

Cultivating Disciplinary Futures in a School-Based Digital Atelier

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For two years, we have observed in an after-school space staffed and resourced to support students' elective learning called the Digital Atelier (DA) at Mullen High School (all school and student names are pseudonyms), a neighborhood school in the southwest side of Chicago, Illinois. Although recent models of interest-driven youth learning (e.g., connected learning; Ito et al., 2013) have paid close attention to designing such online and physical learning environments, examples are primarily located outside of schools (e.g., YOUmedia at the Chicago Public Library). The DA at Mullen offers a unique opportunity to consider teaching and learning within an elective learning space located inside a school. In this column, we articulate the ways that practices observed in the DA point to possibilities for finding and building interest-driven digital pathways to cultivate young people's disciplinary futures. Our focus is on the ways that mentoring practices in this liminal learning space can inform disciplinary teaching and learning in other contexts.

The DA at Mullen High School

The DA is located within Mullen High School, a school with a student population identified as 52% black, 34% Hispanic, 10% white, 2% Asian, 96% from low-income families, and 38% qualifying for special education services. The DA is one element of a whole-school reform initiative called Convergence Academies, a federally funded project that ran from 2013 to 2016, led by the Center for Community Arts Partnerships at Columbia College Chicago in collaboration with Chicago Public Schools. The DA was designed through a participatory design process involving students, administrators, teachers, and digital media mentors (DMMs), who are professional media artists, and led by volunteer architects and designers from Chicago firms (Archeworks New Practice, 2014).

The DA is located in a repurposed meeting room. Several rows of computers are on one side of the room (see Figure 1). On the other side are benches, couches,

Figure 1
The Computer Lab Side of the Digital Atelier



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tables, and a large wall-mounted screen (see Figure 2). Both sides have movable furniture, and the walls are covered in whiteboards, texts, and bookshelves. Additional resources in the DA include LEGOs, robotics and circuitry kits, a 3-D printer, a vinyl cutter, laptops and iPads, music and sound production equipment, and computer software for music and video production. After school, the DA is open to students for about two hours of unstructured time that is supervised by up to three DMMs.

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Figure 2
The Hangout Side of the Digital Atelier



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Portraits of Digital and Disciplinary Teaching and Learning in the DA at Mullen High School

Everyday teaching and learning in the DA involves DMMs weaving among the 15–30 students who choose to stop by daily. The DMMs enforce community guidelines (e.g., caring for people and equipment), teach students how to use the many tools and resources, and present students with progressively complex challenges to scaffold disciplinary learning based on students' interests (e.g., learning skills and practices associated with photography, music production, video game design, or illustration). To better portray DMMs' mentoring practices and describe what typical teaching and learning in the DA looks, sounds, and feels like, we present three vignettes drawn directly from our ethnographic observations. In the vignettes, we identify DMMs and students by race or ethnicity. Although race and ethnicity are not central to the model for disciplinary and digital teaching and learning that we present in this column, we include this information because race and ethnicity mattered in the DA. The mentors were attentive to race and ethnicity in their everyday teaching, looking for opportunities to empower and support students in ways that were responsive to students' racial and ethnic identities, cultures, histories, experiences, and backgrounds.

DMM Mike Connects Elijah With Resources for Learning to Play the Keyboard

Elijah, a black freshman, has been working at the keyboard in the corner of the DA, practicing songs. Mike, an Asian American mentor with some classical

music training whose professional work includes music production, deejaying, and video media production, gives Elijah some pointers on his posture and refers him to a poster hanging above the keyboard that shows a few major and minor chords. Mike connects Elijah with YouTube videos that visually represent chords and arpeggios, and Elijah plays along as the videos run on a screen mounted above the keyboard. Elijah says he wishes he could practice at home, but he doesn't have a keyboard. When the DA closes for the night, Mike takes the poster down and suggests that Elijah should hang it up in his room so he can study it, even when he doesn't have access to a keyboard.

DMM Tom Supports Malik's Interest in Becoming a DJ

Tom, a white DMM, sits at a table with Malik, a black junior who wants to be a DJ. Both have headphones on and are looking at a laptop. In addition to his work as a mentor in the DA, Tom is a DJ who frequently plays sets at several popular clubs and bars around Chicago. In hushed tones, Tom gives Malik critiques of his work, suggesting that before he worries about making a mixtape, he should focus on crafting some original beats. Tom suggests some online resources for Malik to find samples he can use and offers to bring in whatever Malik needs from his own collection of digital music.

DMM Mike Directs Kiara Toward a Potentially New Area of Interest

Usually Kiara, a black sophomore, sings and dances along to music videos on YouTube when she comes to the DA. DMM Mike has tried to capitalize on her interest in dance by sharing videos of more complex dances by young people. He encourages Kiara to join the school's dance team, but she tells him that she already quit the team. One afternoon, Kiara arrives ready to watch more YouTube videos, but some of the activities in the DA that the mentors consider high interest and low complexity (e.g., watching videos, playing video games) require students to pay DA points to participate, and Kiara is all out of them. DA points can be earned by completing more complex challenges; when Kiara asks what she can do to earn points, Mike suggests that she can complete a circuit using the circuitry kits. For the rest of the afternoon, Kiara struggles, although gleefully, and finally completes a circuit with alternating colored lights. She is thrilled. Mike says to her, "See what you can do when you stick with something? You could do anything. That's

engineering. You could get a job doing that.” “I could work at Mullen,” Kiara says. “Kiara, you could work at NASA,” Mike responds.

Digital Pathways and Disciplinary Futures in the DA

Unlike content area classrooms or discipline-specific academic programs (e.g., after-school programs concentrating on computer coding or music), the DA does not have a specific curricular emphasis. The focus of instruction, instead, is on students’ interests, and it is individually tailored as DMMs move among students in the DA. After outlining the methods of teaching and learning employed by DMMs in the DA that support disciplinary and digital literacies, we suggest implications for other contexts of teaching and learning.

A Model for Teaching and Learning in the DA

We argue that all instruction and learning in the DA involves unique production-centered trajectories that cultivate students’ disciplinary futures. As students initiate and engage in expert practices associated with the doing and being of disciplines, they cultivate potential futures for themselves (e.g., Elijah learned musical practices of keyboardists; Malik learned practices of beat production for DJs; Kiara learned problem-solving practices of electrical engineers). One way that the DMMs support these trajectories is by building digital pathways, which are progressively complex processes and methods that support learners in following their disciplinary future trajectories (e.g., Elijah learning the posture and chord progression required to play the keyboard, Malik learning to produce original beats before creating a mixtape, Kiara learning how electrical circuits operate before engineering electrical systems). Pathways are digital in that they draw on digital resources to support the teaching and learning of disciplinary practices (e.g., DMM Mike used YouTube videos to support Elijah in learning to play the keyboard; DMM Tom directed Malik to online resources for sampling; DMM Mike used introductory circuit kits to direct Kiara toward a potential new area of disciplinary interest).

Cultivating Disciplinary Futures

All of the DMMs working in the DA are practicing disciplinary experts (e.g., Mike produces digital media and is a DJ; Natalia is a visual artist; Eve is a photographer). However, the mentors support whatever disciplinary trajectories students are interested in. Identifying and

supporting these disciplinary trajectories, which change from day to day, week to week, or sometimes minute to minute, is the primary practice of mentoring in the DA. We call this work cultivating disciplinary futures.

Cultivating disciplinary futures centers on viewing learning in the DA as the practicing of disciplines through production. When students enter the DA, the mentors inevitably ask, “What do you want to *do* today?” In asking this question, DMMs focus their mentoring on the doing of disciplinary practices (e.g., playing the keyboard, creating original beats, problem solving to create circuits) rather than the becoming of discipline-specific experts (e.g., musicians, DJs, electrical engineers). This resonates with the recent call from Wickens, Manderino, Parker, and Jung (2015) to shift away from an emphasis on identifying with disciplinary experts and habits of thinking toward an emphasis on identifying with a range of disciplinary practices and habits of practice. Cultivating disciplinary futures, then, is an everyday focus on practice and production along trajectories of growth, with DMMs always guiding students toward progressive complexity and next steps.

Finding and Building Digital Pathways

DMMs support students’ trajectories by finding and building digital pathways for learning/doing disciplinary practices. Sometimes students’ interests align with DMMs’ expertise. For example, when a student, Olivia, is interested in photography, DMM Eve draws on her own expertise as a photographer and the resources at hand (e.g., a digital camera, editing software) to scaffold a pathway for Olivia through progressively complex tasks by showing her how to hold the camera and then assigning her to take several photographs of the same object in the DA. When Olivia returns to show Eve her photos, Eve critiques her work and assigns the next task. Such digital pathways are scaffolded in this way by mentors as students develop trajectories of interest. DMMs keep track of these trajectories and discuss progress in their weekly team meetings, collaborating together on ways to improve pathways, introduce new possible pathways, and share successes.

Although DMMs constantly utilize digital resources to support students’ disciplinary learning, including those physically available in the DA (e.g., cameras, circuit kits, electronic keyboard, turntable), the digital nature of finding and building pathways is particularly important in the DA because the Web allows students access to broader networks, especially when there isn’t disciplinary expertise in the DA. For example, if a student wanted to learn more about a topic that wasn’t

within a DMM's expertise, the DMM might direct him or her to the DA's Challenges website, which includes tasks created by DMMs to support learning across a range of practices (e.g., "How to Digitally Draw Hair," "Create Blackout Poetry") that support disciplinary trajectories (e.g., visual arts/illustration, writing). DMMs also regularly direct students to learn from and with other online communities, websites, Web applications, Web-based games (e.g., YouTube, Twitch, CodeMonkey), and badging platforms (e.g., Chicago City of Learning).

Lessons From the DA: Reimagine and Act in Other Literacy Education Contexts

Although we strongly advocate for the design and integration of spaces like the DA in schools, we realize that it is unrealistic to build these in every school. Instead, we believe that there is an opportunity to integrate lessons learned from the DA into other contexts for teaching and learning, including content area teaching. In this section, we suggest takeaways for disciplinary and digital literacies instruction from the DA organized within three categories of action suggested by Manderino and Castek (2016): reimagining apprenticeship models, foregrounding inquiry learning and problem solving, and considering disciplinary production using digital literacies in addition to consumption of disciplinary knowledge.

Reimagine Apprenticeship Models and Reconsider the Expert–Novice Binary

In our observations in the DA, the DMMs were centrally important to cultivating disciplinary futures. The ways that they found and built digital pathways, as opposed to relying on their disciplinary expertise, was vital to supporting learning. Teachers may sometimes feel that disciplinary and digital literacies instruction requires expertise that they do not have. We have learned from the DA, however, that expertise in all domains is not required; rather, an investment in cultivating disciplinary practices, designing pathways of progressive complexity (i.e., helping students figure out how to level up), and using widely available digital resources is key. Educators of all kinds can draw on digital resources to empower young people in their disciplinary learning.

Foreground Inquiry Learning and Problem Solving

For educators, one takeaway from the DA is a model for integrating inquiry learning and problem solving

in digital and disciplinary instruction. Building digital pathways to cultivate disciplinary literacies allows individual students to learn progressively complex disciplinary practices while focused on their own interests. For example, content area teachers could identify students' developing interests in disciplinary practices (e.g., analyzing primary-source documents in history, conducting experiments to test hypotheses in science) and support students in pursuing individual disciplinary future trajectories using digital resources that could include connections to disciplinary communities outside the classroom.

Consider Disciplinary Production Using Digital Literacies

For the DMMs in the DA, teaching and learning *are* producing and practicing disciplinary literacies. Mentors ask what students want to do and guide them toward production. Even when students are in consumption modes (e.g., playing video games, watching videos), mentors suggest ways that students' interests in reading, viewing, and playing can be directed toward producing (e.g., coding computer games, making zines, creating music). DMMs also work to identify ways for students to share their productions with broader communities (e.g., displaying photos at the school entrance, sharing zines at a local festival). Literacy educators can reframe disciplinary and digital literacies instruction as production and the doing of disciplinary practices. This could begin with adopting the DMMs' question, "What do you want to *do* today?" and using students' answers as paths of engagement with content in social studies, science, math, or language arts.

Conclusion

Our observations in the DA have led us to understand one possible model for disciplinary and digital teaching and learning across contexts: cultivating disciplinary futures through digital pathways. This model can guide literacies educators, regardless of their disciplinary backgrounds and contexts for teaching and learning, in supporting production/doing and connecting students to progressively complex digital pathways to cultivate young people's diverse interests and disciplinary futures.

NOTES

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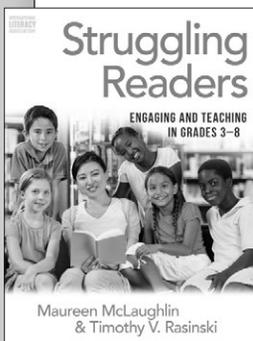
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