

2016

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Smith, Anna et al. "Remix as Professional Learning: Educators' Iterative Literacy Practice in CLMOOC." *Education Sciences*, vol. 6, no. 1, 2016, p. 12.
Available at: <https://doi.org/10.3390/educsci6010012>

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Article

Remix as Professional Learning: Educators' Iterative Literacy Practice in CLMOOC

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Academic Editor: James Albright

Received: 30 October 2015; Accepted: 8 March 2016; Published: 18 March 2016

Abstract: The Connected Learning Massive Open Online Collaboration (CLMOOC) is an online professional development experience designed as an openly networked, production-centered, participatory learning collaboration for educators. Addressing the paucity of research that investigates learning processes in MOOC experiences, this paper examines the situated literacy practices that emerged as educators in CLMOOC composed, collaborated, and distributed multimediated artifacts. Using a collaborative, interactive visual mapping tool as participant-researchers, we analyzed relationships between publically available artifacts and posts generated in one week through a transliteracies framework. Culled data included posts on Twitter ($n = 678$), a Google+ Community ($n = 105$), a Facebook Group ($n = 19$), a blog feed ($n = 5$), and a “make” repository ($n = 21$). Remix was found to be a primary form of interaction and mediator of learning. Participants not only iterated on each others' artifacts, but on social processes and shared practices as well. Our analysis illuminated four distinct remix mobilities and relational tendencies—*bursting*, *drifting*, *leveraging*, and *turning*. *Bursting* and *drifting* characterize the paces and proximities of remixing while *leveraging* and *turning* are activities more obviously disruptive of social processes and power hierarchies. These mobilities and tendencies revealed remix as an emergent, iterative, collaborative, critical practice with transformative possibilities for openly networked web-mediated professional learning.

Keywords: teacher professional development; online; remix; MOOC; cMOOC; networks; connected learning

1. Cultivating Connection in Professional Learning Design

At the completion of the 2014 Connected Learning MOOC, otherwise known as CLMOOC, a facilitator, Joe, sent a newsletter to participants inviting them to reflect on their experiences in CLMOOC. It read, in part:

If you were educated on Earth, you have background in course-like learning and you might feel the temptation to reflect on your making and learning as would suit a course. In the same way, just as you are susceptible to Earth's gravity, you are susceptible to associate learning with courses. Instead, consider your learning in a way you might consider your learning after a camping trip, after a visit to the museum, or after a dance that leaves you sweaty, laughing, and looking for a drink of water.

During the summers of 2013, 2014, and 2015, educators from the National Writing Project network (NWP) designed and facilitated CLMOOC to support educators (both in and outside of

schools) in playing with the design and learning framework of “connected learning.” Based on meta-analysis of research aimed at uncovering the kinds of social relationships, experiences, and access to knowledge and communities that learners need to have in order to thrive in an era when forms of information and social connection are abundant [1], the connected learning framework supports learning as an interest-driven, production-centered activity in networked and peer-based communities. CLMOOC was designed to be a connected learning experience itself, in the spirit that Joe described—an openly networked, self-sponsored learning collaboration built on notions of a production-centered participatory culture [2,3].

CLMOOC was designed as a massive open online *collaboration* rather than a course, as is typically meant by “MOOC”. As a collaboration, its participatory design and connectivist underpinnings [4] distinguish it from many for-profit MOOCs that value efficiency, reproduction, and knowledge transfer. Its technological design and infrastructure were influenced by other connectivist, open, online opportunities in the larger field of cMOOCs (connectivist Massive Open Online Courses), such as #change11, #etmooc, #DS106, #rhizo. As a production-centered professional learning experience, making and remaking things—whether physical or digital, text-based or multimodal—is foregrounded. Thus, as is the case with much of the learning in online spaces, writing is a primary means [5] through which educators engage, co-construct, question, and interact. Taking advantage of what Kalantzis and Cope [6] have argued are the potential affordances of new learning ecologies and the ubiquitous nature of learning, CLMOOC encourages active, multimodal knowledge making in collaborative configurations. As such, the curriculum of CLMOOC is understood as an “event-in-the-making,” unfolding over time across online and offline spaces in unpredictable, incalculable ways [7]. The pursuit of possibility is, perhaps, the key component in CLMOOC’s orientation toward professional development designed for potential rather than outcomes.

MOOC research to date is quite limited in its focus on success as defined by participation and completion numbers, metrics that are often used to warrant offering institutional credit for learners [8]. There are recent calls, however, to engage MOOC research that investigates the mechanics of learning as opposed to the efficiency of scale [9], and that considers the particular contextual features that support differing learning processes [10]. Our research picks up this second generation call to “learn about learning” [9] (p. 7), refusing an evaluative position in favor of descriptive analysis of the relational literacy practices evolving in open online configurations when participants are co-producing a “living curriculum” [7] to construct learning pathways and networked “content”.

To better understand educators’ professional learning through writing and making with others across open networks, this piece examines adult learners’ self-sponsored, collaborative learning pathways via a transliteracies framework [11]—a theoretical methodology sensitive to the social dynamics of producing meaning across texts, contexts, modes, media, *etc.*, which calls for researchers to attend to and trace unfolding mobilities of semiotic activity in context. With this orientation toward activity in CLMOOC, we considered how educators composed multimodal and multimEDIATED artifacts, collaborated in liminal and distal configurations, and distributed their writing across differing digital platforms. We posit that the mobilities and relational tendencies found among making and connecting in CLMOOC, identified in this piece as *remix* activities, exemplified networked participatory learning and promoted functional, critical, and rhetorical approaches to educators’ multiliteracies [12]. As a relational tendency between participants, remix, then, is conceptualized as a point of connection from which one participant or a group of participants connects to the community’s practices, participant structures, and resources, and does *something different* with the tools, processes, structures, and/or accumulated content in the community. This conceptualization underscores the contingent nature of open, online professional development as participant uptake is situated at the intersections of the participants’ and facilitators’ behaviors, experiences, and cultural beliefs about what professional learning is and what it is for. In addition, this study points to the restrictive and reductive nature of professional development designs that either work on a banking model of accumulated knowledge or profess fidelity to a model of learning transfer by seeking to *replicate* as opposed to *remix* community

resources. Instead, remix-as-learning in action points to the potential of cMOOCs as they allow for the emergence of shared learning pathways that reflect the needs and desires of their participants.

To contextualize these aspects, in the following section we will provide additional background information to situate CLMOOC, describing the goals, format, and reach of this professional learning experience. We will then detail where and how we looked for evidence of professional learning within an openly networked space where experiential outcomes were not predetermined.

CLMOOC Design

CLMOOC is aligned with and meant to model principles and practices of connected learning. As a framework for designing educational environments with digitally networked tools, connected learning leverages extant research regarding learning in informal configurations that thread on- and offline, and encourages educational design that promotes production-centered activity in openly networked spaces [1]. It is posited that through these connections, shared interests between learners emerge as individuals deepen connections with each other, with their interests, and with resources. Connected learning acknowledges the transformative potential of learner interest and peer-to-peer learning in educational contexts while gesturing toward academic or professional achievement that builds social and institutional capital. These principles reflect the core beliefs and established social practices of NWP educators and their network of local writing project sites wherein writing, situated in social contexts, is foregrounded as a way to learn how to teach writing. This is both a means of exploring a discipline and a key way that NWP educators turn their practice into shared public performances that foster community building and learning [13,14].

Each summer in 2013, 2014 and 2015, CLMOOC ran over the course of six weeks, and was organized around iterative “Make Cycles”. Different than units or weekly study topics, Make Cycles were open-ended invitations to make, compose, play, learn, and connect. Displacing modes of content delivery typical of professional learning (such as presentations from experts and study groups who read and discuss administration-selected articles), in CLMOOC, making, remaking, and then sharing what was made, how it was made, and reflections on making were central *learning* activities. In this way, CLMOOC builds on the idea of writing as a form of making [15–19] and creates production-centered ways for participants to compose, remix or remake artifacts. Foregrounding iterative writing and “making” in a community of practice, the learning experience was designed to honor teacher expertise and individual interest—characteristics often described as hallmarks of effective professional learning [20–23].

Make Cycle invitations and reflections came in the form of weekly newsletters and were posted on a centralized blog. Other weekly participant structures included a tweetchat on Twitter focused on connected learning principles, and a livestreamed Google Hangout which was called “Make with Me”, during which participants were invited to discuss current makes and composing processes. Descriptions of these and other CLMOOC elements are available at <http://digitalis.nwp.org/making-a-mooc>.

Make Cycles were designed to be open and iterative rather than sequential, meaning a cycle that sparked individual interest and/or generated communal activity may guide the work for longer than a week. Participants could choose to participate in all the cycles over weeks, or come in and out of the cycles as per interest and availability. This means that CLMOOC participation numbers are always estimates. To date, it is estimated that 2950 educators have opted in as participants in CLMOOC, composing and distributing compositions using Twitter ($n = 27743$ tweets (2014 & 2015 inclusive)), a Google+ Community ($n = 2521$ members), a Facebook Group ($n = 239$ members), and personal websites ($n = 156$ submitted to blog feed).

In 2014 and 2015, each Make Cycle was facilitated by NWP teacher-leaders, collaborative teams from partner organizations, and/or writing project site teams who were guided through the design process by educators who had originally imagined CLMOOC in 2013. Roles in CLMOOC are fluid and pathways to leadership are open and varied; facilitators are first and foremost participants who

take on facilitator tasks such as announcing, inviting, encouraging, and supporting fellow participants' making for a particular Make Cycle or activity—all the while “learning alongside” [13] other makers in the MOOC experience. Also in 2014 and 2015, a team of designated “supporters”, NWP educators who had previous experience with CLMOOC, participated within the community and encouraged participant leadership and risk-taking across Make Cycles. Through grant funding in 2014, NWP engaged one full-time staff member (Christina Cantrill, third author) to organize facilitators, supporters, and website content alongside an intern hired to provide support and manage online events. NWP also provided small stipends to individual educators for their work on specific efforts, such as the creation of the CLMOOC Make Bank (described in the findings), and the team of supporters. Those who took on Make Cycle facilitation were existing partners with NWP, and thus did not receive additional grant-supported stipends.

2. Collaborative Remix as Social Learning

2.1. *Remix as Professional Literacy Practice*

We draw on a rich body of scholarship in writing studies and learning science which situates learning as the spontaneous consequence of social practice [24–29]. Our argument extends Knobel and Lankshear's [30] call to consider the potential of remix in learning environments by arguing that remix *is* an embodied practice of learning. It involves the negotiation of meaning across modes, platforms, settings, tools, and media—a transliterate practice that takes into account multiple flows of information from media-rich environments both on- and offline [31]. Thus, we take up remix as a transliterate activity that creates an inflection point in a community as community resources are leveraged in service of participants' interests or desires. In this way, remix is both a noun and a verb. Writing studies scholarship has largely taken up “remix” in one of two ways: first, through a discursive lens that focuses on either intertextuality—the relationships between iterative texts [32,33]—and second, through the social constructionist view that seeks to understand the temporal, context-specific relationships among the composers and the social context in which consumption, production, and distribution occurs [34,35]. Little scholarship, however, has considered the interplay between texts, material, tools, objects, and the histories and power dynamics that condition the processes individuals and communities use to make meaning together [36]. It is this third approach that we find best fits the experiences of CLMOOC participants. Their learning pathways through the openly web-mediated professional community can help us understand the complex relationships between the semiotic, material, embodied, historical, temporal, and contextual nature of composition [37] as a learning activity.

2.2. *Remix as Social Semiotic Practice in Open Professional Learning*

Along with some remix theorists, we, too, understand remix as a kind of cultural glue [38] for a “read/write culture” [33] where the barriers between composing and consuming texts are broken down, creating fluid roles for composers and audiences as the processes of production and consumption are bound up with each other in a networked world [39]. For those who take an object-oriented approach to remix, remix artifacts are defined by their use of “sampling” or the inclusion of existing work in an iterative composition. Others, however, have focused more on the individual know-how and the relationships and community norms among remix composers. Stedman [35], for instance, explores how members of fan communities remix, remediate, mash-up, and use techniques of assemblage or pastiche to create new texts that draw on the iconic symbols, characters, styles, audio tracks, and story worlds of their most beloved television shows, films, music, books, songs and video games. His analysis points to the mutuality of composing in community and privileges acts of composition that are lateral in nature—exploring side-ways plot stories, “drift”-ing [35] (p. 114) through others' materials looking for something that resonates or inspires, associating and connecting as methods to composition—methods that are often not taught or valued in process-based writing classrooms.

Stedman [35] works to construct the remix artist as an agentic figure who can mine the community's digital commons and manipulate both tools and shared texts to produce high-quality remix compositions. He writes:

An *effective* remixer will show proficiency using the technical skills and tools needed for a task, an astute understanding of the expectations and generic considerations of a chosen discourse community, and a well-practiced system for internally and externally evaluating the quality of a given text [35] (p. 109, *emphasis added*).

By focusing here on the necessity of a sophisticated *techne*, thorough knowledge of community composing conventions, and well-developed evaluative heuristics, Stedman constructs remixers as serious, well-versed, deeply disciplined composers who have consumed enough text to be authorized, through experience and enculturation, to eventually participate and produce.

Similarly, Banks [34] positions the African American disc jockey (DJ) as the remix artist *par excellence*, the digital griot who brings competing versions of past and future into a unified present. What differentiates Banks' conceptualization of agency in remix, however, is a more relational understanding of agency. The DJ, Banks argues, is able to compose and transform audience through a deep understanding of the original context and historical significance of the music, through a kairotic sense of timing that she uses to move the crowd up or down, and through a profound connection to the collective community. The DJ's rhetorical power, then, is accessed through her relations with animate and inanimate bodies including other artists, dancers, audiences, and tracks, instruments, samples, and technologies like the record, the turntable, or the crossfader.

Certainly, these remix theorists work to articulate the nuanced and complex intersections of individual cognition and agency, social production, history, and materiality, but their analyses largely demonstrate the ways that scholars situate the unit of study as the individual's practice, the artifact, or the social context of production. Taken together, we argue that these dominant ways of discussing remix constrain the practice as they perpetuate the status quo in four particular ways: (1) by creating unnecessary barriers to participation and production; (2) by coercing composers into believing that consensus is preferable to dissensus in communities; (3) by failing to recognize histories and power dynamics in social composing spaces; and (4) by privileging outcomes and purpose over play, chance, and possibility [40].

While Stedman's [35] move to define "effectiveness" can be seen as a means of legitimizing remix practices for practitioners who are operating under outcomes-focused conditions in the classroom and the academy, this desire to separate effective from ineffective remix practice is problematic. It assumes that a remix artist can only be successful if she has received enough knowledge about the socially-specific tools, practices, relationships, conventions, norms, and histories—perpetuating the notion that learning happens through accumulation and banking [41], not through production-centered activity. This line of reasoning leads us to assume that new-comers and novices can't effectively contribute to a remix community as they can't possibly fully understand the discourse practices of the group and must lurk and consume before making significant contributions.

We see these same kinds of barriers in traditional professional development models as educational experts are often brought in to lecture or present for hours while practicing teachers sit quietly, banking [41] instead of producing, iterating, negotiating, and embodying learning. Stedman, and to some degree Banks, create an unnecessary barrier to the practice of remix, and by interrogating that barrier, we can understand that remix practices aren't inherently innovative or transformative as they can be appropriated like any other practice to maintain rigid hierarchies and gate-keeping practices that deny access to those who lack access to sophisticated knowledge of tools, processes, conventions, histories, and contexts. Remix practices might instead offer more individual and collective transformational possibility if conceptualized as actions of disruption, diffraction, and bifurcation. By focusing on the remix moments that rupture existing power structures and impede the neoliberal flows toward efficiency, effectiveness, and individual competition, we can begin to understand how

remix functions as an inflection point for developing individual and shared agency among MOOC participants, working together to coproduce knowledge and minimize hierarchies in this community of practice.

In this work, we resist the push to fetishize either the remixed object (“ooh, look at this sexy new thing”) or to fix particular processes and behaviors as evidence of effective practice. Instead, we locate notions of emergence at the center of our research and analysis, working to understand how remix is both a practice of production and process of learning. Situating remix as a fundamental way that we make meaning in the world, Prior and Hengst [37] argued that reclaiming “semiotic remediation” allows us to see the ways that knowing has always involved transliteracies navigation—the translation of meaning across modes, media, histories of practice, and domains, during which humans tap into existing semiotic storehouses and remix the available signs to express ideas, thoughts, and experiences. As such, our analysis focused on moments where we “trace the seams” [42] of participants’ social production, articulating remix examples of social rupture as moments of possibility for professional learning.

3. Methods of Inquiry

3.1. Data Collection: Focal Make Cycle

As participant-researchers, we formed as a team through our participation in CLMOOC. In our varied experiences participating, and taking on facilitative tasks for short times, we became increasingly interested in better understanding the literacy practices of the educators engaged in CLMOOC’s self-directed, open-ended activities. Thus, to study activity within CLMOOC, which surfaced across four social media platforms over three years’ time, we tightened our focus to one Make Cycle in 2014, which began on 21 July 2014 with an invitation in a newsletter to make “5-Image Stories.” The choice to look at the beginning of a Make Cycle was due to early inquiry questions regarding how particular prompts and guidance from facilitators played out across the community. This Make Cycle was chosen because the activity was the most readily available and publicly visible across social media platforms at the time of data collection. Additionally, during the selected week, we had each been engaged in CLMOOC primarily as participants, and we returned to collect data regarding participation across CLMOOC, ours included, retrospectively.

For this Make Cycle, our team of six participant-researchers and assistants culled links and text from public posts on Twitter with the #clmooc hashtag ($n = 678$), a Google+ Community ($n = 105$), a Facebook community ($n = 19$), blog posts sent to a communal feed ($n = 5$), and the CLMOOC Make Bank ($n = 21$) using the collaborative, interactive visual mapping software, MindMeister. The culling activity resulted in mapping 370 “makes” that had been publicly shared and distributed, 333 conversations about connected learning and writing-as-making, and 1441 social sharing and favoriting interactions, beginning on 21 July 2014 with the majority of posts and actions made that week. As an open design, posts continued to be made beyond the week’s worth of focal data, such as what is currently the final post in the Google+ Community under this Make Cycle, made by Scott a month after the official end of CLMOOC wherein he remixed the 5-Image Story prompt for preservice teachers in a graduate course he was teaching. Scott posted a link to a make created with Haiku Deck (an online presentation application) with the caption: “Revisiting the #5imagestory. Thinking of using this as an opening day activity: title slide + 5 images + 15 word statement. Start a conversation about an important learning experience”.

3.2. Data Analysis: Mapping Transliterations

In collecting and analyzing the visual map and coded posts, we were guided by the framework and analytics proposed by Stornaiuolo, Smith, and Phillips [11] for analyzing transliteracies phenomena (*i.e.*, mobile, transcontextual, polychronic literacy activity). Methodologically, this framework suggests researchers take a reflexive inquiry stance [43], employing analytical methods in response to the

emergence of meaning *in situ*, rather than pre-determining the relationships and associations that will be accounted for. In addition to emergence, the framework suggests tracing unfolding relationships among mobile literacy phenomena (in our case, makes and posts) across differing spatial and temporal organizations of social practice, or *scales* of activity; *uptake* among participants' work, practices, and ideas, by considering how people and things respond and signal meaning to one another; and *resonance* or the ways practices, ideas, and other phenomena become shared and move across networks, spaces, texts, times, *etc.* We employed the following methods in our rounds of interpreting the transliteracies activity in CLMOOC.

Collaboratively arranging posts visually with the interactive visual mapping tool served as an initial round of analysis [44] (see Figure 1). This entailed attribute coding [45]; each entry on the map included a profile name, timestamp, social media avenue (Twitter, Blog, Google+ Community, Facebook, Make Bank), link to original post, and relevant visual icons as descriptive codes of content and function (more on these codes below). The entries were arranged categorically [46] by type in relation to the Make Cycle and included the overarching categories: 5-Image Stories ($n = 342$), +/- Image Variations ($n = 97$), Through Lines from Other Cycles ($n = 131$), Posts Unrelated to Make Cycle Theme ($n = 147$), Meta-Making ($n = 415$), and Facilitation ($n = 152$). Within these categories, entries were organized by genres or types of posts or makes, then by platforms used to make or distribute, and finally chronologically ordered in interaction sequences (*i.e.*, posts that were directly threaded from an initial post). Finally, we utilized arrows in three colors to visually indicate relationship among posts across time and categories: (1) purple identified explicit connections made by participants; (2) green was used to mark resonance [47] as interpreted by researchers; and (3) blue indicated cross-posting of the same artifact on different platforms. This interactive multimodal arrangement illuminated, as an “unflattened” visual whole [48], how participation in connected learning through writing-as-making unfolded across the various platforms categorically, relationally, and chronologically. It allowed for multiple scalar views of the transliteracies at play [44], as the map could be viewed as a whole, in chronological sequences of interaction at a proximal view, and via the provided links, close, contextualized analysis of particular posts and artifacts.

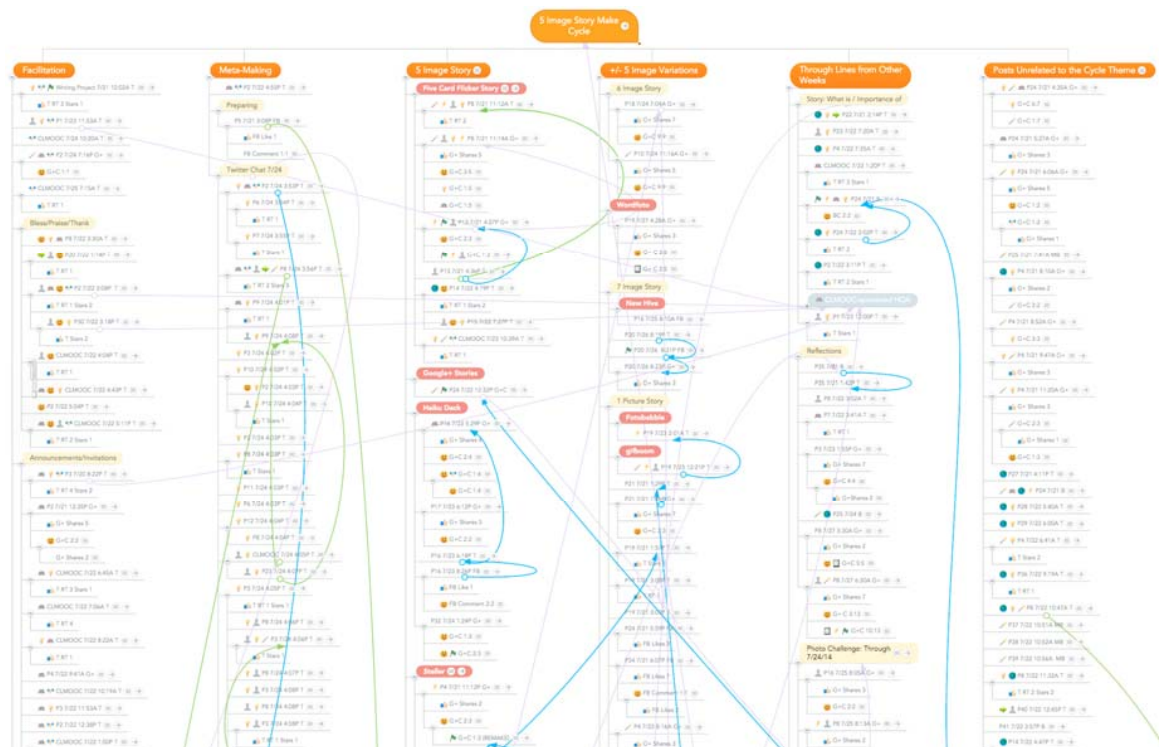


Figure 1. Screenshot of a portion of the focal Make Cycle visual map using MindMeister.

Using visual icons available on the MindMeister platform, we inductively coded posts for content and function [45] as explicitly identified by participants in posts, comment threads, and tweets, as well as those interpreted by the team of researchers (noted as such). Rounds of descriptive coding [45] resulted in the following visual icon codes: bifurcation, resource/tool, system of tech, request/invitation for engagement (including help or discussions), connection to external source, shout-out/share, not-make, bless/thank/praise, and facilitation. In a hyperlinked note, the original text from each post was also saved, along with researchers' descriptive and interpretive notes (as applicable). Throughout the rounds of collection and coding, the lead researcher and an assistant combed through the entries on the map ($n = 1284$ total) and in data outputs of the map in spreadsheet and Word document forms, checking for entry accuracy and validating categories and codes. When questions arose regarding entries, categories, and codes, the team met as an interpretive community [49] to come to consensus.

It was in these rounds of analysis focused on the ways participants composed, interacted and distributed their makes in this context, that the role of remix in mediating interaction and learning became apparent. We also discovered four distinct patterned ways that remix moved and related across the mapped CLMOOC activity. For each of these patterns, research team members chose exemplar cases of composing, interaction or distribution to write and present to the team. It is from these reflective memos [50,51] on the remix activity in CLMOOC that the results in the following section have been organized.

3.3. Ethical Considerations in Open Online Research

While the ethics of conducting writing research in online spaces is still largely undertheorized, McKee and Porter [52] argue that decisions about working with material shared in online spaces largely depends on whether the Internet is viewed as a "space" or a "place". If we construct the Internet as a public space, then our understandings of the materials shared there are largely discursive, meaning that our research takes the form of digital archival research. If, however, we choose to think of the Internet as a collection of webbed places, then we invoke the ideas of communities, cultures, and relationships as well as personal rights and responsibilities [52] (p. 247). As our language used to describe this community of practices indicates, we have chosen to construct CLMOOC as a place where educators converge to build community and deepen their understanding of practice in a digitally connected world. Here, we foreground people and their professional practices, practices that result in the materiality of objects made with digital and analogue tools and circulated both on and off the Internet. Thus, we have worked to honor participants' rights to be connected to the work they produced as "amateur artists" of the Internet [53] by using the CLMOOC communication channels to contact participants whose cases we present in this article. Responding participants either requested to have their online identities remain connected to their professional learning artifacts by affirming the use of their first names, or indicated they would like a pseudonym used. For participants who did not respond to our inquiries, we chose pseudonyms, considering their data as archival and textual since their lack of reply may have indicated that they are no longer actively connecting, participating, or producing in the CLMOOC community. In such cases, following Bruckman's [53] continuum for reporting Internet research, we used a "moderate disguise" of their work by additionally altering the wording of quotations and avoiding the use of images of their makes, both of which would be immediately searchable in an online journal.

Finally, with our orientation toward CLMOOC as a communal space, we followed CLMOOC's social practices regarding roles by participating in the community and subsequently taking on the role of participant-researchers for a time while maintaining participation during our research activities. We strived to make our work as participant-researchers transparent and dialogic by sharing tentative findings and engaging in dialogue about our inquiries into learning in CLMOOC online, as well as offline in conferences with CLMOOC participants in attendance.

4. Results: Remix as Inflection Point

In analysis of the ways CLMOOC participants composed multimodal and multimediated artifacts, collaborated in liminal and distal configurations, and distributed their writing across differing digital platforms, remix became apparent as a primary mediator of making and learning among participants and artifacts. Our analysis illuminated four distinct remix mobilities and relational tendencies among artifacts, posts about makes, and makers, which we refer to as *bursting*, *drifting*, *leveraging*, and *turning*.

The trend we've described as *bursting* or a "burst effect" points to sharp increases in participant production for a short period of time. When a participant posted a remix—either of content or form—of another participant's artifact, bursts of 5–8 rounds of making followed the remix's initial impetus. Bursts most often occurred in relation to tools and types of make; whereas remixes of genres, concepts and approaches tended to *drift* within, outside, and across the week, over cycles and beyond CLMOOC. Stedman [35] discussed *drifting* as a process that fan fiction makers engage to browse through the corpus of digital remixes in centralized digital communities. We use this term in an expanded way to characterize how remixed makes and ideas, in addition to participants, drift within *and* across platforms when people make online in distal communities.

While both *bursting* and *drifting* reflect remix events and motions that underscore the spatio-temporal aspects of composing with others in online learning communities, the next two remix processes, *leveraging* and *turning* more obviously foreground the relational ways that groups organize, function, and assign meaning and value in shared activity. With *leveraging*, participants iterated the resources, communal making processes, and participant structures of CLMOOC in new configurations in order to address emerging interests. With *turning*, the most radical and rare remix, there was a disruption of the operational logic of the community, productively challenging foundational assumptions and unmaking assumed power relations. Although *turning* was rarely observed, it is a key consideration in understanding the affordances of openly networked professional development.

In the following sections, we will highlight illustrative cases for each of these four remix mobilities. The cases are drawn from looking across the activities of multiple participants, including those who had taken up supporting and facilitating roles during this week. By considering the spatio-temporal movements and relational tendencies we witnessed among artifacts and makers highlighted in these cases, we begin to understand remix as an emergent, iterative, collaborative practice for professional learning.

4.1. *Bursting: Velocities of Production and Interactivity*

To kick off the 5-Image Story Make Cycle, cycle leaders distributed a newsletter with an invitation to make a story using five images. The newsletter included two examples (or model texts) and links to resources and apps that were used to make the model texts. Each of the models included five sequential photographs posted side-by-side horizontally and vertically without textual information to explicate the relationship between them. On the day after the newsletter was sent out, Terry, a member of the support team, created a series of remixes of participant Kim's initial 5-Image Story make, which she had posted on her blog. In her blog post, she had responded fairly closely to the newsletter's model texts in that she similarly composed five sequenced photographs. Yet, after the images in the post she asked three questions: "What sense do you make of the story? If you were to put words to it, what would it say? What songs would it sing?" In a series of cross-platform tweets and posts, Terry framed his initial remix of her images using the Zeega platform to sequence the images as a "version" of her initial make. In a subsequent remix using Zeega, which he positioned as a "reply"—an option built into the Zeega platform—he reframed her original images by juxtaposing his own images, animating the images, and layering music across his make. In a tweet that linked to a blog post where he had embedded these series of remixed replies, he wrote: "I didn't find the meaning until I created it for myself."

Terry's remixing via the Zeega platform was the first of its kind in the community, and in the next 4 days 6 people used the platform to compose 11 makes of which 6 were remixes of makes—their own and others'—and remixes of discussion threads regarding posted makes. One remix of a discussion

thread came from Julie who began by remixing images she had posted on Facebook in discussing an upcoming move she was dreading. She posted two different Zeegas about her move over the next two days, and prefaced her second Zeega, titled “Kitchen Memories,” in a Google+ Community post: “The story was spurred by a few comments on Facebook when I posted that I was starting to pack up.”

In the burst of Zeega use, the practice of “replying” by remixing another’s make or interaction emerged, both in the Zeega platform, and more generally, as a rhetorical gesture. For instance, after seeing Terry’s “reply” using the Zeega platform, Simon created a series of Zeegas in order to give himself “time to mess around” with the platform. He posted a Zeega titled *Playing with Fire*, to which both Terry and Sidney “replied” through Zeega and in comments in the Google+ Community. Each of these replies expanded thematically from the previous Zeegas by using selected components, such as the images, music, and sequencing patterns. Across the week, remixing as reply functioned in similar ways to the “reciprocity stance” witnessed by Hull, Stornaiuolo and Sterponi [54] in their studies of youths’ reading and writing orientations in an international social network. With a reciprocity stance, authors assume collaborative relationships of shared texts and abilities, and position compositions as extensions of ongoing conversations, or connections to common understandings across people.

When we consider how the traditional professional development formula for educators prescribes outcomes and hems in creative potential in favor of a predetermined results, this kind of quickly emerging, peer-to-peer remix is compelling. Educators in traditional professional development contexts are signaled to reflect and synthesize their learning targets at appointed moments within a predefined agenda that does not offer the openness (of time or ethos) for interactive creativity to surface. In contrast, the CLMOOC professional development experience was marked by bursts of collective creativity. These bursting behavioral patterns draw attention to how creativity might work within a connected learning environment. In an individuated experience of creativity, inspiration often comes in fits and spurts. The bursting phenomenon in CLMOOC’s communal remix production echoes a similar pattern for collective creativity—an inherent unpredictability characterized by uneven production. Where timing and results are uneven and unpredictable, we begin to see the creative nuances of professional learning among and between networked educators.

4.2. Drifting: Lateral Meandering across Time and Space

In mapping the activity of this Make Cycle, we have apprehended another key pattern, *drift*, which distinguishes the CLMOOC professional development experience from its more traditional counterparts. Drifting describes the qualities of objects’, ideas’, approaches’ and remixed artifacts’ mobilities within and across digital platforms and offline contexts. Differing from bursting, the pace of drifting is slower—evolving from potential connection rather than overtly intended action. Moreover, as a mobility of resonance, drifting is distinct from straightforward cause and effect events, and linear and narrative relationships. Drift is subtle, and can emerge “under the radar”. Remix phenomena drift from, through, and to unintended and unanticipated locations, and their tendencies to drift pushes beyond any notion of assumed “arrival”. The cases of drift that we surfaced in the data, therefore, were dynamic and distributed, and not directly observable in one individual participant’s or artifact’s trajectory in the MOOC. Instead, we more often noticed drifting materializing across the community and Make Cycles in different ways. These tendencies were exhibited in the form and content of makes, as well as in the emerging practices and concepts among the community.

While many participants worked within implicit parameters of the original 5-Image Story Make Cycle prompt—implied in the kick-off newsletter by the facilitator-provided model texts of five sequential photographs—the makes produced in this cycle were characterized by a tendency to drift away from these models, and the resources suggested by facilitators, by way of subtle compositional and distribution gestures. In total we culled 102 unique makes that adhered closely in form and content to the Make Cycle invitation; however, these makes drifted across 23 different platforms or apps like Stellar, Storehouse, and HaikuDeck over the course of the Make Cycle, which itself drifted beyond the designated week to include 5-Image Story posts two months later.

Throughout the Make Cycle we saw other drifts in form and content that had their own related bursts of activity. For example, there was a drift away from the dominant use of sequential static photographic images to alternative image types such as emojis and animated GIFs. Collage, as an approach to image making, also surfaced and drifted across the community, building in resonance [47] as increasing numbers of participants posted collaged makes. For instance, Simon created a collage of five images in order to try out a digital tool, new to him, on his iPhone, called Strip Designer. Mary Ellen who, after commenting that she lives in “a low tech world...no Smart Phone, no Ipad, and no television”, posted two 5-Image Story collages she made using Powerpoint. We also saw drift toward interactive and clickable presentations tools to share images, such as Zeega, but also Stellar, Prezi, Haiku Deck, and Tapestry. Images became part of short videos through the use of iMovie templates and apps such as Storehouse and Animoto, while sound and animations were introduced into still imagery using tools such as Fotobabble.

Remixing the 5-Image prompt included more than variations on content and form. Practices, dispositions, and concepts were also observed as drifting across make cycles and spanning the educators’ digital work across CLMOOC, as well as from outside. As concepts, ideas, and remix drifted across, CLMOOC individuals intertwined their efforts; for example, when Kevin introduced “Five Card Flickr” to CLMOOC from DS106 (<http://ds106.us/>), another open online community, a burst of game-like makes occurred. At the same time, drifting from a previous “Hack your Writing” Make Cycle and her experiences with gaming, Amy took up the dispositional stance on remixing as “hacking”, and “hacked” a Five Card Flickr collection Charlene had posted earlier that day. The making-by-hacking disposition continued to drift through the week and beyond. Simon tweeted a “5 Image Story Hack” displaying reimagined book covers through collage. Kelly categorized an entry she posted to the CLMOOC Make Bank, which was about using Raspberry Pi technology in the library, as “hacking”. We also saw concepts drift in from outside of CLMOOC when, for example, Kim posted an image-centered blog post titled “Contained by Containers?” The focus on containers had been prompted by a challenge at the *Daily Post* [55], a photography blog Kim had also been following, a few days before. In her make she addressed the prompt from the *Daily Post*, while also connecting it to the Make Cycle theme. She began to present photographic weekly challenges to the community in cross-platform posts that indirectly connected to the current Make Cycle—a form of personal transcontextual pursuit.

Looking across this week, we see how drift incited diversification in shared resources and expansion of networked experience. The subtle but essential phenomena of drifting is a compelling characteristic of learning in the CLMOOC experience. The openly networked space can afford first hand serendipitous discovery and learning that is not scripted, and an educator can experience how their own creative objects spur unforeseen movement and sharing. These experiences are very different from the traditional expectations of meeting prescribed standards or curriculum with expected outcomes. When we think about the ways that program evaluation and classroom assessment can assume a certain response to a certain prompt, the drifting phenomenon asks us to anticipate the unexpected, and to be open to connection-making activity outside pre-established frameworks. This goes against the often-expected outcomes in professional development, which tend to seek direct, observable fidelity between professional development topic and implementation in the classroom.

4.3. Leveraging: Remixing Communal Processes and Participant Structures

Across CLMOOC, participants remixed not only on each other’s artifacts and composing tools, but also iterated on the communal making processes and participation structures themselves, indicating that remix literacies extend beyond objects to include socially shared practices and processes. By participation structures, we mean the ways of working together that evolved through CLMOOC. Some participation structures were initially designed by facilitators, *i.e.*, weekly tweetchats and Make with Me Google Hangouts, and others emerged as a result of drifting participant structures and processes introduced from participants’ online practices. These surfaced through patterns of use

and habits within the community, such as Kim's weekly photography challenge that drifted from her activity with the *Daily Post*, and in 2015 was remixed again as a communal #SilentSunday image-sharing hashtag. CLMOOC's Make Bank is an example of a designed structure with drifting roots; it drifted to CLMOOC as a remixable Wordpress theme [56] from CLMOOC facilitators' previous experiences in DS106 (<http://ds106.us/>). It was then leveraged through remix by CLMOOC facilitators in 2014 for sharing and archiving makes throughout Make Cycles.

Over the course of this one week's data these communal processes and participation structures were used by participants in new ways. We have come to call this sort of remix activity leveraging. Leveraging is an appropriation, and at times, repurposing of structures, tools, concepts, *etc.* in service of individual and shared interests. When participants pursue these interests in communities of practice like CLMOOC, they create relationships between materials (textual objects, tools, *etc.*) and bodies (both in and outside of the immediate network) that are leveraged. For instance, while teaching a course about adapting innovative technologies for the classroom in Galway Ireland, CLMOOC participant Chris used the CLMOOC Make Bank to support educators in his course by publishing lesson plans and related journals entries focused on "making". The work from Chris's students was making-oriented and happened to coincide time-wise with the 5-Image Story Make Cycle but the makes themselves were not necessarily related to any CLMOOC Make Cycle. However, Chris's use of the Make Bank was enthusiastically encouraged in the community, observed via a tweet from the CLMOOC handle, "A group of teachers working w/ @[Chris] have created great #maker lesson plans + shared them in our make bank!" The group of educators working with Chris may or may not have had a sense of the overall purpose for which the Make Bank was designed in the context of CLMOOC. However, the Make Bank design fit their needs and they leveraged it in support of work they were doing—contributing to the CLMOOC community through their repurposing.

In another example of leveraging, the question "What is a story?" had drifted across multiple Make Cycles—it surfaced in resonant ways in individuals' blog posts, links to outside resources about "story" shared with the #clmoooc hashtag on Twitter, and it came to dominate a #clmoooc-hosted tweetchat in the previous Make Cycle focused on "Storytelling with Light". In that tweetchat, Michelle, a professional storyteller and teacher educator, who had not been involved in the NWP previous to seeing CLMOOC drift across her digital network, asked if the conversation interrogating the idea of "story" could continue. Michael, a CLMOOC participant who had participated in the 2013 CLMOOC and had then spent the school year remixing his classroom space based on newfound desires for creating a learning-centered classroom, tweeted in response that there should be a special in-depth CLMOOC-hosted Make with Me Google Hangout devoted to the conversation. Rather than a space for focused discussion about an idea, Make with Me's were typically focused on sharing and demonstrating approaches to making and composing. However, the participation structure afforded extended conversations, allowing participants to delve deeply into their shared inquiry questions. In the next tweet, Karen, a CLMOOC facilitator, who had also expressed that she was challenged with the idea of "story" across the weeks, agreed to do the backend work to set up the Hangout through the CLMOOC website. It was then co-hosted by Karen and Michelle with five other participants and facilitators on the screen and several simultaneously tweeting during and after the Hangout. In these ways, they appropriated the Make with Me Google Hangout structure to sustain and grow a participant-driven conversation.

Leveraging of CLMOOC participant structures continued in the next week, during which Michael, bolstered by the experience of arranging the Hangout, requested a final, unplanned reflective CLMOOC tweetchat about connected learning. He asked that facilitation be open and shared among the community. He asked for advice on facilitating chats from those with experience, and set up a Google Doc to crowdsource topics and questions from CLMOOC participants. He not only leveraged the tweetchat to have a conversation he wanted, but he used the resources and processes he had gained access to in his participation to take on a role as a CLMOOC facilitator.

With these kinds of emergent activities, we begin to apprehend how value amassed in this community as commitment and enthusiasm for a new idea or way of working together built, and made way for new learning. In the examples of Chris, Michelle, Karen, and Michael's activity in CLMOOC, we see particular interests, born of individual interactions or personal histories, taken up collectively by the connected community by way of leveraged processes and structures. Leveraging illuminates how one participant's inspiration may convert into the group's will. As a result, unforeseen learning opportunities are manifest and the learning community itself grows rhizomatically out of shared interest and inquiry.

4.4. Turning: Remixing Purposes and Ideologies of a Learning Space

On the fifth day of the Make Cycle, Vera, an infrequent participant in the 2014 CLMOOC, posted a link to a blog post and explained that the link was a shared resource as opposed to a self-composed "make" stemming from the 5-Image Story invitation. Her post read, "Someone else's blog post, not five pictures, no apps used". The link directed community members to a blog post written by someone named Ava who was not otherwise involved in CLMOOC. In the post, Ava considered the divisive issue of immigration, arguing that each individual in the US has an immigrant history, and including current statistics on border crossing with additional links to service organizations who serve immigrant populations.

This submission engendered a burst of commentary and interaction over a day and a half: 4 different CLMOOC contributors—a supporter, and 3 participants, in addition to Vera—contributed to this conversation, producing 11 comments (1500+ words), a "+1" agreement on a comment, and 2 "+name" shout outs to the blog author as an invitation into the conversation. First, CLMOOC supporter Terry recognized and appreciated the contribution with an "Amen", and stated that he found it deplorable when politicians in non-border states use this issue as a rallying point to garner support. Another participant joined the conversation by +1-ing Terry's comment. Next, a frequent CLMOOC participant, Amy, commented that she was sympathetic to the cause but was also concerned about the financial impact on the United States. Vera then countered with a statement indicating that the U.S. should not have meddled in these countries' affairs if it couldn't shoulder the burden of responsibility for that fall-out, and noted that one day, the US might desire the same humanitarian protections. Vera quickly posted another comment in which she tagged both Amy and the blog author, Ava, stating that Ava is a Latina refugee and has a higher empathy level than most when dealing with this issue. In quick succession, Amy responded again, tagging Vera, and restating her prior comment, with an additional note that she could see multiple sides of the issue, including financial impact. Vera then wrote the following comment:

You've stated your opinion twice +Amy. I believe you have a right to that opinion, but I have no interest in continuing this conversation thread. My apologies to +Terry if I sidetracked people. I only wanted to show images in blog posts to connect to this story picture assignment. I didn't mean to ask for opinions on this topic.

Vera then switched the topic of conversation to focus on the use of images in blogging and in writing in general as a way for composer to engage audiences and organize ideas, moving away from the overtly political discussion of content and into a more neutral space of discussing modes as opposed to messages.

Undeterred, both Amy and Terry responded saying that they were not offended or disrupted. Amy tagged Vera again stating that she wasn't offended by the comments and hoped that the sharing of images would promote a discussion of perspectives on those images. Terry rejoined similarly with, "No exception taken by me here. So glad to see folks engaging". He then continued to interrogate the United States' border actions, linking the anti-immigrant tide to issues like the Common Core State Standards, as a sorting and privileging function. He ended with an invocation to elaborate on images because "like quotes, they don't speak for themselves". Encouraging participants to come to

voice and develop positions and stances that must be articulated in nuanced ways. Amy then posted a comment that agreed wholeheartedly with Terry's invitation. Next, Vera shared a link to a petition for child refugee resources and a blog post she composed herself in response to this interaction that curated new posts, news, petitions, activism, and blog rolls around both adjunct labor conditions in the academy and immigration issues. Original blog author Ava rounded out the discussion by thanking participants for taking up her work and detailed a para-curricular workshop she taught with undocumented youth which engaged them in analyzing multimodal texts and producing compositions that worked at the intersections of image and words to articulate experience and promote reflective and empathetic connections.

In this case, Vera's resource sharing redirected conversation away from the more typical discussions around choosing and working with technology tools—processes that Selber [12] would characterize as functional and rhetorical—into more critical discussions about the people, experiences, issues, and power dynamics that are constructed through these tools and texts. These discursive moves, however, are not without self-sensor as we see Vera make what might be called a “bold move” in the community but then work to counter that move by refocusing attention on the features of the text as opposed to negotiating contentious and disruptive meanings in that text. However, her movement, which others in the community joined, supported a critical *turn* in the perceived purposes and practices of CLMOOC.

This example illustrates the tension between embodied improvisational performance and cultural histories of teacher professional development. Historically, teacher professional development has primarily taken up a functional approach to technology [12]; thus, the purpose of CLMOOC is negotiated through previous experience and the historicity of meanings attached to professional learning. It was that seepage from previous experience [57] that acted on Vera as she attempted to smooth over a break from dominant organizing principles and logics. It was not until the CLMOOC-designated supporter, Terry, rejoined the conversation and sanctioned this break that Vera pursued a critical line of dialogue, eventually sharing her own image/story “make” composed on her blog. Thus, it was not Vera's remix move alone that created new learning opportunities for participants; rather, the turning happened as a relational function of artifact sharing and dialogic exchange, exchange that included both novice and experienced participants, each imbued with different kinds of power, that allowed a more critical learning pathway to emerge and subtly refigure the operational logics of the space.

5. Discussion and Directions for Further Research

In bursting, drifting, leveraging, and turning, we can understand how remix, as transliteracies activity, makes and marks a point of differentiation for individual and shared emergence in professional learning communities. Remixes that were more obviously disruptive of power hierarchies and social processes, which we characterized as leveraging or turning, were rare among the interactions in this particular Make Cycle. It was more so that remix drifted and burst among the makes. These less obvious exercises of agentive, creative knowledge making set the stage as precursors—not causal, but as the genesis of new relational dynamics—among which we witnessed moments of leveraging and turning remix. Compelling in this developing CLMOOC remix culture [33] is how these collective remix processes mirror the ways that educators create in the context of teaching. Remix sensibilities and creative practice are inherent in the demands of teaching, as educators design curriculum, assessments, pedagogical sequences, and make hundreds of in-the-moment decisions. And yet, as a primary entry point in typical professional development, educators are disavowed opportunities to produce knowledge or engage as contributors or artists. In CLMOOC, the teacher is first and foremost a creator, and the openness of the environment yields a space for generative remix practices to emerge—practices such as the rhetorical gestures of replying and the dispositions toward experimentation. In these cases, remix was becoming a shared language for playful democratic learning wherein meaning was made in

the act of remixing among peers, such as it was for Terry, and in the moment of experimentation, as it was for Simon remixing with tool, mode, form and genre.

These identifiable moments of creative acceleration in bursting, and the serendipitous connection-making in drifting, highlight how these mobilities of remix are a communal experience made possible through the flexible structure of CLMOOC Make Cycles. In the unpredictable nature of drifting lies an essential modality of “open”—the seemingly free, and often unintended movement across time, space, and object. Contemporary learning environments must avail themselves to the phenomenon of drift as learners—like their educational leaders—research, connect, and gain knowledge in open networks that are not hierarchically organized. In these ways, bursting and drifting remixed genres, concepts, approaches, *etc.* can be seen as key mechanisms in distributed cognition, and an essential foundation for a professional learning environment that engenders emergence and connection in open learning. To plan for such emergence, professional development facilitators can design with flexible structures that allow for convergence, divergence, and aleatory pathways arising in interaction.

These cases further help us interrogate the concept of “open”, as it is clear that “open” is not enough to restructure power relations and unmake the controlling scripts inherited in professional development. Theoretically, the CLMOOC space was “open” for Vera’s iterative action; however, “open” closed down quickly when the intentions of the community were threatened by histories of expert-centered, functionally-facing professional development. Thus, it is necessary for facilitators or others who are vested with social power in these communities of practice to actively perform a “yes and” [58] approach to sponsor [59] leveraging and turning. Administrative and communal moves such as these are essential in seeding professional learning experiences that move learning beyond simple interaction with instruments, individual use of tools, and creation of artifacts, and rather, “turn” them into spaces of shared agency. Moments of transgressive remix and rupture are powerful in that they throw the unspoken assumptions, histories, and community norms into relief, helping us to see the conservative forces at play in organizational histories and the ways that certain bodies or groups have been able to come to power while others have remained on the fringes in professional development programming. These cases, then, exemplify how professional learning communities might authorize remix on the ideological level, turning the space on itself to embrace or even cultivate moments of historical rupture with the goal of fostering critical approaches to educational technologies and literacies.

Limitations and Directions for Further Research

Our data is, of course, limited. It is a depiction of what occurred in CLMOOC—one based on that which was curated from public posts that remained after the event, and the analysis based on the interpretations of a few retrospective participant-researchers. This study does not concern itself with the personal experiences of learners in CLMOOC nor claim to know the learning pathways or outcomes for individuals—both important avenues of research that need pursuit and would inform the interpretation of the present findings. In a climate where educators are often couched as underprepared for 21st century education, their work in CLMOOC can be seen as acts of being—not just “getting” prepared to teach, but leading out in defining what it means to be a connected and professional learner and educator. Through the dialogic remix engagement in CLMOOC, these teacherly performances are encouraged and cultivated as professional leadership and learning. Research focused on the stances, identities, and performances enacted in such openly networked professional learning spaces—particularly as they thread from and to classroom, school, and community—would enrich understandings of educators’ professional learning pathways.

This study, rather, focuses on and provides both a method for engaging inquiry in open web-mediated professional learning spaces, and a set of findings about the processes of connected learning for educators that can be tested in future studies. Further study might work to substantiate these claims about remix in other open online professional development communities; remix the

taxonomies we've constructed from our data analysis; or further interrogate the invitational moves that experienced members of openly networked professional learning communities make to enable more novice members to access and remix community resources.

Finally, it stands to reason that those who self-selected to participate in CLMOOC were already somewhat invested in contemporary technology use, new media practices, and/or National Writing Project professional learning ethos. We can imagine design research that addresses how professional development leaders might expand access to these and other new media practices—not necessarily for those who are already “connected”, but for those who need enhanced support, encouragement, and/or permission to bring their particular interests, concerns, and anxieties into openly networked professional learning contexts. Further, we do not pretend that professional development innovations like CLMOOC are solving problems in new learning ecologies like material access to hardware or robust network infrastructure, or the impact of high-stakes testing environments that teachers are often mandated to work within. We can, however, imagine the benefits of creating experiences in teacher training with technology that focuses on personalized iteration as opposed to reproduction of the status quo.

6. Conclusions

By attending to participants' transliteracies across the openly networked, production-centered, participatory MOOC, we were able to parse out distinct mobilities and relational tendencies that characterized remix practice and learning processes in CLMOOC. Across the playful, responsive bursts of remix, the serendipitous drifting of interests and practices, the purposeful leveraging of CLMOOC's structural affordances, and the collective, critical turns in the professional development opportunity, participants co-produced a “living curriculum” [7] animated by connected learning and connected literacy practices. By encouraging remix as an iterative, collaborative, critical practice—a practice caught up in the interstices between discourses, texts, tools, power structures, and objects—we can glimpse the transformative possibilities for web-mediated professional learning. We can imagine how professional learning communities might embrace or even cultivate historical rupture to open moments of possibility for professional learning by leveraging active, collaborative, multimodal knowledge remixing as a pathway for co-creating critical approaches to technologies and new literacies.

Acknowledgments: The Connected Learning MOOC (CLMOOC) is hosted under the umbrella of the National Writing Project's Educator Innovator Initiative (educatorinnovator.org). Founded 1974, the National Writing Project is a peer-based cross-disciplinary professional network of K-University educators in local communities at 186 colleges and universities across the United States. Christina Cantrill is a paid employee of the National Writing Project. We are grateful for the assistance of Monica Multer throughout the research process and Robert Rivera-Amezola in the preparation of this manuscript.

Author Contributions: Anna Smith oversaw the research design, data analysis, and manuscript preparation; Stephanie West-Puckett contributed the framework for remix. All authors participated in data curation, analysis, and manuscript preparation.

Conflicts of Interest: The authors declare no conflict of interest.

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