

5. Confronting Methodological Stasis: Re-Examining Approaches to Technical Communication Pedagogical Literacy Frameworks

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Abstract: The layered literacies pedagogical framework has been a dominant model in the field of technical communication for the discussion of literacies and their interrelatedness. Although the field has regularly applied the framework to course and curriculum planning, in the 20 years since its development, there has been limited examination of the assumptions that form the framework's foundation. The under-theorization of the framework has led to what we term methodological stasis. We examine the field's prevalent patterns of engagement with literacy frameworks—checklisting, adding, deepening, and stacking—and discuss the ways that these patterns reinforce the unchallenged assumptions of the framework. As an alternative method for naming and categorizing technical communication skills and knowledge, we demonstrate an iterative, inductive method of examining classroom activities. This method is centered on classroom activities and makes visible a more complex, inter-related set of writing practices. The outcome is a set of literacy themes which provide a rich set of descriptors of student skills and knowledge. We end our chapter by proposing questions to guide the field in the development of responsive, multidimensional, and sustainable pedagogical literacy frameworks for the 21st century.

Keywords: pedagogical literacy frameworks, layered literacies, methodological stasis, literacy categories

Key Takeaways:

- There has been limited critical examination of technical communication pedagogical literacy frameworks, leading to methodological stasis.
- There is a need for our pedagogical literacy frameworks to demonstrate the qualities of responsiveness, multidimensionality, and sustainability.
- An iterative, inductive method for identifying and understanding technical communication literacies has the potential to make complex skills and knowledge more conspicuous.

Kelli Cargile Cook's (2002) seminal work on layered literacies advocated for "a more integrative frame that incorporates all of the literacies, into a single articulation of technical communication pedagogical goals" (p. 8). This pedagogical framework provided the field with both a nomenclature to help conceptualize and a structure to help organize the skills and knowledge important to our field's research, pedagogy, and program development. In the nearly 20 years since Cargile Cook conceptualized this framework, our field has undergone significant changes in terms of competencies demanded by the workplace, recruitment and training of instructors who teach technical communication, increased demand for the service course, and an expansion of professional writing and technical communication programs. Despite the significant changes experienced in the field, there has been limited critical examination of the layered literacies framework, in particular the assumptions that underlie the framework's application and the method through which the literacies are identified, named, and organized. We term this limited critical examination of the framework *methodological stasis*.

While we do not want to undermine the impact of the literacies framework on the field, we are interested in drawing attention to the fact that since the proposal of the layered literacies framework and the field's subsequent engagement with this and other pedagogical literacies frameworks, there has been minimal reexamination of how pedagogical frameworks ought to be developed and expanded. As the field has responded to a range of new workplace contexts, technological innovations, and shifting institutional requirements, we believe a reexamination is necessary to ensure that our pedagogical frameworks are sustainable, responsive, and multidimensional in the face of the field's growth and change.

To examine the problem of methodological stasis, we use a new thematic-analytic approach. This approach uncovers assumptions that underpin the layered literacies framework. Additionally, the approach yields a set of themes that provide more nuanced descriptions of classroom practices and lends more insight into the complex interrelationships of technical communication classroom activities.

In the sections that follow, we present a review of the field's engagement with the layered literacies framework, critique its distinctive characteristics, and offer reflection on the framework's limitations. Finally, we describe an inductive method for identifying skills and knowledge, followed by a discussion of how this method provides critical re-thinking of the deductive methodology used in the layered literacies model. We conclude by raising questions that might shape the field's future research on the development and application of technical communication pedagogical literacy frameworks.

Layered Literacies Pedagogical Framework for Technical Communication

Our interest in pedagogical literacy frameworks for technical communication derives from our past seven years as instructors in the field. During this time,

we have collectively taught at six different institutions (research and teaching). At these institutions, we have held positions of graduate instructors, post-docs, visiting assistant professors, and most recently, tenure-track assistant professors. In these positions, we have taught upper-level courses in technical and business communication, and most often the service course, which has been directed to majors in computer science, health science, engineering, and environmental science. In none of these scenarios indicated above have we taught in an undergraduate technical communication program.

As we reflected on our collective teaching experience in the field, we came to realize a few shared realities as it informs our interest in pedagogical literacy frameworks. First, because for many students there is no writing course requirement after first-year composition, service courses have often uncovered that our students have varying degrees of readiness for upper-level technical and professional writing. Second, our colleagues don't readily understand what we teach. We have regularly inherited curricula and program learning objectives developed by colleagues outside of the field of technical and professional communication. Consequently, we found it problematic to design classes around inherited syllabi or programmatic outcomes that have been designed by colleagues unfamiliar with our field's curricular requirements. Furthermore, assessment criteria, like learning outcomes, are often not derived from technical practice. As a result, we perceived that many of our course learning outcomes have been genericized in order to be taught by any instructor, especially those who have not been trained in the field.

As a result of these realities, we felt that we needed to produce "multiply literate students in one semester" (Cargile Cook, 2002, p. 8) to meet the curricular learning outcomes. For example, in our classes, it was not uncommon to ask students to complete assignments such as writing cover letters and resumes—a conventional genre in the business and technical communication classrooms. However, this foundational assignment uncovered a host of skills and prerequisite literacies that students had not acquired in previous classes. In fact, much of our time was spent "unteaching" the academic essay before our students could begin to engage with other types of writing. Consequently, we were concerned that students were leaving our classrooms without adequate workplace literacies. As we tried to make sense of these constraints and sought to find creative pedagogical solutions, we talked almost daily about what literacies we could reasonably expect our students to demonstrate having completed our classes. In addition, we wrestled with how those literacies could be scaffolded within a single semester. Our interest in literacy frameworks, therefore, was an organic outcome from the issues we were grappling with in our classrooms.

In the following section, we introduce the layered literacies pedagogical framework that, on the one hand, has offered potential answers to the questions we were asking, yet on the other hand, has also demonstrated the practical

limitations of working with a framework that integrates a comprehensive set of pedagogical goals.

Overview and Structure of the Layered Literacies Pedagogical Framework

In the period up to Cargile Cook's work, Katherine Staples (1999) characterizes the field of technical communication as going through major changes in the late 1990s. These changes included

1. an expanding field characterized by newly emerging specializations in areas like international communication, document design, and usability, to name a few;
2. new research agendas connected to the expansion of the field's interests and new venues at which to present research;
3. an increased demand for trained technical communication practitioners; and
4. the growth, both in number and complexity, of technical communication programs.

The layered literacies framework conceptualized by Cargile Cook consists of two key characteristics: discrete, static categories and the principle of layeredness. First, the framework identifies six discrete literacy categories—basic, rhetorical, social, technological, ethical, and critical. For each of the six categories, Cargile Cook offers an explanation of the range of skills and knowledge that comprise each literacy. Additionally, for each of these categories, she suggests how each literacy might be taught by instructors, demonstrated by students, or assessed within a curriculum or program by administrators. A second characteristic of the layered literacies framework is the interrelationships—the layering—among one or more literacies. Drawing on Wahlstrom (1997), Cargile Cook emphasizes that literacies “are not isolated but integrated and situated through a complex of classroom goals and activities” (2002, p. 6).

The framework has helped legitimize the work of our field. In the application of the framework, the studies we highlight below have collectively (1) accounted for skills and knowledge that are important to the field, (2) connected technical communication theory to practice, (3) developed a robust research agenda, and perhaps most importantly, (4) provided a link between classroom literacies and workplace competencies. Since the publication of Cargile Cook's work, scholars have engaged with both the literacy categories, to be able to account for new or newly-valued, yet under-examined, literacies, and the layeredness model presented in Cargile Cook's work. While not exhaustive, Table 5.1 provides a sampling of studies to show the range of ways in which scholars have engaged with the layered literacies framework.

Table 5.1. Selected sample of studies that have engaged with the layered literacies framework

Author	Literacy Category	Description of Engagement
Classroom pedagogy: Studies in this section extend the discussion around literacy categories established in the layered literacies framework.		
Kienzler & David (2003)	Ethical	Demonstrates how integrating ethics into the professional communication curriculum “provides students with experience in ethical problem-solving that requires that they consider not only immediate but also long-term consequences of their decisions” (p. 487).
Swarts (2011)	Technological	Expands understanding of technological literacy and its interrelationship with social literacies to include “network-building.”
Bacabac (2013)	All six literacy categories	Uses a teaching case to present an e-portfolio assignment and demonstrate the presence of Cargile Cook’s six literacy categories in the assignment.
Hovde & Renquette (2017)	Technological	Synthesizes the field’s definitions of technological literacy to propose “a four-level technological literacy framework that can guide curricular decisions” (p. 396).
Classroom pedagogy: Studies in this section add new literacies not previously mentioned in the layered literacies framework		
Portewig (2004)	Visual	Engages directly with the layered literacies framework, making an argument that visual literacy should not be subsumed in the basic category but rather recognized as “a literacy that we must teach, research, and practice” (p. 32).
Starke-Meyering (2005)	Global	Identifies themes in the discourse of globalization and draws on Cargile Cook’s plural literacies to propose a framework for a global literacy.
Hannah (2010)	Legal	Argues for the establishment of a legal literacy and indicates that the layered literacies framework is a useful starting point to describe how technical communicators and students should see the law in their work.
Chong (2016)	Usability	Establishes the need for a usability literacy and makes the point that although the layered literacies framework does not explicitly mention usability as a literacy, a usability-centered approach is implied in Cargile Cook’s work.

Author	Literacy Category	Description of Engagement
Colombini & Hum (2017)	Quantitative	Argues for the inclusion of quantitative literacy in the technical writing classroom as a site where multiple literacies convene.
Swacha (2018)	Embodied	Proposes the addition of embodied literacy as a “seventh” literacy; explores how embodied experiences interrelate with each of the six literacies.
Programmatic assessment: Studies in this section demonstrate how the layered literacies model has informed the development of programmatic assessment.		
Thomas & McShane (2007)	Programmatic assessment	Presents a case study of a rubric developed for the assessment of a technical communication program at Weber State.
Henschel & Melonçon (2014)	Assessment	Presents a program-focused method of assessment by combining Cargile Cook’s layered literacies and Reich’s (1992) symbolic analytic discussion of 21 st century skills.
New workplace contexts: Studies in this section demonstrate the use of the layered literacies framework applied to new workplace contexts.		
Bivens et al. (2018)	Multisensory	Draws on the concept of layered literacies to argue that health literacy is an embodied, multisensory experience, invariably mediated by healthcare technologies.
Angeli (2020)	Embodied/ Multisensory	Demonstrates the presence of Cargile Cook’s six literacy categories as well as multisensory and embodied literacies across a range of writing contexts for Emergency Medical Services (EMS) trainees.

■ Patterns of Engagement with the Framework

In this section, we define and illustrate four patterns of engagement to demonstrate how the framework is applied and expanded in classroom, program, and workplace contexts. These patterns include *checklisting*, *adding*, *deepening*, and *stacking*. *Checklisting* is a means to register the absence or presence of a literacy in the design of an assignment or curriculum. *Adding* and *deepening* are the ways in which the layered literacies framework is expanded. The addition of a literacy category to the framework occurs when new pedagogical or workplace contexts are identified; on the other hand, the deepening of an existing literacy category occurs when there is a need to recognize nuanced demonstrations of the literacy or to recognize other characterizations of the literacy not previously described in the framework. Finally, patterns of *stacking* refer to the description of layering of the literacy categories, which is limited to their co-existence rather than how they are interconnected.

We provide examples of each of these patterns of engagement below and examine their significance and implications. Finally, we show how understanding the patterns of engagement with the framework belies key assumptions about how a framework is structured as well as its purpose and development.

■ Checklisting

One form of engagement we observe is that the framework's reliance on discrete, static categories (i.e., basic, rhetorical, etc.) allows the framework to be used as a kind of rubric. This leads to a checking off of whether or not the six literacy categories are demonstrated in an assignment or in course objectives. An example of a checklist approach to the design of a course is in Cargile Cook's application of the framework to the curriculum for a technical communication capstone course. She notes that the course assignments did not reflect the six literacies, and in an attempt to align the course objectives with the assignments, she states, "[i]n order to incorporate more instruction in the other literacies, new assignments were added to the course content" (2002, p. 19). The checklist approach we note here is Cargile Cook's decision to add more instruction to address the missing literacy so that all six literacies are reflected in the course objectives.

Another expression of a checklist pattern is seen in the desire to demonstrate the presence of the six literacy categories in an artifact. Florence E. Bacabac (2013) offers an example with regards to the students' assessment of an e-portfolio assignment. She ascertains the presence of the six literacy categories in students' reflections as "evidence that this assignment series helped them to develop Cargile Cook's (2002) layered literacies" (p. 106). Checklisting is also demonstrated in studies focused on assessment of curricula or programs (Henschel & Melonçon, 2014; Thomas & McShane, 2007).

While the process of checklisting may be helpful for an approximation of the skills and knowledge an assignment asks students to demonstrate, the complexity of skills and knowledge embedded within a literacy category can become obscured. Furthermore, an understanding of what other pedagogical activities might be needed for students to demonstrate a particular literacy and an understanding of the extent to which the literacy is performed or developed is also not recognized by a checklist approach. In the case of technological literacy, Bacabac (2013) uses the following quotation from a student reflection to prove the existence of the literacy category in an e-portfolio assignment:

[On technological literacy] I feel that the development of my professional eportfolio allowed me reach [sic] one of the course learning outcomes of conceptualizing, designing, planning, and critiquing an informational project. This was my favorite project of the entire semester because I feel it enabled me to use my TECHNOLOGICAL AND critical writing skills, but also my creative side to create a site that fulfilled its purpose. (p. 107)

While it is not clear if the student or the instructor put the word “TECHNOLOGICAL” in all caps, what is clear is that Bacabac is matching the named category to the key term used in the student’s reflection as evidence of the presence of the literacy. In this example, the student reflection identified several activities around which the technological skills were demonstrated. However, in the process of matching the terms to the demonstration of technological literacy, there is no opportunity for a nuanced discussion about other skills and knowledge supportive of the students’ acquisition and demonstration of technological literacy.

The significance of the checklisting approach used in the application of the framework is the potential reductive effect on how we understand students’ acquisition, development, and understanding of particular literacies. An implication of the reductive effect we see is an unresponsiveness of the framework to new contexts. The unresponsiveness of the layered literacies framework is evident when a new literacy cannot be meaningfully incorporated by the framework, as Elizabeth Angeli demonstrates in her case study later in this collection. Although Angeli does not add literacies to the framework, she acknowledges that the six categories of the layered literacies framework do not accommodate the new context of technical communication training that happens in the Emergency Medical Services (EMS) workplace. She states that “despite the wide range of studies that apply the layered literacies framework, less explored is how this framework translates into training courses outside of the university.”

■ Adding and Deepening

There are many examples of the field’s approach to adding new literacies to the existing framework over time. When the framework does not align with what is being taught in classrooms or when the workplace presents new skills and knowledge, there is a need to recognize a new literacy, such as in the case of Kristin M. Bivens and colleagues (2018), who argue for the inclusion of a multi-sensory literacy to account for different skills and knowledges practiced in a biomedical healthcare context. Additional examples of work that add to the existing framework include the work of Tiffany C. Portewig (2004), who argues for the inclusion of visual literacy, distinct from Cargile Cook’s basic literacy, and Mark A. Hannah (2010), who argues that technical communicators would be well served to develop a legal literacy that reflects a “complex understanding of how their work intersects with legal concerns” (p. 5). Doreen Starke-Meyerring (2005) proposes a framework for global literacies consisting of “plural literacies” and drawn on themes she observes in the discourse of globalization (p. 470). More recently, Kathryn Y. Swacha (2018) asserts the necessity for an embodied literacy as “a distinct seventh literacy” (p. 262). Felicia Chong (2016) examines usability as core skills and knowledge in the technical

communication classroom. Although Chong does not explicitly acknowledge usability as a discrete category, her focused examination of usability in technical communication textbooks and syllabi makes explicit “a user-centered approach” she sees implied in the layered literacies framework (p. 12). Similarly, Crystal B. Colombini and Sue Hum (2017) advocate for a more systematic integration of quantitative literacy in the technical communication classroom, noting its lack of inclusion in literacy frameworks, despite their emphasis on multiple literacies (p. 381).

Another way to expand the framework is through the process of deepening a discrete literacy category. Donna Kienzler and Carol David (2003), for example, agree with Cargile Cook’s argument of the necessity to cultivate students’ ethical awareness by having them “identify and explain ethical choices they made in their classroom projects . . .” (p. 16). In their work, they deepen the demonstration of Cargile Cook’s category when they describe how students will learn to identify and explain their choices through exposure to ethical theories and ethical vocabulary along with the case studies and other learning activities that Cargile Cook recommends. Other studies engage with the framework by deepening the range of skills and knowledge that can be demonstrated in a particular literacy category. Jason Swarts (2011) extends technological literacy to include “the behind-the-scenes work of gathering information, collaborating, distributing labor, and gaining buy in” (pp. 274–275), whereas Marjorie R. Hovde and Corrine C. Renguet (2017) identify four levels of technological literacy: functional, conceptual, evaluative, and critical.

At issue with the methods of adding to and deepening of the discrete literacy category is the framework’s ability to maintain a manageable scope. Although these methods provide a more nuanced understanding of a literacy, the ability of the framework to absorb the repeated contributions of the field to provide ever richer understandings of a literacy has the potential to allow a category to become a catchall. As such, the literacy category over time risks encompassing too wide a scope, thereby losing its descriptive power and ultimately its usefulness (e.g., too many activities could be labeled as “rhetorical” or “technological”).

We speculate that over time, the catchall effect will become unsustainable. As the field continues to grow and as new workplace contexts and their relevance to technical communication are identified, the continued practice of adding to and deepening of the categories makes it harder to identify what is critical to the field. If we were to follow Swacha’s example of naming a distinct seventh literacy, what restrains the field from simply adding additional literacies (eighth, ninth, and so on) to the framework? As the framework does not provide any threshold that limits this method, the processes of adding and deepening could continue infinitely. These current practices are actively working against the field’s ability to intentionally define and organize the skills

and knowledge we teach; this could in turn compromise the field's disciplinary identity over time.

■ Stacking

The framework has the potential to think about how a set of skills and knowledge associated with a specific task or series of tasks fosters students' understanding; however, in its application, in many of the examples of scholarship we reviewed, we see little demonstration of the complexity with which literacies are interrelated. A static, linear relationship emerges rather than one that is more interactive.

As a result of the linear relationship between the literacies, the pattern of stacking (like a sandwich) emerges, in which one literacy is stacked upon another and the sequencing of the literacy layers is interchangeable. Jennifer L. Bay and Samantha Blackmon (2016) also observe this tendency in literacy frameworks and suggest that while frameworks such as Cargile Cook's conceptually should demonstrate the interrelatedness of the literacies, in reality, "they are still divided into discrete blocks of skills that can be combined and recombined in a variety of ways" (p. 213). An example of stacking is found in Cargile Cook's (2002) own work. Her example is limited to showing the literacies' co-existence, rather than how they are (inter)connected. On the one hand, she conceptualizes the interrelatedness of the six literacies by showing how one literacy draws upon and incorporates other skills and knowledge. For example, she explains that basic literacies associated with reading, writing, and document design are not simply rules or templates, but rather demonstrations of the student's rhetorical ability to "mak[e] informed decisions about usage, grammar, mechanics, styles, and graphic representations based on knowledge of readers and writing situations" (2002, p. 9). On the other hand, in her demonstration of interrelatedness for a sample interview assignment, she lists each literacy and discusses how the students demonstrate that literacy in the assignment. Because the framework is premised on discrete literacy categories, it emphasizes the coexistence of literacies more than it promotes an understanding of any inter-relationship among the literacies.

The (re)stacking of literacy categories over time has the potential to flatten what is in practice a more multidimensional and integrated relationship in the classroom to a relationship that is more static and linear. This linear conceptualization is counterintuitive to pedagogical scaffolding and understanding how literacies develop and mature over time.

We summarize our discussion of the layered literacies pedagogical framework and the implications of the critiques we raise in Figure 5.1. Given our analysis, the field needs to rethink how to develop a framework to account for technical communication literacies and what we conceptualize so that it can be more responsive to new contexts, accommodate multidimensional relationships among literacies, and ultimately be more sustainable.

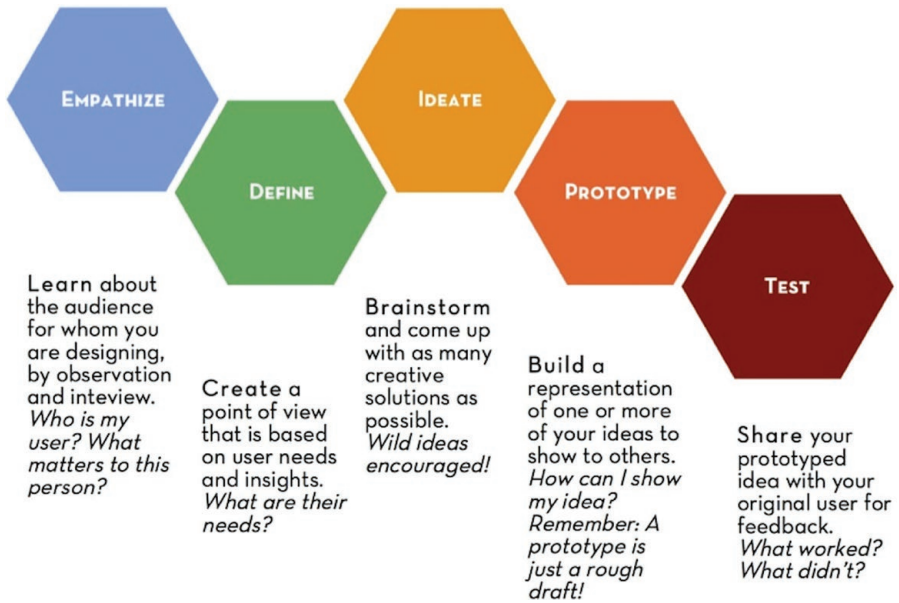


Figure 5.1. Layered literacies framework analytical model.

Rethinking Method: An Inductive Approach to Establishing Pedagogical Literacy Themes

In this section, we demonstrate an alternative approach to thinking about technical communication skills and knowledge. First, we describe the general design and the rationale of an ongoing study that examines what teachers ask students to do in their technical and professional writing courses. We are not presenting the results of this study, but rather using one of the study's questions to demonstrate what emerges when we shift or approach literacies with a different methodological lens. Next, we explain the four stages of iteration which our inductive approach takes and what emerges at the end of each iteration. As we go along, we highlight how our method is a departure from existing literacy framework methods. Finally, we discuss four assumptions about literacy frameworks that are revealed because of the shift in method, and we discuss the implication of these assumptions for the field.

Modeling an Inductive Approach

To demonstrate an inductive method that can lead to technical communication pedagogical literacy themes, we draw data from a corpus from our ongoing study in technical communication pedagogy. In this study, 65 instructors of technical

communication took a 26-question survey.¹ We draw from one question where respondents were asked to name a traditional technical communication and professional writing assignment that they ask their students to complete. Additionally, respondents were asked to identify all the activities that students were required to *do* to complete the assignment they named. In the survey, we defined a traditional assignment as one that asks students to engage with conventional tools, approaches, processes, or all three in the completion of that assignment. We further indicated that traditional could also refer to an assignment that, to the instructor's knowledge, is standard or conventional in the field's mainstream pedagogy and practice.

The responses to this question generated a rich collection of verbs demonstrating an array of activities performed in a technical communication classroom. These verbs formed the basis and therefore the unit of analysis of our iterative, inductive coding method. While many of the studies we reviewed used the classroom as the level of analysis, the verb (as a measure of student activity) provides a departure from other studies that begin their analysis at the unit of the assignment and/or course objectives (e.g., Cargile Cook, 2002; Swacha, 2018; and Bacabac, 2013).

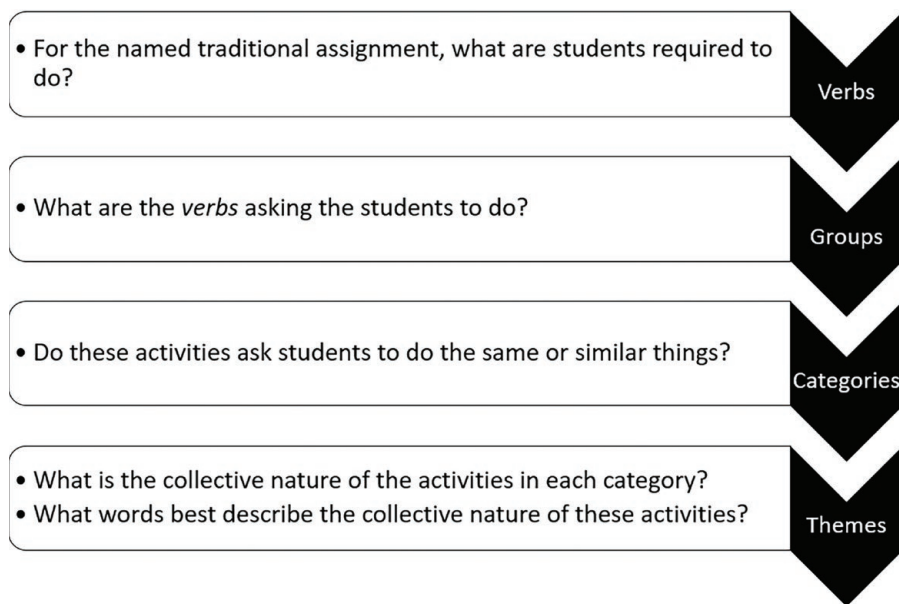


Figure 5.2. Questions asked in the inductive method to move from verbs to themes.

1. The study received IRB approval from the University of Dayton on March 26, 2019.

The inductive process we describe was facilitated by a series of questions to guide how we coded and sorted the data. Each question led us to a new stage of the process, moving from verbs to themes (see Figure 5.2). Our iterative, inductive process demonstrates what is perhaps the most significant departure from existing methods used in the layered literacies framework as the nomenclature (literacy themes) is established at the end of the iterative process rather than at the beginning.

We began our sorting process by writing each activity (e.g., “conduct research using journalistic and scholarly sources, including trade journals”) on a sticky note. As we asked a question and at each of the four stages, we moved the sticky notes around when we came to a consensus to an answer to our question. We expand upon the inductive process in the following paragraphs, drawing on select examples from our data to demonstrate the kinds of patterns we observed.

Iteration 1. In the first iteration, we returned to the following question asked in the survey: “For the named traditional assignment, please indicate what students are required to do.” The use of the verb is significant in this iteration of our method as it allowed us to focus on the multiple doings associated with completion of a single assignment (see Table 5.2, column 2). At this stage, we were interested in understanding what types of activities made up the named traditional assignment.

Table 5.2. Example of first iteration of indicative method

Assignment description	What students were asked to do to complete assignment
Write a professional report with a presentation.	<ol style="list-style-type: none"> 1. Conduct research using journalistic and scholarly sources, including trade journals. 2. Use citation correctly. 3. Write multiple drafts. 4. Use professional formatting.

Iteration 2. Once we had each step written on a sticky note, we asked the second question, “What are the verbs asking students to do?” We understood that the verbs instructors use to describe what students do might embed many more actions than the verb on the surface conveys. According to the respondent (Table 5.2), completing a professional report and presentation assignment entailed conducting research using journalistic and scholarly sources, using citations correctly, writing multiple drafts, and using professional formatting. However, when we asked what the verb “use” is asking students to do, we were prompted to think more carefully about other skills and knowledge a student needed to draw on in order to use a citation style correctly. Using citation correctly entails that a student not only applies a professional convention, but also understands what the legal, ethical, and/or professional standards are that inform the convention. The verb “use” in the context of citation conventions also entails lower order processes such as listing, correcting, and ensuring consistency. Furthermore, this example demonstrates the importance of context in uncovering other tasks associated with what a verb is asking stu-

dents to do. The example “Use professional formatting” uncovers other variations of “use” because the context of use is different. In this context, using professional formatting requires knowledge of document design, visual design, and perhaps even knowledge of software to accurately apply the formatting. Uncovering these implicit skills and knowledge seemed not only to be a step toward acknowledging these under-recognized skills and knowledge, but also a way to understand their interrelationship. The consensus we came to regarding what the verbs were asking students to do allowed us to sort the sticky notes with similar verbs to form groups.

Iteration 3. In the next step, we asked the question “Do these verbs ask students to do the same or similar things?” We recognized that although our groups at this stage were made up of similar verbs, the activities weren’t necessarily asking students to do similar tasks; conversely, we also found that different verbs were indeed asking students to engage with similar activities. For example, a set of activities from different respondents produced a group like “Agree on a proposal idea for groups; Create a team contract; Peer review a document; Hold team meetings.” While all these activities are represented by different verbs, in essence, they all ask students to engage in some act of collaboration. Answering this question allowed us to move from groups to categories.

Iteration 4. Finally, we asked the question “What is the collective nature of the activities in each category and what words best describe the collective nature of these activities?” In this final iteration, we were interested in making observations and finding labels that best described the range of lower order (e.g., “measuring against a standard”) and higher order (e.g., “engaging with information, research, data, and range of sources”) activities to plan, develop, and produce an artifact (Table 5.3, column 3). Answering this question allowed us to identify a list of themes that characterized the range of skills and knowledge described in our data. These themes are noticeably more descriptive than the label of a literacy category (e.g., technological, social). The usefulness of a more descriptive literacy category is its concreteness, which makes it easier to recognize in spaces outside the classroom and more likely for students to transfer to another space (e.g., collaboration describes a more transferable skill than the literacy category “social”). Additionally, these themes are likely more recognizable and connected to workplace competencies.

The inductive approach to coding these activities exposed a wider set of skills and knowledge than a discrete literacy category suggests. Table 5.4 demonstrates an example of how a literacy category can oversimplify, or even erase, the complexity of an activity. For example, we took the list of activities for a named traditional assignment and coded each verb according to whether it was a demonstration of one of the six layered literacy categories. Doing so, our conversation around the verb began to conform to the category (i.e., a basic, rhetorical, social, technological, ethical, or critical literacy) so that it could “fit.” As a result, we focused less on what skills and knowledge the activity was engaging and more on matching the characteristics of the activity to align with the category.

Table 5.3. An example of themes that emerge from the inductive method

Assignment description	What students were asked to do to complete assignment	Themes which emerged from inductive method
Write a professional report with a presentation.	<ol style="list-style-type: none">1. Conduct research using journalistic and scholarly sources, including trade journals.2. Use citation correctly.3. Write multiple drafts.4. Use professional formatting.	<ol style="list-style-type: none">1. Engaging with information, research, data, and range of sources2. Recognizing and understanding and applying standards and conventions (genre, legal, academic, professional) as they relate to artifacts; attention to routine and regularized activities3. Measuring against a standard of quality through iteration; working with peers/users/constituents/audiences to refine product4. Producing final or culminating artifact

On a larger scale, this process of fitting activities into a literacy category sets up the potential for a literacy category to become a catch-all. In the example coded in Table 5.4 for instance, three of the four activities can be coded as “basic.” The breadth of literacy themes uncovered through an inductive process foregrounds more explicitly the interdependence of literacies across different stages of planning, developing, and producing an artifact. The richness of these interrelationships, in turn, brings a different orientation to or raises questions that allow us to think beyond a checklist (i.e., whether a literacy is absent or present) and allows us to think more about development, interdependence, and scaffolding of skills and knowledge across an assignment or assignment sequence, for instance.

We outlined this process to demonstrate how asking a series of questions begins to move us out of methodological stasis. As we disrupt methodological stasis, we are prompted to confront some assumptions that undergird the framework. Four of these unchallenged assumptions about literacy pedagogical frameworks include the following:

Assumption 1. A single, comprehensive framework is desirable or necessary. An assumption that a single, comprehensive framework is necessary means that we are constantly adding or expanding to make our activities fit a framework, instead of exploring other models that might better define and describe our pedagogical practices. A single articulation of a framework may not be sufficiently flexible to respond to the changing and specific cultural and institutional contexts in which we teach technical communication; in fact, it may be constraining the field’s ability to respond to new and emerging contexts, practices, and workplaces.

Table 5.4. A comparative example between the layered literacy categories and the sample themes from the inductive method

Assignment description	What students were asked to do to complete assignment	Themes which emerged from inductive method	Layered literacy categories
Write a professional report with a presentation.	<ol style="list-style-type: none"> 1. Conduct research using journalistic and scholarly sources, including trade journals. 2. Use citation correctly. 3. Write multiple drafts. 4. Use professional formatting. 	<ol style="list-style-type: none"> 1. Engaging with information, research, data, and range of sources 2. Recognizing and understanding and applying standards and conventions (genre, legal, academic, professional) as they relate to artifacts; attention to routine and regularized activities 3. Measuring against a standard of quality through iteration; working with peers/users/constituents/audiences to refine product 4. Producing final or culminating artifact 	<ol style="list-style-type: none"> 1. Rhetorical (conduct research) 2. Basic (use citations) 3. Basic (write drafts) 4. Basic (use professional formatting)

Assumption2. Frameworks and literacy categories are value free. Assignments or course objectives designed with the six literacy categories in mind may promote the assumption that the framework and its literacy categories are “neutral” and “context-less” (Wysocki & Johnson-Eilola, 1999, p. 355). The field’s recent scholarship on social justice, diversity, and inclusion (Jones, 2016; Melonçon, 2017; Walton & Jones, 2013) demonstrates that there are other urgent contexts within and beyond the workplace that require our students to think critically about how power and accessibility impact communication behaviors and practices. Thus, we must recognize that what our students do in our classrooms is often a reflection of the particularities of our classroom contexts, such as the skills and knowledge our students may already have or the community and institutional structures in which we teach. The responsiveness of an inductive approach can be leveraged to recognize the ways in which skills and knowledge that we deem necessary and thus teach are also products of institutional or cultural ideologies.

Assumption 3. The discrete literacy category should be the foundation of a framework. Much of our scholarship engages with the discrete literacy category as an unchallenged, foundational characteristic of the framework. We have not challenged the discrete literacy categories at the level of their definition (e.g., what is the meaning of “technological” literacy?) nor at the level of their inclusion (e.g., why these six literacies?). As a result, the meaning of the categories and their value to the framework are deemed self-evident. This assumption perpetuates the field’s patterns of engagement around adding to, deepening, and stacking of the literacy categories, thereby limiting the usefulness of the framework to guide pedagogical and programmatic choices. The inductive approach provides other ways of identifying and explaining skills and knowledge other than by using a single term (e.g., basic, ethical, etc.). For example, the themes that have emerged from the inductive method are more descriptive and allow for a more sustainable expansion of the framework.

Assumption 4. The presence of multiple literacies assumes a harmonious interrelationship. Our inductive approach shows that the interrelationships between literacies are more complex and intentioned than the stacking of the layered framework suggests. The inductive approach exposes the fact that too often, even if multiple literacies are present in an assignment, there is not sufficient demonstration of their layeredness. As a field, we have not done enough work to explore what the interrelationship among literacies looks like, how they might exist in tension with one another (Angeli, this collection), and why these tensions might be valuable. The interactive process of the inductive method offers us more insight into the complexity and interrelatedness of technical communication activities, and moves us away from flat, linear thinking about classroom activities. Upending this assumption might also push the field to consider if metaphors other than layeredness are needed to interrogate these multidimensional interrelationships.

■ Pedagogical Literacy Frameworks for the 21st Century

Our field continues to experience the growth of technical communication courses and programs, particularly the technical communication service course. Given this growth, we need a framework that is responsive, multidimensional, and sustainable. Therefore, it is timely for the field to ask such questions as the following about our pedagogical literacy frameworks and our engagement with them:

1. Articulation of a framework

Is a single articulation of a framework necessary? Would multiple articulations of a framework erode our field’s identity or strengthen it?

If we as a field explored other frameworks and literacy models, what types of assignments, course designs, and program objectives might emerge or be recognized as a result?

2. Methodology

Who and by what mechanism (i.e., methodology) does our field determine technical communication literacies?

At what point in our field's evolution of practices do we begin to recognize a new literacy (with its own unique demonstrations of skills), and not simply a new demonstration of an existing literacy? In other words, how do we account for emerging literacies?

Can and should our framework account for a hierarchy of literacies? If so, what would be the benefit to the field of a hierarchization of literacies? How would such a hierarchization be organized and rationalized?

3. Assessment

How do we as a field balance the need for assessment with a responsive, sustainable framework, so that the framework does not become "a handy shortcut for covering a wide range of skills, procedure, and practices" (Wysocki & Johnson-Eilola, 1999, p. 360)?

We encourage those in the field—graduate students, instructors, administrators, practitioners, and advisory boards—to consider and adopt these questions as part of an active field-wide research agenda. Doing so can serve to strengthen our disciplinary identity and enrich our pedagogical practices.

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