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Who Learns from Collaborative Digital Projects? Cultivating Critical Consciousness and Metacognition to Democratize Digital Literacy Learning

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Who Learns from Collaborative Digital Projects? Cultivating Critical Consciousness and Metacognition to Democratize Digital Literacy Learning

Julia Voss

Collaborative group work is common in writing classrooms, especially ones assigning digital projects. While a wealth of scholarship theorizes collaboration and advocates for specific collaborative pedagogies, writing studies has yet to address the ways in which privilege tied to race, gender, class, and other identity characteristics replicates itself within student groups by shaping the responsibilities individual group members assume, thereby affecting students' opportunities for learning. Such concerns about equity are especially pressing where civically and professionally valuable twenty-first century digital literacies are concerned. This article uses theories of cultural capital and the participation gap to (1) analyze role uptake in case studies of diverse student groups and (2) suggest ways to expand writing studies' current use of metacognition to address such inequities.

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"[S]tudents in a collaborative project may want to divide work so that each does what he or she is most comfortable—or interested—in doing. Although dividing the project this way may be efficient, it can also diminish the range of students' learning. If teachers do not pay careful attention to groups' work habits and dynamic, for example, they may find that a technology-savvy group member on a team has done all the technological work and the other group members have learned very little about new software, editing, or multimodal composing."

—Anne-Marie Pedersen and Carolyn Skinner (2007)

Group projects in print and digital forms offer considerable benefits in the writing classroom, allowing students to tackle larger projects, learn from their peers, and prepare for the professional environments typical of white-collar workplaces. The American Association of Colleges and Universities (AACU) endorses collaboration, noting its benefits to students' "intellectual and practical skills" while "deepening personal and social responsibility" (Kuh 6). Recent writing studies scholarship on collaboration has examined best practices for group composing with digital tools both conceptually (Cum-

mings and Barton) and in terms of specific technologies and pedagogies (Kennedy and Howard; Kittle and Hicks), while other researchers have re-opened the theoretical discussion of collaboration to focus on discursive and intellectual conflict in student groups (Duffy; Restaino). Connecting the digital focus of many recent discussions of collaboration to these considerations of tension in collaborative relationships, I use Pierre Bourdieu's concept of cultural capital to understand how members of diverse digital composing groups assume and perform project responsibilities and offer a critical metacognitive pedagogy to address the inequities that can plague it.

This project focuses on equity of uptake in digital student group projects, a concern highlighted by the composition and location of the class I study here:

- The course was a community-based course, placing students in a historically Black neighborhood and asking them to study local Black churches as sponsors of literacy.
- The makeup of the class was unusually diverse for the predominantly white Research I institution where it was offered, with a majority of non-White and female members, constituting a mixture of undergraduates, graduate students, and non-matriculated community members.
- The course used designated roles (group leader, technology expert, group secretary, community liaison) to manage project work.

The course's Black community context and content drew students' attention to race, while the process of working through the project highlighted additional gender, class, and age factors that shaped how groups distributed responsibilities in ways that writing studies research on collaboration does not fully address.

The students from the case studies discussed below varied considerably in their backgrounds and preparedness for the roles that structured the collaborative digital composing task, with levels of digital literacy ranging from nearly nonexistent (barely using email) to experience in creating multimodal texts. Their varied backgrounds introduced multiple types of capital into the groups, accumulated through different configurations of age, race, gender, educational status, and digital literacy expertise. As the case studies illustrate, some of these capital sources positioned traditionally empowered individuals—White, young, male, or well-educated group members—as "natural" fits for leadership and technical expert roles. Often these sources of capital aligned to reproduce what Bourdieu calls *doxa*, the natural social order that is largely invisible and therefore beyond question due to its pervasive, tacit nature (*Outline*). However, shifts in the project throughout the composing task allowed some members to renegotiate their responsibilities, allowing them to develop

additional digital literacy skills and to exert more control over the project as time went on. Drawing attention to the way capital shapes the group composing process creates opportunities to offset the tendency to structure technology-intensive group work on the basis of *doxa*, offering a means to challenge the conservative propensities of collaboration that John Trimbur notes.[1] Making visible how cultural capital structures opportunity in student composing groups and using reflective (re)allocation of members' responsibilities modifies and/or extends current practices to democratize access to digital literacy learning opportunities in collaborative student projects.

Cultural Capital and Access to Digital Literacies

Many teachers can attest to the fact that students contribute unequally to collaborative projects, especially ones involving digital composing. As indicated by Pedersen and Skinner's epigraph and the following case studies, this has to do with both real disparities in skills and resources and with students' perceived suitability for various project roles, what Bourdieu calls objective and embodied forms of capital ("Forms"). And where Bourdieu focuses on how the French educational system perpetuates class-based achievement gaps by relying on students' inherited cultural capital, my cases draw attention to how—in American higher educational contexts that integrate technology into collaborative work—race and gender also structure opportunity. Dennis Shirley's and David Swartz's analyses of Bourdieu's concept of "misrecognition" show how cultural capital can restrict educational opportunities while seeming to democratize them, explaining how specific pedagogies (such as high-stakes testing, lecturing, and oral exams) empower bourgeois students while subtly disadvantaging working class students. Although collaborative pedagogy represents one of writing studies' challenges to such hegemonic, gate-keeping pedagogies, it still risks re-introducing privilege in other ways because of the tendency to replicate in student groups the inequities found in society as a whole. As a result, some students' inherited symbolic capital allows their assets and experience to be recognized and rewarded while others' are ignored (see Carrington and Luke).

Where digital literacy learning opportunities in collaborative projects are concerned, unequal opportunities mirror what Henry Jenkins and other scholars in communication and sociology call the digital participation gap. Researchers like David R. Brake, Jen Schradie ("Digital"), and Eszter Hargittai and Gina Walejko find that young, White, male, wealthy, and educated individuals much more frequently create content for blogs, social media sites, discussion fora, and other online venues—a divide Hargittai also frames in terms of cultural capital. And this participation gap persists as digital technologies shift toward mobile devices and the mobile Internet, continuing to

hold true for racial and economic minorities likely to be "mobile-only" users. Philip M. Napoli and Jonathan A. Obar and Katy E. Pearce and Ronald E. Rice have found that, as with desktop computers and digital content creation more generally, non-White, female, poor, less educated, and older users tend to engage in more passive activities (such as browsing) rather than production and agentive practices like composing written or multimedia content, participating in discussion fora, or developing games and apps.[2] Use disparities are further complicated by capital-influenced perceptions of technological ability. Where gender is concerned, Hargittai and Aaron Shaw argue that despite increasing technology use across demographic groups, women tend to underestimate their technical expertise compared to men which, they suggest, makes women less likely to compose online digital texts.

As a result of such differences in uptake and self-perception according to race, class, age, gender, and education level, Schradie ("Trend") and Pearce and Rice argue such privileged early adopters benefit not only first but also *more* from digital literacy: "[T]hose with the most resources (status, cognition, education, income, access) adopt first, have and gain more skills, and use more and different activities more effectively. They thus obtain earlier and more benefits, thereby increasing, rather than reducing, knowledge gaps in society" (722). This is particularly important because it limits access to what S. Craig Watkins identifies as the power digital, multimodal literacies confer through "critical thinking, inquiry, discovery, and real-world problem solving. Tools literacy is foundational; design [multimodal] literacy is transformational" (9). Watkins' ideas echo those of the National Council of Teachers of English (NCTE), which argues for writing teachers' duty to help students "Develop proficiency and fluency with the tools of technology" and "Build intentional cross-cultural connections and relationships with others so to pose and solve problems collaboratively and strengthen independent thought" (NCTE "Definition"). The nature of these tasks encourages, even mandates, group work by virtue of the number and variety of skills involved (NCTE "Position Statement"). Writing studies' commitment to promoting collaborative digital composing also reflects the skills twenty-first century employers seek. Studies commissioned by the AACU have repeatedly identified both "staying current on changing technologies" (digital literacies) and the "ability to work effectively with others in teams" (collaboration) among the qualifications employers value most in future workers (Hart Research Associates 2004, 2010, and 2015 reports).

Equity and Metacognitive Writing Development in Student Groups

While group-based pedagogies are widespread in writing classrooms, many of our theories of collaboration are based on studies of professional, not student, writers.[3] The focus this research places on (1) the relationship between

cultural capital and responsibility allocation and (2) the potential for changing group structure throughout the composing task also applies to student collaboration but must be modified to account for differences of context. Students are brought together on an ad-hoc basis: they do not know each other or invest in the group's task in the way that members of self-sponsored professional writing groups do, which Candace Spigelman argues can prevent co-construction of knowledge (a central benefit of collaboration) by foregrounding questions of individual credit. Furthermore, Margaret Tebo-Messina notes that unlike academic coauthors with designated areas of expertise or coworkers with specific job titles, students are "peers," implying equal access to all aspects of a collaborative task. However, especially in digital composing groups, this equality often proves illusory. The lens of gender illustrates how this can play out in collaborative projects. Meg Morgan and Joseph Janangelo describe how gender bias can prevent women's expertise and leadership from being recognized, despite the work they do (Morgan), especially when gender stereotypes create the expectation that female group members will nurture or cover for slacking partners (Janangelo). Studying mixed-gender groups working on writing-intensive website projects, Joanna Wolfe and Kara Poe Alexander find that group members tend to value the technical work the group did (building the website) over the written content that populates it, and that the "computer experts" who took over this technical work were overwhelmingly male and in some cases prevented female partners from working on the group's website. Although writing studies lacks parallel research on differential role uptake according to students' racial and economic background—a gap this project addresses—existing research on the relationships between race, class, and technology (see Banks; Berry, Hawisher, and Selfe; Critel; Medina and Pimentel; Monroe; Nakamura and Chow-White; Scenters-Zapico) suggests the need to investigate the links between race, class, and learning opportunities in digital collaborative projects.

Existing research on structuring group projects to promote equity of opportunity shows how cultural capital, when left unaddressed, can lead students to divide a digital group composing task along lines of existing expertise, defeating the assignment's purpose as a learning exercise. To combat this, technical communication scholars like Wolfe and Alexander describe various methods of project-structuring that make individual responsibilities explicit and (for Wolfe) connect these responsibilities to students' individual learning goals. The approach they advocate closely parallels the roles according to which my case study groups operated and the metacognition[4] students engaged in to consider the demands of the project and assume the responsibilities for which they were best qualified. Scholarship on transfer suggests a partial means for deepening and democratizing the learning opportunities embedded in such

group structuring pedagogies. However, such research rarely discusses group (as opposed to individual) composing and tends to focus on transfer from the past (rather than transfer into the future). Based on their research on the composing practices students transfer from high school to college, Angela Rounsaville, Rachel Goldberg, and Anis Bawarshi recommend metacognitive exercises which discourage students from engaging in "low-road" transfer that simplistically imposes prior experience to new tasks and discourages students from learning new writing skills. Mary Jo Reiff and Bawarshi introduce the idea of focusing on students' "novice" status when drawing on their prior knowledge as a means to discourage low-road transfer, emphasizing that even experienced student writers still have much to learn. In their work on teaching for transfer, Liane Robertson, Kara Taczak, and Kathleen Blake Yancey go further to advocate reflective activities that emphasize what students *do not* already know (as well as what they do), priming students to "remix" prior and new knowledge about composing.

However, asking students to reflect on prior experience and manage their group's collaboration is not enough to fully offset opportunity inequity and limited learning. The case studies highlight how issues of race, class, and age affected the responsibilities different group members assumed. Despite the fact that the task's structure placed students into peer groups that helped them learn new digital composing skills, the roles individual members assumed often replicated race, class, and age hierarchies based on their prior experience, allowing cultural capital to interfere with the course's learning goals. And although turning points throughout the collaborative composing task offered opportunities to redistribute responsibilities, the metacognition used to guide groups' project management was not explicitly tied to their background, future-oriented learning objectives, or rising levels of skill and confidence as the project progressed, resulting in missed opportunities to democratize digital literacy learning.

Detailing the Case Studies

The case studies draw on IRB-approved research conducted in an advanced writing course taught in 2011 at a large, public research institution located in a mid-sized Midwestern city which I joined as a participant-observer. (See appendix for details about the research protocol.) The instructors—Lisa, an endowed university professor, and two experienced community organizers, Sylvia and Donna—brought together undergraduates, graduate students, and community members who collected and analyzed the literacy narratives of members of local Black churches. Sylvia and Donna, both Black women, identified as community members, and Lisa and I, both White women, identified as teacher-researchers affiliated with the university. Instead of meeting

on the main university campus, the class met at a community center located in the same historically Black neighborhood as the churches. Course readings focused on literacy and race, specifically the role Black churches play as literacy sponsors in African American communities. The class was two-thirds female, very diverse in terms of race and relationship to the university, and included a broad age span ranging from traditionally and non-traditionally aged undergraduates to graduate students, working professionals, and senior citizens (see table 1).

Table 1
Racial Identification and University Affiliation of Class Members (real numbers)

Race	
African	1
Black/African American	10
Asian	1
White/Caucasian	3
Relationship to University	
Community Member	4
Graduate Student	2
Undergraduate Student	9

The instructors placed students in groups of four to six, each responsible for completing a two-part collaborative digital composing task:

- conducting audio or video literacy interviews with congregation members and uploading the edited files[5] to an online database
- creating a final project using written, visual, audio, and video content to (1) analyze the role of literacy in the Black church they studied and (2) report on what group members learned during the project[6]

Projects were presented at an end-of-term community sharing night attended by students, interviewees, and other guests.

Scaffolding Group Digital Composing

Because the entire course was designed around this extended group project, the instructors built explicit consideration of group dynamics and project management into the second class meeting, during which they placed students into groups and introduced the course project. Sylvia led the class in a discussion of group work followed by a reflective skills inventory—as Tebo-

Messina, Alexander, and Wolfe advocate—asking students to consider "what it meant to work in a group, and the roles of different participants in the group, and how what you do affects everybody else in the group and affects the outcome of the project." Similar to the standard roles of project manager, subject expert or researcher, and primary writer that Wolfe recommends, instructors designated project-specific responsibilities (see table 2).

Table 2
Group Member Roles

Group leader	Monitors group's progress on literacy interview collection and final report composing process; delegates interviewing and digital composing tasks to individual group members
Technology expert	Serves as in-group technical advisor and trouble-shooter, takes lead in producing final project
Group secretary	Manages paperwork used to document literacy interviews (permission forms, interview metadata forms, notes on content, etc.)
Community liaison	Connects other group members to parishioners at their home church to arrange interviews

The instructors' approach to scaffolding group work reflects the alternating style of group project work Wolfe describes as "layering" face-to-face collaboration with distributed individual work (9-10). Although members chose individual responsibilities, regardless of what role they assumed, each member helped conduct interviews and present their group's final project at the Community Sharing Night. So while the group's digital composing task was not completely compartmentalized, the roles members assumed encouraged them to contribute in specific ways. As Alexander advocates, students were invited to take up roles that aligned with their typical ways of contributing to group projects and their existing abilities, making for an efficient—though problematic—division of labor.

Access to Group Member Roles and Digital Composing Responsibilities

The four roles were not equally available to all group members. The community liaison role was restricted to non-matriculated members of partner churches who joined the class to connect group mates with other parishioners to interview, while the group leader and technology expert roles were more subtly shaped by age, experience, gender, and race. Nia, a Black psychology major in her thirties and mother of two who worked full-time as a retail

manager, emphasized her age and gender as factors influencing both her assumption of the group leader role and her leadership style:

> I was the sole woman in my group. And I just also happened to be the oldest, and you have three boys [her three traditionally aged undergraduate groupmates], and you kind of just need to tell them what to do. They were very good at doing what they were told . . . they said "Nia, just tell us what to do." I said "That works for me. I can handle that." So that's how the team worked.

In addition to age capital, the *doxa* of race closely correlated with educational and professional experience to position some group members as natural fits for the leader role. Charlie—a White high school teacher in his thirties with a master's degree in education who was pursuing his doctorate—explained that he assumed the role of group leader in part because he was the only graduate student, even though the group also contained another adult member (a non-traditionally aged Black female undergraduate). He also emphasized his relevant experience: in recent years Charlie had organized projects in which his students interviewed residents of the neighborhood around their school, the same historically Black neighborhood where the group's partner churches were located. Charlie's experience was especially significant, his group mate Jacob noted, because no one else in the group had ever done an interview-based project before. The maturity and expertise that Nia, Charlie, and Jacob describe provided logical reasons for older, more experienced, better-educated group members to take on leadership roles. But the ways in which these pragmatic concerns aligned age and experience with gender and race foreclosed group leadership to other members, undermining the project's potential to provide *new* learning opportunities. Furthermore, the tendency of these identity characteristics to cluster with other kinds of privilege raises troubling issues of equity.

While age, education, and professional experience shaped which group members assumed leadership roles, race, expertise, age, and student status influenced which group members assumed the technology expert role. Melissa, a White undergraduate in her thirties working full time as a registered nurse while pursuing a bachelor's degree in nursing, described how she ended up as her group's technology expert following Sylvia's reflective skills inventory: "I knew the most about the technology, which was still very little. So I just kind of stepped up and offered to do it." In other groups, relative expertise intersected with other identity characteristics—such as age and full-time student status—to recommend certain members for the technology expert role. Jacob, a White traditionally aged undergraduate double-majoring in Development

Studies and African American and African Studies, explained that he assumed the technology expert role both because of his relative proficiency and because he had the time to learn new technical skills:

> Because in my group, most of the students were either . . . they just did not know how to use technology. Or they were older and busier, or they were grad students. So I had a little bit more lead-time than they did . . . It was like, "Well, I don't really know the technology." So those people went towards one thing. And I was like "Well, I'm not perfect at technology, but I know it better than you."

Although students did not explicitly discuss the relationship between race and technical expertise, it's significant that the technology experts in two of the three groups identified as White (the third was the class's single Asian student), and that Jacob and Melissa were two of only three White students in the class (the third was Charlie, the leader of Jacob's group). The relative expertise Jacob and Melissa describe tallies with long-standing digital divides that fall along race and class lines, underscored by their groups' acceptance of Jacob and Melissa as technology experts. In addition to the racial capital Jacob and Melissa drew on, economic capital also supported their technology expert roles: both were Apple users. Based on the instructors' own technical expertise and the hardware available to them, they chose Apple video-editing software for the class (QuickTime Pro and iMovie). They quickly trained students to use these applications and provided a pop-up classroom lab supplied with MacBook Pro laptops borrowed from Lisa's department. As a result, students noted that proficiency with and unrestricted access to Apple computers were major material issues that affected their digital composing work. Students who were unfamiliar with the Apple interface (as well as with video editing and multimodal composing) struggled to use the provided machines during class meetings. Students who owned their own Apple computers were therefore at a class advantage, given that Apple laptops in 2011 ranged in price from $1000-$2500, compared to an average cost of around $500 for a PC laptop.[7] This material issue points to the ways in which class, as well as race, provided a *doxa* that positioned White and wealthier group members as natural fits for the technology expert role. While ownership of an Apple computer does not correlate perfectly with wealth (both Jacob and Melissa described the hard work required to purchase and maintain their machines), Apple ownership nonetheless served as capital that contributed to certain group members' recognition as technology experts.

Collaboration as a Mechanism for Digital Literacy Learning

To the credit, however, of the project's layered collaborative structure, designated technology experts like Jacob and Melissa did at times help their group mates learn digital literacy skills associated with video recording and editing. As Jentery Sayers asserts in his argument for designating technological expertise in the classroom, group members could and did go to these technology experts for one-on-one, point-of-need instruction. Jacob described how groupmates came to him to learn how to edit video files:

> We all kind of came to this [class] with "We want to learn how to do this. I want to figure it out." It was never like "Jacob, will you edit my videos?" It was like "Jacob, would you show me how to edit these videos?" . . . And I was like, "Yeah, sure, we'll teach you how to do it." That's the one thing about the class that was really trying to give you knowledge, rather than give you the presentation, give you the completed product.

So although Jacob remained the group's go-to technology expert, other members used his expertise to learn technical skills that could enable them to compose digital texts independently. This dynamic suggests one way in which the task's layered structure facilitated the transfer of digital literacy skills between group members, especially since individual group members had to produce some video content independently for the midterm and final projects.

When I interviewed Nia the following term, she was enrolled in an advanced digital media course in which students worked individually to create podcasts, digital stories, and documentaries. When I asked Nia how her experience with the Black church literacy project affected her current work, she focused on multimodal storytelling techniques that combined technical and rhetorical skills, despite the fact that she had served as her group's leader rather than its technology expert:

> I've always loved PowerPoints [the platform her group used for the final project]. So I thought I knew a whole lot about PowerPoints. Until this class. You know, putting videos in, and music and sound. I finally figured out how to put the music with the video . . . I enjoyed the video, I enjoyed the editing portion, trying to figure out where to put the content, creating a story.

Nia and another classmate, Denise, both approached the course project as an opportunity to develop digital composing skills that they continued to cultivate both inside and outside the classroom. Not only did both women enroll in the same advanced digital composing course the next term, but they

both used course projects to begin work on digital family history projects (now complete) that used the media collecting, editing, and composing skills developed during the courses to create self-sponsored projects.[8] Denise, a Black woman in her forties with a doctorate in communication who was working outside academia and served as her group's community liaison, explained how she planned to use the media production skills she learned to preserve her deceased mother's letters as part of her family history project: "And I'm even thinking now how will this be useful to me in the future, by saying OK, I can read my mom's letters. OK, buy a Flip [video] camera . . . And just read those letters and then download the letters, my reading of them, to my computer.'"

Project Turning Points as Opportunities for Redistributing Responsibilities to Expand Digital Literacy Learning

The "agenda" with which Nia and Denise approached the course project—using the Black church literacy project to learn skills they could apply to self-sponsored digital composing tasks—provides a model for scaffolding a more equitable collaborative digital pedagogy. Because of the family history projects they had in mind, Nia and Denise took on multimodal storytelling and media production responsibilities while working on the final project that went beyond the roles they assumed at the beginning of the course. Their experience suggests ways to expand the use of metacognition in collaborative writing pedagogy, moving beyond focusing primarily on prior experience to include students' plans for the future in order to encourage role uptake that facilitates self-directed transfer. This can be done by highlighting turning points in the project as opportunities to reallocate responsibilities, informed by group members' personal, intellectual, and professional goals and by calling students' attention to established relationships between technical expertise and race, gender, and age capital.

A detailed examination of how case study groups navigated the final project illustrates the utility of such a critical, sustained metacognitive approach to collaborative digital composing, structured around the project's roles and its changing demands. While the four roles suited the first phase of the project well, the nature of the composing task shifted as groups finished gathering literacy interviews, completed their individual midterm assignments, and began working on their final projects, which asked groups to create a large, complex digital text (see table 3).

Table 3
Components of Final Project

	Written components	Multimodal components
Introduction	Short introduction summarizing the work the group did throughout the term (150 words)	Short carefully edited video clips of each group member describing 1 aspect of the group's work
Focusing questions	2-3 focusing questions for the project with a short written paper explaining how these questions grow out of 3+ course readings (700 words)	[none]
Church history	Brief history of the church the group worked with and short bios of the parishioners they interviewed (400 words)	1 short carefully edited clip from each interview (10 clips total) and 3-4 clips/photographs depicting the church and its history
Answers to focusing questions	A concise written argument that identifies the group's key observations about how this Black church has influenced the literacy of its members, answering the team's focusing questions (1000 words)	6-8 interview clips that provide evidence for argument's claims
Learning reflection	Group abstract and short descriptions of what each group member learned through collecting literacy interviews (150-word group abstract + 500 words per person)	Video learning reflection from each group member that does not duplicate material in their written piece

The demands of this project were considerable: groups used new formats—media-enriched slideshows or html documents[9]—to generate multimodal texts showcasing their research on the Black church as a literacy sponsor and reflecting on what they learned throughout the project. The project included a set of written documents (totaling 4000+ words) and over an hour of carefully selected, arranged, and edited video. The project was mostly group-authored but included individual components.

The scope of the final project prompted groups to change their structure. As Denise explained:

One person could not do that whole thing alone . . . And so then they started to pool their resources and realized that they were stronger, I think, and more complete together than any of them had been separately. I think that was part of it, that whole notion of the assignment being so large that they couldn't comprehend how they could do it individually.

Jacob's group illustrates how such a turning point in the project can function as a prompt to restructure group work. The early framing stages of the final project were so interdependent that the group members collaborated on them face-to-face, departing from their designated roles: "[Y]ou have to discuss with somebody else, because all the parts of the project are so interrelated, that if I'm doing one part, it affects how somebody else would do another part. So while dividing up labor, the work, you have to really work together at the same time." Furthermore, because some responsibilities tapered off as the focus shifted from conducting literacy interviews to analyzing and reporting on them, the final project provided an opportunity for group members to redefine their roles, although not all groups recognized this or took advantage of it. Group members whose responsibilities related more to conducting literacy interviews could shift to helping design the visual/conceptual framework for the final project and drafting text for the final written report. As Rebecca Schoenike Nowacek and Kenna del Sol argue, although distinct roles can help groups begin work on composing tasks, shifting these roles as the task changes over time lets the group adapt to the task as it develops, illustrating the kind of flexible layered approach to team projects Wolfe advocates and which successful groups like Jacob's employed.

Contrasted with the instructors' explicit discussion of role assumption at the beginning of the term, these mid-point structural changes happened organically within individual groups rather than as a guided, class-wide process. By this point group members knew each other, understood the project's demands, and had new skills acquired during the first half of the course. They were therefore positioned differently to choose which final project responsibilities to take on than they had been at the beginning of the term. However, in the absence of an explicit discernment process about final project roles as learning opportunities, much of the responsibility and opportunity for constructing the final project fell without deliberation to single group members, often technology experts like Jacob and Melissa. These technically skilled group members collected video and written content from their group mates to put together their groups' written documents and multimedia texts.

Jacob emphasized that putting together his group's final project was a simple act of compilation, because the group's vision for the final project was

so cohesive following their face-to-face collaborative design of the project's governing ideas and aesthetic:

> I assembled it, as the technology person, put it all together . . . I was able to just go through different parts of what people had already written, and I was able to quickly summarize what their idea was and just take that and put that into the presentation. Even though I did put the PowerPoint together, it was work I was taking from what they've done.

Melissa's group, however, suffered from conflict during the interview-conducting phase, which resulted in an unclear vision for their project. As a result, her work on the final project involved more than simply combining group members' individually composed texts:

> We each did a portion of the group papers. Then I got kind of stuck in the role of team leader towards the end, so I kind of put it all back together and combined everybody's stuff, and made that final PowerPoint that they showed at the event at the Sharing Night. I had the other girls [members of this all-female group] give me their input and look at it once over at the end, but I kind of put it together.

As Melissa notes, being responsible for combining group members' written and video texts gave her considerable control over her group's final project. This was also true in Jacob's case, although he exercised less of this power because his group already enjoyed such strong consensus. While Melissa's phrasing suggests that she resented bearing the burden of this work, her group mate Denise observed that Melissa did not always trust her group members to fulfill their responsibilities fully or on time, describing Melissa's attitude as "'I have my own schedule, and I have so many things to do that I need to keep on track with my other stuff. And I'm not going to let this group pull me off of my grade in this class, much less throw me off the other things I have to do.'" Similarly, Nia—despite serving as her group's leader rather than its designated technology expert—took responsibility for her group's final project because she wanted to control its quality. Having learned a lot throughout the course about digital composing and multimedia storytelling, Nia edited heavily her groupmates' written and video content to ensure that the project was worthy of parishioners represented in it:

> I did it all. Not that I didn't think they could do it, but I wanted the final presentation to be a tribute to the church. And I didn't trust

anyone else to do that, to really understand how much these people [the interviewees] sacrificed . . .

Because I think when you have too many people in the pot, it looks somewhat disconnected, or disjointed. And that's not what I wanted. I wanted to make sure that we said the mission, we completed the mission that we wanted to, and that it looked like a cohesive assignment.

Digital literacy functioned as valuable capital within these groups: only members who had sufficient technical expertise could build the final project, giving these group members a unique degree of control over the group's grade and the public presentation they gave at the Community Sharing Night. Especially when the group collaborated less on the final project (as in Melissa's and Nia's cases), the work these technical experts did resulted in them developing their own digital composing expertise at the expense of others' opportunity to learn these skills, despite the fact that this happened organically rather than deliberately.

Using Critical Consciousness and Metacognition to Promote Democratic Digital Literacy Acquisition in Collaborative Projects

These shifts in groups' working structures illustrate concerns about equity of learning opportunity in digital collaborative projects. Some group members exerted more control over the composing task than others, setting and enforcing deadlines and altering others' work to fit the final project. And access to these roles, even as they shifted over time, was significantly shaped by the various kinds of capital—age, experience, time, and personal investment—which were the products of the racial, economic, and gender capital available to different group members. One change that would extend the kind of digital literacy learning experienced by students like Nia, Melissa, and Jacob would be to encourage all group members to advocate for their own learning and to take up roles strategically at points *throughout* the project. To promote such counter-*doxa* investment in digital group projects, I call for additional metacognition and reflection at both the outset and at project turning points to emphasize the unequal distribution of digital literacies in society. This approach expands and reconceptualizes the kind of skill inventory that Sylvia led and Alexander and Wolfe describe.

Framing opportunities to learn digital literacy skills and assume leadership roles in terms of accumulating valuable cultural capital that students can use to forward their own causes, careers, and projects emphasizes agency in metacognitive exercises like those Sylvia used to structure the project described here. This approach provides a political and social context for the preparation for

future writing tasks that Yancey, Robertson, and Taczak argue is necessary for transformative learning processes. Scaffolding collaborative group composing tasks with metacognitive exercises that ask students to consider not just their previous experience and inclinations toward group work, but also their future aspirations would encourage more students to identify and act on the investments and connections that characterized the group members profiled here:

> Nia: My sister and I have been thinking of doing some sort of video for my mother's 75th birthday next year . . . I want to incorporate pictures of her as a child and interviews with her grandchildren, her siblings, and other family members. And I don't want it be a video of just interviews. So I know I'm going to incorporate music and maybe other videos. I want to make it this grandiose project.

> Melissa: I think if I would want to get my Master's [in nursing] it would probably help me a lot, the technology aspect of it.

> Jacob: Lisa and I were talking recently, and I'm working on getting an internship first here in town so then I can from there branch out and look for internships abroad. And the one I'm getting here is with a refugee service in here. And we were talking, "You know if you don't get that internship, you should really look into taking graduate credit here [at the university]."

These students adopted a future orientation that motivated them to engage deeply in the course's digital composing task, combining leadership and technical expertise responsibilities during the final phase of the project. Because they approached the project with self-designated learning goals, these students fared better when it came to taking on major responsibilities in the group and dramatically increasing their digital composing abilities. Asking all students to follow this example of explicitly setting such individual learning goals should augment existing uses of skill inventorying and role selection in the structuring of collaborative digital projects to help them function as opportunities for all students to learn personally, professionally, and civically valuable skills.

Assumption of roles at all points of a digital collaborative project also needs to be contextualized by attention to the inequities created by cultural capital. Although transfer scholars typically frame metacognition in individual terms, students should also be called to consider how *doxa* aligns skills and roles with stereotypes about digital literacy. Metacognition throughout the project should include explicit discussion of the participation gap context in which role uptake decisions are made. The case studies here problematize low-road transfer in ways that go beyond limited individual learning, adding partici-

pation gap concerns for members of marginalized groups based on access to learning opportunities in collaborative digital projects. Casting students' prior experience as both expert and novice challenges the idea that only students with pre-existing digital composing and leadership expertise should volunteer for responsibilities, democratizing access to valuable learning experiences. In addition, adapting Yancey, Robertson, and Taczak's "critical incidents" pedagogy of focusing on turning points that challenge or expose the limits of prior knowledge suggests a way to further question the digital literacy *doxa* promoted by the privilege-compounding alignment of prior experience with current project responsibilities. Framing the structuring of group digital composing tasks in terms not just of individual experience and goals but also the wider social context of the participation gap provides an intervention point to promote uptake by individual group members and discourage the replication of existing hierarchies of digital literacy expertise and authority predicated on racial, economic, gender, and age capital. As Elizabeth Wardle argues, using pedagogy to challenge such *doxa* represents one of the most powerful impacts writing instruction can have on students' intellectual, personal, civic, and professional lives. Such critical metacognition recasts the work of project-structuring from mere bureaucracy to a potentially counter-cultural act.

This call to critical socio-technical consciousness can help students be more aware of how cultural capital structures collaborative digital work, shifting how students think of their existing skills and experiences and how they select project responsibilities. And to resist the deficit rhetoric that participation gap research often suggests, this scholarship should be presented alongside research that highlights the long-standing traditions of multimodal and digital composing by people of color (see Baca; Banks; Haas; Medina), women (see Blair, Gajjala, and Tulley; DeLuca), and other groups typically seen as digital divide have-nots. Examining these traditions can help students transfer skills from material and digital cultures they already participate in (but whose salience they may not recognize) by highlighting composing traditions with which students who are placed into participation gap demographic groups can identify.

Acknowledgments

Notes

1. Although Trimbur is primarily concerned with the intellectual conservatism collaboration risks by emphasizing consensus, the tendency to structure groups according to existing social hierarchies on the basis of the "natural" roles suggested by *doxa* poses another threat to collaborative work and learning.

2. Although mobile devices did not factor into this 2011 course (for example, students used instructor-provided Flip video cameras to record interviews, not the cameras on their mobile phones), the repetition of the participation gap in mobile device use illustrates that the capital-based equity issues this piece focuses on persist even as mobile devices increase Internet and digital technology access across racial, economic, gender, and age groups.

3. For example, Lisa Ede and Andrea Lunsford's influential concepts of dialogic and hierarchical collaboration were developed based on workplace coauthorship, and the shifts Kami Day and Michelle Eodice identify between full and partial collaboration were observed in the work of faculty coauthors.

4. The case study instructors, Wolfe and Alexander, do not identify this reflective process explicitly as metacognition. However, the experience inventory they describe (included in the "Team Preparation Worksheet" [Wolfe] and "Project Roles Sheet" [Alexander] that students complete when drawing up their group charter) parallels the techniques of metacognition about prior writing experience found in transfer-oriented writing pedagogies, a link I'm arguing for and expanding on here.

5. Editing digital literacy interviews entailed "cleaning up" the recordings and excising anything interviewees wanted to retract.

6. Students' course grades were based on the final project (group grade), midterm (graded individually), and an individual assessment by the group leader.

7. This platform price disparity persists: 2017 prices for Apple laptops range from $1000-$2800 (see "Laptop Mag"; Loyola "Which Mac"; Piltch), while buyers' guides recommend reliable budget PC laptops or tablet/laptop hybrids in the $300-$650 range (see Murray).

8. For an in-depth discussion of Denise's family history project, see Julia Voss and Lillie R. Jenkins' "Essence of Mom 2.0: Media, Memory, and Community across an Extended African-American Family," forthcoming in Cruz Medina and Octavio Pimentel's *Racial Shorthand: Coded Discrimination Contested in Social Media*.

9. While such multimodal texts have become increasingly common in writing curricula over the past five years, few students in this 2011 course had ever produced such a document. My focus here is on how groups navigated novel digital composing tasks rather than on the specifics of the technologies involved. On this conceptual basis, I offer recommendations for democratizing learning opportunities in digital collaborative projects, rather than discussing how best to teach specific digital composing skills, which change as rapidly as technology changes.

Appendix

The research described here was conducted in 2011-2012 as part of a larger study (including two other sites, a first-year writing class and scholars composing multimodal pieces for a digital edited collection) examining how individuals access material and rhetorical resources to compose digital texts. Specifically, the study investigated how resources gained through contexts influenced by cultural capital (such as family, peer, affinity group, and professional spheres) shape the emergent organizational dynamics in collaborative digital projects and how different methods of labor distribution promote and/or discourage individual members' digital literacy learning. I gathered data using participant observation in the classroom during the term, an online questionnaire administered after the course ended, and a follow-up interview in which I asked students to elaborate on their questionnaire responses. Scripts are available online for questionnaire (https://goo.gl/DpyJLX) and follow-up interview (https://goo.gl/VdMdAK). The quotations incorporated here draw on interviews, but the analysis is informed by all three phases of data collection.

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