

# Assessing Equity and Inclusion in Research Teams through Constructive Distributed Work

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We present results from a pilot study assessing the efficacy of a project management and team building heuristic by analyzing a recent grant writing project completed by an interdisciplinary, interinstitutional research group. That heuristic, “constructive distributed work” (CDW), integrates core principles for professional development (developing rhetorical confidence, using a networked model of mentoring, and sustained attention to infrastructure) with team-specific best practices mapped to the functions of collaborative work. The three-dimensional nature of CDW affords both consideration of overall team effectiveness and its impacts on equity and inclusion. The pilot study confirmed the role the research group’s team communication platform played in successful coordination, and demonstrated how the research group’s commitment to rhetorical listening helped keep their collaboration inclusive. This pilot study demonstrates the feasibility of this method for collecting data and coding, and helps to set parameters for future research. We conclude by summarizing possible changes to the CDW heuristic and research design refinements suggested by the pilot study.

Index Terms – Collaboration, distributed work, equity, grant writing, project management, sustainability.

## Introduction

Created in 2015 at Purdue University, the Corpus and Repository of Writing (Crow) has expanded to include institutions all over the United States, including institutions in Arizona, North Carolina, Washington, and Massachusetts. The Crow project is a web-based platform that holds over 11,600 texts created by undergraduate students writing in first-year composition courses, but **Crow is also the team itself**. As such, we emphasize not only what we do, but how we do it. As the team has expanded, we have welcomed scholars from all stages of their careers and from diverse backgrounds. In order to work equitably and effectively in these distributed settings, we have developed an approach for collaboration called **constructive distributed work** (CDW).

Constructive distributed work [1] is a three dimensional approach to project management and team building centered in three core principles: **developing rhetorical confidence, using a networked model of mentoring, and sustained attention to infrastructure**. As we integrated these principles into the approaches, activities, and outcomes that describe day-to day work, Crow developed a number of best practices that enable us to sustain the longevity of our project while also

acknowledging the wellbeing of the researchers within it—especially researchers who often go unrecognized in projects of this sort: graduate and undergraduate students, including those from traditionally marginalized backgrounds. In this way, CDW can help create research teams whose makeup and practices are more effective and more equitable.

As a heuristic, CDW is built on the iteration of design thinking [2], meaning that both CDW itself and teams that use it require regular assessment so that we can make adjustments for future iterations. To do this, we have begun a study to assess the CDW framework and see how Crow activities, approaches, and outcomes operationalize the development of rhetorical confidence, networked mentoring, and sustainable infrastructure. We also seek to discover what influences (both human and nonhuman) affect the implementation of CDW within a team. **How do these influences affect our work, and how can we use our understanding of these influences to help assess and iterate on that work?** The answers to these questions can impact not only our team, but other teams in technical and professional communication (TPC) as they seek to improve the work their teams do and consider utilizing the principles and practices of CDW as they do so. Demonstration of how CDW operates, and how it can be regularly assessed, can also help other TPC teams improve the efficacy and equity of the work that they do.

In this paper, we present the results of a pilot study in which we continue to develop assessment tools. We describe how we gathered textual interaction data and metadata on from a recent grant writing project from our team communication platform, then analyzed it using a variety of coding methods (en vivo coding, utterance function coding, and CDW thematic coding). This preliminary analysis confirmed the role that platform plays in purposeful coordination and demonstrated our commitment to rhetorical listening as a method for keeping our collaboration inclusive. We conclude by describing how the analysis may help us refine the “orientations to work” component of CDW (approach, activity, outcome), and consider how the complexity of the data set will require future adaptations to our research methods.

## Literature Review

### *I. Constructive distributed work: Principles and practices*

The constructive distributed work heuristic uses six best practices built on the core principles identified above (see Figure 1). These six best practices—confronting rhetorical challenges, coordinating distributed work, teaching collaborative writing, establishing professional identities, prioritizing individual learning, and reflecting when adapting—help create opportunities for distributed teams to pay special attention to the growth of individual team members while still balancing the objectives of the team itself. CDW lends itself to user-experience-focused team development and equitable infrastructure creation, both of which are subjects of previous studies that we will discuss in more detail below. The CDW heuristic is best used through iteration: we build teams, team infrastructures, and team processes while keeping in mind the three core principles and six best practices. The team regularly revisits its progress as well as the progress of its individual team members, making adjustments along the way. This element of reflection and iteration is built into the heuristic itself: CDW’s sixth best practice combines adaptation and reflection. Thus, the CDW heuristic can serve as an aid to assessment.

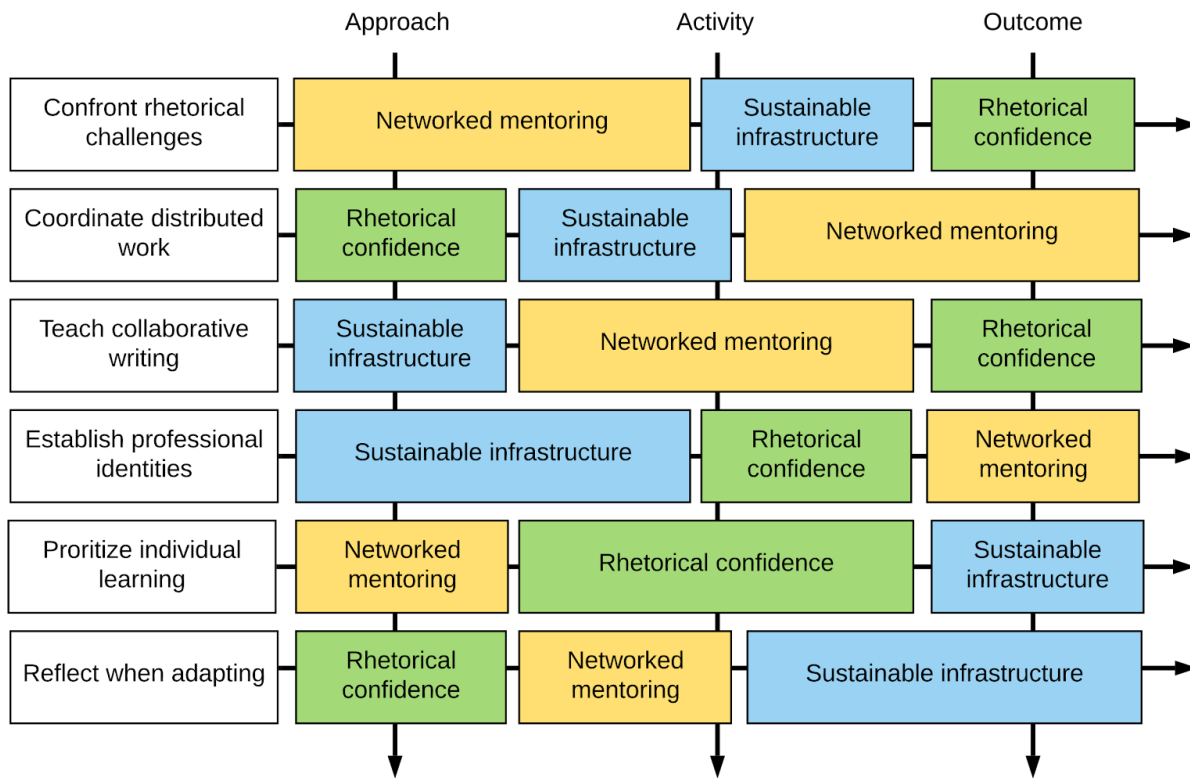


FIGURE 1: GRID MAPPING CROW’S SIX BEST PRACTICES TO OUR CORE PRINCIPLES AND ORIENTATIONS TO DISTRIBUTED WORK [1].

## II. Rhetorical listening as a way to assess CDW

We approach assessment of the CDW heuristic with an understanding that team members who have participated in the Crow project each come to it from a variety of experiences and backgrounds. Knowing that those experiences and backgrounds can enrich both our collaborative work and professional development of the entire team, we seek to frame our team conversations and interactions in ways that can respect and give proper weight to different skills, knowledge, and experience. One way we are doing this is by incorporating Krista Ratcliffe’s principle of rhetorical listening [3].

Rhetorical listening, as defined by Ratcliffe, is a technique for rhetorical invention. Often, researchers use some form of critical reading or listening when they seek to find a way into an established conversation. The standard model is that they read (or listen) with the intent of filling a gap. It’s an inwardly focused kind of reading or listening: “What can I, myself, bring to this conversation?” With rhetorical listening, Ratcliffe suggests that instead of reading or listening to find gaps, people should be reading or listening to understand what other people are actually saying. In this way, individuals and groups find more productive ways to weave differences into conversation in productive ways. This kind of interaction gives listeners access to diverse points of view, increases capacity for understanding, and creates potential to act on that new understanding. But for Ratcliffe, understanding is not the end game. Instead, she suggests, we “stand under” such voices: “Standing under the discourses of others means first acknowledging the existence of these discourses; second, listening for the (un)conscious presences, absences, unknowns; and third, consciously integrating this

information into our world-views and decision-making” [4, p. 206]. In other words, when we practice rhetorical listening, we are not just listening. We are taking action to make sure our teams create spaces for every team member to share their perspectives. When we practice rhetorical listening, we integrate the team members’ contributions into decision making and collaborative writing. It is essential that every person on a team has a meaningful voice. For distributed teams, the asynchronous nature of work can be fertile ground for listening, reflecting, and building connections with difference.

Rhetorical listening originated in the field of rhetoric and composition and has since been taken up by researchers in TPC, often in contexts that emphasize creating coalitions between different individuals and groups [5], [6]. Rhetorical listening has also been discussed as essential to storytelling in technical communication [7]. Pertinent to our purposes here is the incorporation by Moore, Melonçon, & Sullivan [8] of rhetorical listening into their framework for mentoring women in TPC. They note that rhetorical listening allows for affective, embodied mentoring that empowers women’s experiences and voices. We would add that rhetorical listening creates spaces for individuals from a variety of underrepresented backgrounds to share their ideas and experiences within a team.

Rhetorical listening can also help us understand the tacit knowledge that goes into teamwork. By its very nature, tacit knowledge is difficult to articulate, thus when we interview teammates and listen rhetorically, rather than drawing early conclusions or making assumptions, we can better understand the tacit knowledge that underpins and sustains team infrastructure. As we come to better understand how tacit knowledge works in research spaces, we can then design and redesign those infrastructures accordingly. Thus, rhetorical listening is a tool that can help us assess teams and projects in order to make them more equitable, ethical and sustainable.

### ***III. Assessment***

The user experience design mindset guiding Crow platform development extends to outreach and assessment-rich team building. That has included building relationships with writing teachers, researchers, and program administrators at conferences, as well as with students in our own classrooms, to ensure development is guided by actual rather than imagined users. Engaging with this outreach initiative inspired us to evaluate how Crow team members assess weaknesses, strengths, and loopholes within a dynamic collaborative environment. To do this work, we invited Crow researchers to participate in this study, making a commitment to listen to their experiences, reflections, and questions. Participatory design research [9] investigates users’ tacit knowledge and enhances assessment of diverse users in Crow (undergraduate student researchers, graduate student researchers, early career faculty, and principal investigators). Thus, our commitment to UX-driven development results in both effective tools and infrastructure while also creating an inclusive and equitable team surrounding those tools and infrastructures.

In the process of designing our own research methods for assessment, we have borrowed extensively from software development and user experience design [10], which allowed us to evaluate the intersections and diversions between individual contributions and team advancement. We collected user experience feedback from direct observations of activities in our collaborative platforms. Using Quesenbery’s model [11], we conducted interviews with team members, engaging them in collaborative ethnographic assessment by interrogating their experiences of participating in projects. After listening to these Crow researchers, we coded their responses and built user personas based on this collected data. This listening and retelling of stories allowed for infusion of communal experiences, thus helping us to map Ratcliffe’s identifications and disidentifications [4] in our

approaches to constructive distributed work. This collaborative mapping allowed us to reframe the messiness of collaboration in spite of successful outcomes, a participatory approach to tackle problem solving. Consequently, iteration and recursion remain inevitable components of assessment grounded in participatory design.

## Methods

We take an iterative, mixed methods approach to triangulating data in order to understand how our approaches, activities and outcomes within the CDW heuristic align with the lived experiences of Crow researchers. Along with the user personas described in the previous section, we also developed a method for network mapping to help make visible the social and material infrastructures researchers navigate [12]. Along with the methods for data collection we describe in this research report, we are developing a collection of research tools that can guide conversations with individual research participants, as well as our entire team as we assess and consider iterative changes to our CDW approach.

Making our own team a primary research site is a necessary component to assessment using the CDW heuristic. The self-reflexive nature of this methodology requires careful attention to ethics [13]. We are considering carefully what it means to create ethical assessments that take the privacy and well-being of team members into account. Our goal is to combine a set of data-driven methods that center the needs of researchers as we create visibility and tools that help us to attend to the infrastructure that sustains Crow researchers and Crow work. Our data collection process includes informed consent and member checks and invitations to review data at multiple steps in the process. This allows researchers an early voice in what data we use and how it is represented, including them in iterative assessment in every step of the process.

In this research report, we share pilot methods for leveraging the documentation artifacts generated through team members' use of our team communication platform (TCP), Basecamp. TCPs like Basecamp, Slack, and Trello are used to coordinate work across multiple teams and projects. For this pilot study, we selected to-do conversation threads from a single grant writing project. Using the Basecamp API, our developer Mark Fullmer created a method to extract these data from Basecamp to a Google Sheet for analysis, parsing JSON data provided by the API, and arranging it into human-readable form. This included concatenating "Boosts," which are mini-replies designed as a rich form of Twitter "likes" or Facebook "reactions," so they correspond to individual comments.

To narrow the scope of the data, we included only to-do's with 10 or more comments, totaling 218 individual posts from seven Crow researchers. We performed three separate coding passes through this data, each with a different focus. One coding pass used an inductive open thematic categorization with respect to function of utterance, the second used deductive thematic coding with principles from the CDW framework, and the third pass was in vivo coding focusing on the actual words and phrases used in the posts. The relational work, comparison, and connecting across the three coding approaches will allow us to see how the developing taxonomy could help us better assess the CDW heuristic and how we use it in our work going forward.

Because this is a pilot study, our primary focus here is to establish the feasibility of our methods: understanding the logistics of data collection, developing a workable approach to data analysis with a subset of a much more expansive dataset, and reflecting on ethical concerns. Our total dataset is expansive, so working with a smaller data set helps us balance our core research question — building equitable, sustainable research teams — while attending to methodical questions relevant to this pilot

study. Working with a smaller dataset further helps us to refine our coding methods and to develop a coding heuristic we can validate with a bigger dataset. We also believe that sharing our work early and often is the best way to identify questions and generate feedback that can meaningfully steer our work towards the long-term ends of broad applicability we seek.

## Results

Not surprisingly for working primarily with our team communication platform Basecamp, all three coding styles illuminated the large amount of coordination required for a distributed grant-writing project. Seeking confirmation, reporting progress, and responding to feedback requests were frequently visible in thematic and *en vivo* coding when coordination was the primary exigence leading collaborative writing and thinking. The comments that correspond to these codes show not only coordination between Crow researchers but connections between the many documents required for writing a large external grant, both the proposal components themselves and drafts, workfiles, and necessary internal approvals. We also noted that team members incorporated off-Basecamp communications, such as copying emails from university officials, into the TCP for other team members to review. These communications indicate a large amount of coordination happening outside of the TCP, but also showed team members making coordination with external partners visible to other Crow team members. Visibility of communication infrastructure further promotes rhetorical listening and equitable access. Our analysis demonstrated how coordination work changed in nature as the deadline neared, becoming much more fine-grained. Near the end of the project, as coordination shifted from the scale of weeks and days to hours, senior researchers, in particular, often asked repeatedly about workload and availability, and sought to distribute effort or shift it away from graduate students and early career faculty.

Throughout the process, coordination was often directed toward ensuring other researchers had a chance to participate in generation of ideas, decision-making, and review of drafts. For example, comments show researchers waiting for others to offer input or feedback, or “tagging in” others via mentions that send a notification to ensure specific individuals were involved.

Rhetorical confidence is often a best practice we think of in terms of mentoring, that is, helping researchers to develop the confidence to ask questions, participate, and share their ideas freely. In this data set, rhetorical confidence surfaced more as a strategy related to infrastructure and capacity building. This is likely because of the nature of the project and the researchers involved: grant development moves quickly, and in this case, most of the participants were experienced researchers and grant writers. Even so, there were several moments when rhetorical confidence emerged, as those experienced writers encouraged others to draft documents for review and comment. *En vivo* coding shows a large number of briefly delivered compliments and affirmations such as “good call” or “looks great.” As we did in the persona research mentioned above, in our future work, we can interview the recipients of these affirmations to better understand their impact. We also note that including documents in the analysis would help understand these utterances.

Moments of networked mentoring were also limited. Many were associated with ensuring new researchers contributed their brief CVs on time and in the proper format. We do note several instances of networked mentoring when early career faculty had to learn new genres on the fly, in this case, the letters of support and scope of work documents to be filed with local institutional offices as part of the pre-award approval process. In these cases, experienced researchers offered template documents and promised to read and comment on drafts before they were submitted. We also observed some references to the negotiation of roles for the scope of grant work in summaries of meetings written in

comments. Again, including interviews in the future will allow us to identify the traces of these inclusive moves in TCP utterances and shared documents.

Most notable was the high visibility of rhetorical listening in the comments in Basecamp. This was apparent in multiple ways:

- Researchers repeatedly asked “Makes sense?” or something similar in comments, often in conjunction with tagging individual researchers to draw their attention and request their input or affirmation.
- Comments frequently reported on activity outside the TCP, summarizing a “read and comment pass” and gesturing to a Google Doc or discussion in past or future meeting agendas and notes.
- Clarifications on process and feedback often followed Ratcliffe’s template for rhetorical listening quite closely, sometimes being phrased as questions or restatements that resemble her practice of “standing under” by acknowledging, listening, and integrating.

While we see senior researchers leading in rhetorical listening, we note that it is not exclusive to them — suggesting graduate students and early career researchers may be successfully modeling this inclusive practice. This analysis suggests that rhetorical listening can be a method for operationalizing key principles of CDW that support equity and inclusion. In our discussion, we will note several places where this work may have fallen short.

## Discussion

We see two clear take-aways from this pilot study that will further the development of a wider study, and will also help us reflect and iterate on our heuristic approach to CDW.

### *I. Refining our methods for coding and analysis:*

Coding this pilot data confirmed conclusions drawn in our previous research, in that it shows how we use Basecamp for collaborative writing and coordinating work across a distributed team. Veteran Crow researchers (many of the participants in this pilot have worked with Crow since its inception in 2015) use rhetorical listening, and freely share their rhetorical strategies for crafting a narrative that demonstrates the value and potential of further Crow development. Our systems for sharing information, both in concrete ways, like cross linking documents to support collaborative infrastructure, and restating and summarizing work as we hand off a project from one writer to another are evident in the in vivo coding, as well as in the open thematic coding pertaining to the function of utterances. The codes that emerged in this data set give us a solid foundation as we expand to a wider data set with more diverse projects, participants, and data sources. Using the three coding methods we have employed will help us to develop an axial coding approach, which will support conversations with our developer as we consider how further keyword tagging that emerges through in vivo and thematic coding might help us to automate future coding. Automation stems from the need to examine a larger data set efficiently with reduced human labor. This data set will also help us to further curate the sources we draw from and the types of collaborative projects we include. For example, mentoring conversations, and rhetorical confidence building may be more evident when we include the comments on collaborative drafts, and meeting agenda notes as part of the data set. We know we do different kinds of work in different digital spaces. Everything isn’t visible by looking at Basecamp alone.

## II. Reflecting and iterating on the CDW Heuristic:

Figure one, presented above, helped us to articulate the integrated nature of CDW, and think about the relationships between core principles, best practices, and orientations to work.

“Coordinate distributed work” in figure one shows that we think of “developing rhetorical confidence” as our approach. For example, coordinating distributed work means all team members need to feel empowered to participate, share ideas, question assumptions, and suggest changes. We describe “sustainable infrastructure” as the activity we engage in when doing this work. This is evident in the data set we coded here, where many of the deductive activity codes for basecamp to-dos were focused on coordinating the efforts of writers, and navigating the internal and institutional infrastructures necessary for grant writing. “Networked mentoring” is the outcome we seek to achieve when coordinating distributed work, meaning that approaching coordination while developing rhetorical confidence, and focusing our activity on sustainable infrastructure leads to networked mentoring among team members. This structure is evident in our previous persona research related to grant writing, where graduate students and early career faculty spoke in interviews about how coordinating and collaborating on a grant project built a network of support for developing professional expertise and rhetorical confidence in both writing and administration of grants. In developing this heuristic we thought about how we focus time and attention: where should the bulk of our attention go when we are thinking deliberately about integrating core principles, best practices, and orientations to work in a CDW approach?

However, the data we coded here shows a different distribution along the heuristic, and also suggests some potential revisions to how we frame core principles for our team at both the global and project level. While in general we have thought of networked mentoring as the outcome where we focus most of our attention when it comes to coordinating distributed work, coding in this data set suggests that the majority of our attention is in the activities of developing sustainable infrastructure (documentation) that coordinates work. The latter demonstrates how implicit mentoring is made visible in a communicative platform that promotes more of asynchronous than synchronous activity. If we were to redraw the heuristic map given the data we collected from basecamp, it might look more like the distribution in figure 2:



FIGURE 2: DETAIL FROM CDW GRID SHOWING POSSIBLE MODIFICATION BASED ON DATA FROM THIS STUDY.

Further, coding this data set with rhetorical listening as a theory that informs our practice has meant that we are beginning to think differently about what we mean when we say “developing rhetorical confidence” is a core principle of CDW for Crow. Reflecting on this data allows us to ask questions that will help us to revise our future strategies, and how we use CDW as a heuristic. For example:

- 1) How do we incorporate rhetorical listening as part of our understanding of what it means to develop rhetorical confidence?
- 2) What activities, best practices, and mentoring strategies will foster a rhetorical listening approach in our teams?



- 3) If networked mentoring is still a key outcome for us, how do we better include new researchers in teams where veteran members are working against a tight deadline?
- 4) How do we adapt the heuristic, and the outcomes we identify across projects with different team compositions, deadlines and goals.

Analysis of this data from Basecamp, combined with earlier methods for persona development and network mapping will help us to develop a framework for discourse based interviews with Crow researchers. The feedback loops we create with this pattern of assessment will help us to reflect as a team and work to address the gaps, bottlenecks and inequities that develop within a long term, distributed research team like ours.

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