks a team of students to create an infographic using provided or readily available data. The infographic is brainstormed, created, and roughly sketched during a class period using available media. In the latter two activities, the final artifact is also annotated to help students further articulate their rationale and identify changes or choices. Each activity is followed by in-class discussion and an informally written debrief presenting their findings and resultant infographics. We discuss their process and relate their findings back to more traditional technical communication artifacts, such as reports, emails, and proposals.

Depending on when the infographic assignment is given in the semester, the requirements can be adjusted. Near the start of the semester, the assignment requirements are specific; while toward the close of the semester the assignment is more open ended, allowing students to pick the audience, topic, and data requirements. In terms of process, the infographic assignment is treated like a traditional artifact requiring a draft, peer reviews, and a self-reflection. The assignment is submitted both electronically and printed at full size.

The connection back to traditional artifacts is emphasized during discussions and debriefing sessions. Through these conversations, students are asked to relate the new concepts to more familiar genres. While many assignments can easily address concision, tone, clarity, and organization, multimodal assignments call attention to strategies practiced by more mature writers. Specifically, infographics with the complex mix of data and text, emphasize

concepts such as persuasive data selection, abstraction in prose, information density, redundancy in design and writing, familiarity of form, and functionality of images.

Assigning Research Interviews

As the nature of research is nonlinear, rarely static, and driven by questions, learning how to be competent researchers engages students in the type of knowledge work dominant in the 21st century workplace. This interview assignment is a research project in which students are tasked with investigating the communication practices of a professional, academic, or community workplace. The interview allows students to experience the research process as “an endless . . . process of discovery that creates knowledge” rather than the means to “just finding something that already exists” (Wilson, 2003, p. 77). The assignment layers three learning objectives into a sequence of activities that hones the students’ ability to write correspondence, conduct an interview, interpret data, and present data in a multimodal artifact. First, students acquire experience with conducting qualitative research, a method with which students are usually less familiar compared with library-based and quantitative data gathering. Second, students learn to analyze qualitative data that is not easily rendered as data points in a graph, on a chart, or as statistics. Third, students learn to transform the interview data into a multimodal artifact (e.g., fact sheet, feature article, recruitment brochure, training manual, podcast, or video) for a specific audience, a process that demands numerous decisions to meaningfully align purpose, audience, and artifact.

For technical communication students who are preparing for internships and jobs, the concept of interviewing is familiar. Having had ample exposure to recruiters and career fairs, students are reasonably well versed in presentation skills, nonverbal cues, and the one-page resume. Although familiar with the interview process, students found the more active position of collecting and analyzing qualitative data unfamiliar and thus challenging. Because interviews entail working with human subjects, the students must adapt to the situational uncertainties the assignment creates. Although the student prepares an interview script with questions, for example, she needs to be ready for unpredictable shifts in the conversation. If the interviewer’s responses unfold in an unanticipated direction, the student has to decide whether to pursue the new line of inquiry or not. If the interviewee veers away from the focus on workplace communication, the student needs to guide the interviewee back to the intended questions. The interviewer position demands active listening to read the interviewee’s tone and gestural cues, as well as the content.

Before conducting the interview, students devote significant class time to learning and understanding what a discourse community is, how it functions, and its significance. Class discussion explores the written, oral, verbal, electronic,

and nonverbal culture of students' intended industries and academic departments. Although students are able to

- examine their college community,
- identify the academic and non-academic members of their department,
- recognize the types of texts common in their department,
- identify the means through which professors, staff, and students communicate, and
- describe the kinds of stories members shared,

they find it more difficult to understand the larger purpose directing and shaping the communication in their department. To understand the department's context, students analyzed the departments' mission statements, curricula, and even the arrangement of departments' physical spaces. Relating the stories that professors and staff shared to the mission statements or curricula, for example, illuminated beliefs about what was considered foundational knowledge in their fields. This analysis of the students' own discourse communities helped prepare them to understand how the person they interviewed was similarly a part of a unique context that included different people, rules, information, stories, values, and beliefs.

Writing the interview questions entailed another key learning moment in the assignment. As the interviewer, students learned they needed to pose questions that elicited informative responses. They had to take on a more empathic role to reach out to the interviewee without seeming intrusive and demanding. They learned that question phrasing significantly affected the type of information the interviewee gave. In first drafts, students almost reflexively defaulted to yes/no questions—*Do all staff participate in meetings?* or *Do you use social media?*—rather than to questions that prompted the interviewee to tell a story or explain a process—*Describe a typical department meeting* or *Tell me about a time when a colleague misunderstood your point of view*. Recognizing how different questions yielded different quality responses, students understood the difference between descriptive and investigative research questions and the difference between questions that generated stories rather than simple, factual responses. By researching how a discourse community works through investigative and descriptive questions, students learned what they could not find by searching the Internet or visiting the library.

The final component of the interview assignment addressed the numerous decisions a communicator must make to analyze and present the data. Moving from an interview transcript to a multimodal representation required students to discern patterns in their data in order to evaluate relationships between

- these patterns and specific audience characteristics,

- these patterns and the artifact best suited to accommodate these patterns, and
- the audience and artifact.

For example, if a student wanted to write a feature article in a campus publication about their interviewee, she needed to determine whether presenting the conversation as a Q&A session or as a narrative feature article profiling her interviewee would be most effective for the campus-wide audience. If a student thought that the interview data were most valuable for the description it offered about understanding corporate culture, she needed to consider how to reach current and prospective employees. If the tentative solution was to present her interview data as a Prezi or video, she needed to consider whether this artifact might be looped on a monitor in the organization's lobby for visitors, shown at staff meetings, or played at college recruitment fairs.

Students felt discomfort at not being able to plan the multimodal artifact until after they conducted the interview. These uncertainties reveal the students' reliance on inherited notions of research as *finding* information to complete the template for an artifact they wanted to create. Rather, collecting and analyzing qualitative data necessitates that students adapt to a process of "encircling" the data so as to "define" an artifact mode suited to the data and to select an audience invested in the data and receptive to the artifact (Wilson, 2003, p. 77). Layered research assignments, such as this interview assignment, are one example of a technical communication pedagogical strategy that addresses the gap between the research required in the classroom and the current workplace environment (Spilka, 2009).

Assigning Software Demonstrations

To help students break the familiar patterning of the presentation, this assignment asks them instead to create demonstrations. Video software demonstrations require students to select an unknown technology, learn the tool they want to demonstrate, evaluate the tool's usefulness and limitations, and define how the software can support their communication goals. A student cannot create a simple and static *how-to* for this assignment, nor can she do a begrudging stand-and-deliver presentation. Rather, the software demonstration requires a full video deliverable where the student addresses how-to along with engaging analysis and discussion. The assignment asks students to be selective, maintaining awareness of the audience's interests and needs. Along the way to the finished product, students need to learn their selected software as well as the principles of great screencasts (e.g., scripting, editing, transitions, inflection, and movement between dynamic and static visuals) and how to use their video creation software. Because many students are unfamiliar with screencasting, they feel empathy for the audience who is learning from the demonstrator as the demonstrator is learning about the modes and tools for the task.

Software demonstrations ask students to take responsibility for their choices as designers. The assignment helps them become datacloud workers who handle complex tasks requiring multiple stages of learning, development, revision, and feedback. Software demonstrations work on both of these levels. They require students to do at least the following six actions (which are also excellent areas to assess and evaluate):

- Analyze their peers' communication goals.
- Identify and select a software program pertinent to the course.
- Learn the software well enough to provide some hands-on instruction.
- Filter, combine, and rewrite product reviews, how-to guides, and promotional materials into a succinct demonstration that engages their cohort.
- Revisit previous knowledge by selecting and learning tools for demonstrating and then reevaluating whether the initial learning of the chosen software is sufficient.
- Analyze how their research can be remixed to make an argument about the software's benefits for the audience.

To complete the assignment, each student selects a software program and creates a 4- to 7-minute video demonstrating and analyzing the software. The video is not only instructional but also persuasive. Each demonstration promotes the software's usefulness to communicators and discusses any limitations that should be considered before selecting it. This creates a valuable secondary effect of making the students think about the rhetorical positioning of particular media and tools. Students are encouraged to select a very specific subtask to analyze, asking them to practice summarizing, selecting, and illustrating an argument in action.

While the in-class time for the assignment is similar to an individual presentation, the process for creating the demonstration demands more mindful development; including the students' processes as part of the assessment is a good way to encourage more reflective engagement on the assignment's core goals (strategic thinking and problem solving). By allowing students to make nearly all of the media, design, and approach choices, the assignment encourages students to view assignment-specific skills as ones that can be transferred and reused in the future. Baepler and Reynolds found that video assignments increase student engagement with invention and revision as well as their technical confidence and transmedia navigation. They did pretest and posttest surveys where students reported a 26.49% stronger agreement with the statement "Presently I am CONFIDENT I can know when to select video, text, and still images to effectively convey what I mean" and a 35.77% stronger agreement with the statement "Presently I am CONFIDENT I can display my ability to think critically through the use of video" (2014, pp. 129–130). While their results were not statistically significant, they do indicate that students can use multimodal

video assignments to increase their communication competencies. After completing software demonstrations, students can generalize and adapt the process they used as an effective strategy for approaching any unfamiliar communication project, especially those requiring new tools to complete. They understand that not only can they learn new tools, but they *should* learn new tools as part of sustainable communication practices.

The demonstration's time limit also emphasizes the student's role as a filter. It helps students focus on solving a specific problem for the viewer (what can this software do for you?). Students must tackle the seemingly familiar how-to/instructional genre in a thoughtful way to fit the constraints. The demonstration primes students for later assignments, leading up to a fully developed, written manual. By creating their demonstrations, students enact the most important strategies for communicators in the 21st century. They learn how to

- locate and teach themselves an appropriate tool,
- demonstrate their specialized knowledge to others with attention to design and purpose,
- place new concepts into a discipline-specific conversation, and
- create a collective archive of knowledge that everyone in the class can access for future projects.

A multimodal demonstration also defamiliarizes the idea of doing an oral presentation, which most students approach as a necessary, but boring, evil within a class. When students think of a presentation, they generally follow a standard, unreflective approach leading to a stand-and-deliver product; changing the terminology to *demonstration* moves students away from the automatic presentation structure and emphasizes purposeful decisions about structure, process, and engagement. After completing the demo, students often have increased success with writing-intensive assignments because they have reexamined their assumptions about audience, summary, structure, and directions.

Conclusion

Two of the common resistances to implementing multimodal assignments are that they appear difficult and might not fit with existing assessment practices and course outcomes. While fully multimodal courses offer flexibility and meet the goals discussed in this article, instructors can also take small steps toward adopting this approach. The assignment examples in this article can be scaled to any level of involvement an instructor wishes or can be combined with each other for a more integrated experience. For example, an infographic can be an ideal way for students to tell stories with their interview data; an interview assignment can help students learn to gather information for a demonstration; a video demonstration can teach students to summarize, compare, and correlate

information used for infographics or interviews. Each assignment can be used in an in-class activity, selected for a major assignment, or combined with the others to form long-term, interlinked units. Multimodal pedagogy does not require that we

choose one pedagogy over another but rather to consider how we can recombine them—remix them—in ways that can enable us to develop a more nuanced and complex view of what it means to teach composition in the contemporary digital moment. (Palmeri, 2012, p. 15)

Students must experiment to successfully complete multimodal assignments because they require new processes, challenge old contexts, and emphasize clarity in communication; they require different approaches and thus push new ideas. In many ways, multimodal assignments create opportunities for students not only to try new things but also to reexamine the same experiences through a new lens. Multimodal assignments help us do what we have always tried to do as instructors—reveal steps and uncover methods behind communication. By building students' sense of empathy and ability to mediate between user and message, we better prepare students to join a globally diverse workplace as effective citizens.

Adaptable communicators are molded by challenge, failed and successful efforts of experimentation, and attempts at managing the unfamiliar; multimodal assignments not only provide these opportunities but inspire problem solving and system thinking. Multimodal assignments “take advantage of a range of rhetorical resources . . . to create meaning” (Anderson et al., 2006, p. 59) and ask students to develop as humanistic and technical mediators. Using multimodal praxis in technical communication is one of the best ways we can encourage students to become conscientious, adaptable communicators.

Note

1. Other scholars have also researched the complex networks among people, especially those fostered by social media. danah boyd (2007), for example, studies networks of people and considers how important empathy and intimacy are to those relationships. Further, communications scholar Nancy K. Baym (2010) considers the theoretical implications of these relationships.

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