RADICAL TEACHER

A SOCIALIST, FEMINIST, AND ANTI-RACIST JOURNAL ON THE THEORY AND PRACTICE OF TEACHING

Radicalizing the Digital Humanities: Reimagining Environmental Justice Research and Teaching

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PHOTOGRAPH OF MEXICAN-AMERICAN YOUTH AT CAMP NORTH RIM OF GRAND CANYON NATIONAL PARK, COMPANY 818, CIVILIAN CONSERVATION CORPS, RECORD GROUP 35, NATIONAL ARCHIVES, COLLEGE PARK, MARYLAND.

Environmental Justice Collective

In Spring of 2017, a collective of students and their professor was awarded a grant to create a digital humanities research lab by the College of Humanities at our university. The "Digital Environmental Humanities Lab" is intended to provide undergraduate students with the opportunity to collaborate with a faculty member on a digital humanities research project. For this initial project, students were asked to code information related to environmental justice research using digital scanned copies of primary sources. The professor who led the research lab digitized copies of archival materials that pertained to Chicana/o enrollees in the Civilian Conservation Corps (CCC established in 1933). Lab members and their professor shared in the co-authorship, analysis, and editorial work for this article about how mind maps were used to visualize data to incorporate digital tools into environmental justice research.

Students enrolled in this lab had completed environmental justice courses taught by the professor who led the environmental justice lab. Additionally, each of the students was a self-identified Chicana/o first-generation student who possessed no research experience in a formal lab setting. All students involved in the lab noted that after taking their environmental justice courses, one of their frustrations had been the lack of knowledge about Chicana/o involvement in conservation movements that preceded the Civil Rights Movements of the 1960s. In order to gain a complex understanding of Chicana/o involvement in the CCC, students relied upon state archival records collected at the National Archives as a means of reimagining Chicana/o relationships to the environment. To engage the imagination, students argued that it was essential to code data using digital humanities tools that were not traditionally used in the social sciences and humanities: mind maps. A mind map is a diagram that allows you to visualize information using brainstorming techniques. XMIND software is an application that enables students to sketch, analyze and visualize a thought process on ink or in a digital format.

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The students were, as a group, invested in interdisciplinary theories and methods influenced by ethnic studies. They worked alongside their professor to shape the direction of the research. Initial questions concerned: 1) the lack of diversity in U.S. national memory as it pertained to the U.S. national parks and 2) the role urban working-class people of color have played in shaping the contours of environmental justice. Students argued that it was necessary to utilize CCC archives as inspiration to transform the dialogue about environmental justice as it pertained to Chicana/os, since studies about conservation, climate change, and mainstream environmentalism were dominated by whiteness.[1] To take the most recent example, in the first seven months of his administration, President Donald J. Trump has withdrawn the United States from honoring the Paris Climate Agreement, authorized drilling oil at the Standing Rock Indian Reservation, accepted the resignation of Environmental Protection Agency's Chief Environmental Justice strategist Mustafa Ali, and pledged the rollback of a number of environmental protections in the name of U.S. job growth. Our collective views his most recent policy changes as an assault on poor working-class families and American Indian communities. We view environmental justice research as significant because it recognizes the cultural capital that communities of color possess when it comes to climate resilience. Research on climate change has yet to recognize how communities of color remained resilient throughout U.S. history in dire circumstances including slavery, colonization, and imperialism.[2] Thus, when we recognize the contributions of environmental justice activists who come from culturally diverse backgrounds we illustrate the ways in which urban working-class communities belong in leadership positions that will help save our planet.

In lab discussions, students expressed a greater need to be reflected in curriculum about environmental justice. Discussions in the lab took place each week during the last twenty minutes as students reflected on their findings and participation. According to lab participant Diane Lopez, "in our research project, students want to recover lost environmental histories that have been racialized. The racialization of history displaces people of color from their involvement in any achievements and crises in environmental history. As a result, we are not able to imagine ourselves being affected by certain environmental catastrophes if we are not reflected as contributors in this history."[3] The National Parks Service, for example, recently celebrated its 100th centennial. However, the parks service erased many of the contributions blacks and Chicana/os have made to conservation.

How environmental history is narrated, remembered, and shared with communities serves the interests of institutions invested in particular narratives that historically celebrate whiteness. Lab participants viewed their involvement in this project as instrumental in challenging dominant narratives about to whom nature in the U.S. belonged and how it served the U.S. nation state. Conservation historians typically recycle the same narrative that the leaders of sustainability were predominantly white affluent men who wanted to conquer the wilderness. This often fosters attitudes that the "great outdoors" are places of refuge for hunting, fishing, and hiking.[4] However, urban working-class communities' engagement with nature has been structured considerably differently. Careful consideration of Chicana/o farm workers' movements to ban pesticides or environmental struggles involving African-Americans to end lead contamination in water remains largely unacknowledged. If environmentalists want

to include communities of color, the culture of conservation must change. Conservationists need to provide historical information that ties in movements for ecological justice in order to become culturally relevant to disenfranchised communities.

Lab participants understood that their position as first-generation students of color were significant because the ratio of students enrolled in humanities research labs at California State University, Northridge, located in Los Angeles County, who come from low income and historically disenfranchised communities is low. Most recent studies about minority student achievement gaps demonstrate that Chicana/os and Latina/os comprise less than 15 percent of bachelor degree recipients in the U.S.[5] These numbers are compounded by the fact that this demographic of students also face high rates of environmental hazards and toxins in their communities.[6] The same neighborhoods in Los Angeles where there are the highest push out rates among Chicana/o and Latina/o students also face the highest pollution burden indexes in the same city. For students who participated in this lab and grew up in Los Angeles County, this correlation was evident by the first day of the lab. According to lab participant Diane Lopez, "environmental justice aims to incorporate the intersections of communities' diverse identities such as race, gender, class, disability, and sexuality in order to uncover how these different axes intersect in shaping environmental outcomes."[7] In the mainstream environmentalist movement, there has been a lack of diversity as it pertains to environmental issues because they have primarily focused on the power of consumers buying in as a means of "going green".

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Students saw their vision of environmental justice diverging from mainstream environmentalism because they viewed radical environmentalism as a way students as activists can address concerns over historical land dispossession, environmental racism, and shift the dialogue about sustainability by placing resource management into the hands of Indigenous peoples. To expand upon Laura Pulido's definition, environmental justice is a way to highlight how communities of color, low-income, queer, disabled, and deaf people are negatively impacted by environmental toxins, climate change, and pollution in their everyday lives.[8] Recent examples of environmental injustice include air pollution in close proximity to Chicana/o neighborhoods, unsafe drinking water in Flint, Michigan, consumed by African-Americans, Exide recycling battery plant's lead contamination in the Mexican-American neighborhood of Boyle Heights, and the 2016 North Dakota Access Pipeline conflict, which called into question Native-American sovereignty over land and water rights at Standing Rock Indian Reservation. From these examples,

students recognized that environmental issues require an intersectional analysis to call into question why historical events such as slavery, colonization and war continue to shape people of color and indigenous peoples' relationship to nature. When lab participants entered the environmental humanities lab, they were encouraged to draw upon the historical linkages of slavery, colonialism and capitalism to provide inspiration for their mind maps.

Access to digital tools in labs transforms students' relationship to research as a tool for empowerment. Many first-generation students struggle with issues of belonging, validation, and feeling included in the process of research. The students who participated in this lab knew that their voices were incorporated into a research process that would later be published by professors at their university. This experience was unique for undergraduate students because we are at a teaching university with limited resources. Many of our students come from low income working class backgrounds and balance multiple obligations, including full-time work schedules, undocumented immigration status, and commuter schedules due to affordability of living at home with family. Squeezing in time to voluntarily attend a research lab (without course credit) rarely occurred on our campus. Students who came to the lab were very excited, since these opportunities were rarely afforded to them as students housed in the College of Humanities at a state-level teaching institution. Indeed, their expertise as environmental justice scholars reached beyond the classroom because many had been exposed to ecological catastrophes in their communities. When we speak of communities in this geographical context, we hope that the spirit of the communities where students live and work is imported into the lab so that the voices of disenfranchised peoples are recovered into the analytical framing of the research that we worked on together.[9]

Since its inception as a field, environmental justice has located antiracist politics as central to understanding residential segregation, land confiscation, and divestment in order to address how communities of color grappled with food scarcity, natural resource management, climate resilience, and environmental degradation. From these debates, scholars, teachers, and community organizers have been instrumental in the *creation* and *sharing* of knowledge about environmental injustices.[10] For example, activists and researchers worked alongside one another to map cities using Geographic Information Systems (GIS) in order to identify spaces that were disproportionately impacted by high pollution burden indexes.[11] Environmental justice activists frequently worked closely with researchers in order to recruit students to become involved in local environmental justice activism. Service learning historically has served as a building block mission that assisted students in learning about how the community responded to problems that were highlighted in classroom discussions. From these experiences, students and professors have adopted non-traditional practices of learning and teaching, including centering the community as experts in their own knowledge about environmental injustice.

Our collective viewed the experiences of urban working-class communities who struggle against environmental injustice as an asset. Urban working-class communities possess what Tara Yosso identifies as experiential knowledge in tackling climate resilience, environmental health hazards, and a pollution burden that translates into funds of knowledge. [12] Students who participated in our environmental justice collective came with their own form of cultural capital because of the types of environmental injustices that their communities faced. Given the context of where they lived in Los Angeles County, many have already faced high pollution burdens beginning as early as elementary school years.

A bedrock of environmental justice is taking seriously the narratives from communities of color in regard to their experiences with environmental racism. In this context, radical teaching means shifting the epistemological foundation from Euro-centric theory into the hands of community members, activists, and community leaders. Environmental justice scholar Carolyn Finney, for example, argues that research about blacks, Chicana/os and American Indians' relationship to the natural environment must place their historical and racial formations in relationship to land policies of dispossession. Acknowledgement of the intersections of environmental history with how U.S. colonial authority was used to disenfranchise each community, respectively, via slavery, indentured servitude, land confiscation and immigration, opens the debates to include historically disenfranchised communities. [13] Environmental racism unfolds over time, shaping different communities' future relationship with nature as unequal. For communities of color who face the brunt of environmental injustice, it is significant to intersect history with lived embodied experiences in the present. This approach provides a way to radicalize information and knowledge production in the digital humanities.

dimension of the CCC is the conditions and hostile work environments that urban working-class youth of color had to endure after enrolling in these camps. Our digital humanities project was an effort by the students to creatively articulate the importance of Mexican-American participation in CCC camps and to explore why their experience is valuable to an examination of environmental justice. For the students, the transformative power of environmental justice in part involves viewing themselves in the environmental history of the United States. One of the challenges they encountered was how to investigate a mostly white narrated history about conservation from a Chicana/o Studies perspective.

The historical memory of the CCC has been dominated by memories of white enrollees in the project of building national forests, parks, and trails to make a truly national park system democratic. At the outset, students understood that their role in the lab was to transform the historical memory about the racial landscape of the CCC in its contributions to the building of the national parks system. Because information about the CCC was recorded in documents located in the National Archives in

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Civilian Conservation Corps Archives

In 1933, Franklin D. Roosevelt established the CCC as part of his work relief program supervised by the Works Progress Administration (WPA) and the U.S. Army. Under the New Deal, three million young men (no women) were recruited as enrollees in the CCC to work in U.S. national parks, fish and wildlife, and to assist in the building of national heritage sites. [14] Enrollees came from diverse backgrounds and included Blacks, Native-Americans, whites, and Mexican-Americans. An understudied

Washington, D.C., students argued that they had to read *against the grain*, as Anne Stoler argues, in order to capture the nuances, silences, and ruptures in the Chicana/o experience.[15] Careful attention was placed on dissident behaviors and practices that were taken by CCC members, whether punitive measures taken against them were documented, and how CCC officials discursively talked about racial taxonomies in camps as they pertained to Chicana/o enrollees.

Access to archives located in Washington, D.C., mediated by their professor, made students feel like they were a significant part of their professor's research. Some

of the insights that they gained included learning about how Mexican-Americans were treated in the CCC, a widely unacknowledged history that included discriminatory practices. The ethnic studies approach questions the uniformity of linear models of producing knowledge in environmental history research. Students commented that following this up by using non-linear forms of brainstorming activities provided them the opportunity to transform the multiplicity of narratives that were generated by mind mapping. Students created their own guidelines and expectations, which made their interaction with each document meaningful. It allowed them to document alternative histories that did not parallel the national memory of the CCC.

Radicalizing the Digital Humanities

Using an intersectional methodological approach is crucial in informing the way we conduct research inclusive of the individuals who are typically excluded from environmental justice research. Intersectionality, notes Kimberlé Crenshaw, concerns itself with the acknowledgement of the various identities a person may carry at one time. [16] We employed this method by acknowledging how we, as students coming into the digital humanities, championed our identities to inform our research. This facilitated how we each found nuances within the archives which reflected our own lived experiences. As the humanities expands its interests into the digital realm, we view the intersections of lived embodied knowledge, and the multiplicity of overlapping race, class, gender and sexual identities, as central to how research and teaching accounts for these technologies in the classroom. [17] Scholars of digital humanities have yet to acknowledge that there still exists a digital divide between urban working-class communities of color and access to technology.

Our research allowed for the use of a digital humanities lab to analyze the exclusion of people of color in the narrative surrounding the creation of the national park system. Our analyses as individuals with varying positionalities and perspectives and the use of mind mapping software allowed us to shed light on the CCC. Indeed, we view environmental justice research as a means to recover knowledge about the CCC in order to fill in gaps within digital humanities and environmental history, both fields that continue to uphold a Eurocentism that has been disregarded by environmental history and the digital humanities. [18] In this way, our research on environmental injustice in CCC camps hoped to aid in filling that gap within the digital humanities which concerns itself with mixing the digital technology and humanities but falls short on including diversity components.

Our environmental justice collective embraced the digital tools made available to us in the lab because we saw this as an opportune time to insert ourselves into digital humanities debates. As students who come from low-income backgrounds with little-to-no research experience, the ability to have a lab in the humanities was rare. Mind maps provided us with the ability to visualize our own thought processes and integrate a metacognitive approach rather than a linear approach. [19] With the use of diagrams about camp life in the CCC modeled from archival documents, we could visually express our own narrative into codified visual materials.

Students used diagrams, in-text codes, and linear dimensions to craft a historical narrative about the CCC. Typically, environmental historians are interested in change over time and the art of storytelling. The open source software, Xmind, allowed us to do both. Students took a central topic and then created subcategories to draw associations as evidence to support their main claims. Some of the topical codes that they collectively identified included 1) race relations, 2) conflict, 3) living conditions,
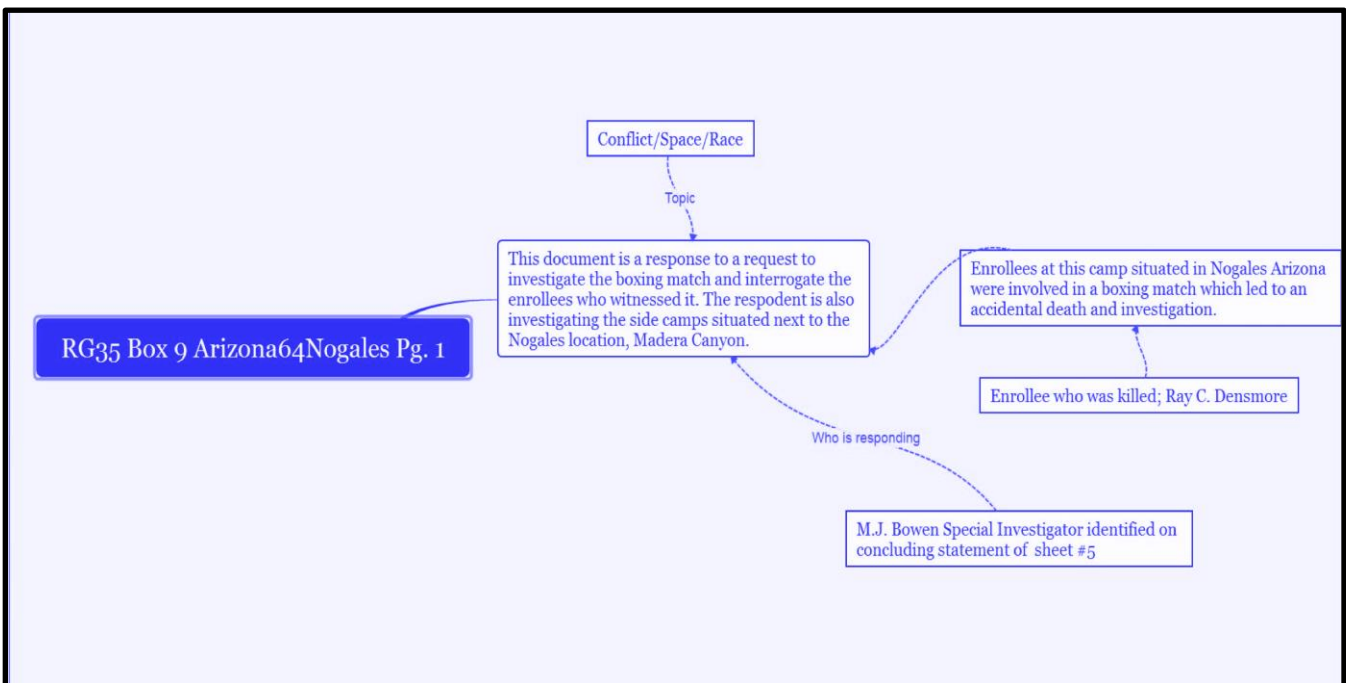

MIND MAP 1. THIS MAP REPRESENTS INTERETHNIC CONFLICT BETWEEN MEXICAN AND ANGLO YOUTH IN NOGALES, ARIZONA (COURTESY OF JESUS JIMENEZ)

and 4) nature. Branching from these main categories, students then drew associations to subcategories that were used to support their primary topic. As environmental justice researchers, we used these diagrams to craft a historical narrative about Mexican-American and other racial minorities' experiences in the CCC. Thus, prior to writing a conventional research paper, we found that brainstorming activities with the use of mind maps changed the ways in which we organized concepts and data taken from primary source material. As we coded documents based upon patterns that we saw in primary sources, we crafted narratives that were connected across different geographical regions and time periods. This was enabled because we visualized different phenomena in each camp based upon our findings as a collective.

Students focused on ethnic and racial biases that occurred in CCC camps. Careful attention was paid to inspection reports that involved interethnic conflicts in CCC camps. Camp Nogales in Arizona near the U.S.-Mexico border, for example, was comprised of 122 Anglo enrollees

Mexican and Anglo enrollees that shaped the contours of their lived experiences in camps. Camp records illustrated how camp inspectors were invested in using violent altercations as evidence to racially classify Mexicans as inherently violent. As environmental justice researchers, our collective was attentive to the number of incidents of racial and ethnic altercations that occurred in camps. We found that, in interethnic conflicts in eight camps in the U.S. Southwest, Mexican enrollees frequently faced violence and intimidation perpetuated by Anglo enrollees.

Students who were interested in visualizing interethnic conflicts spent significant time recording the number of incidents, enrollees involved, and how racial stereotypes emerged within CCC reports. The visual tools that accompanied our research process involved collective brainstorming activities to translate information into a coded brainstorm map. Lab participant Jesus Jimenez, for example, illustrated that in Camp Nogales, there were clear racial divisions in camps that determined where enrollees slept, leisured, and socialized with one another. According
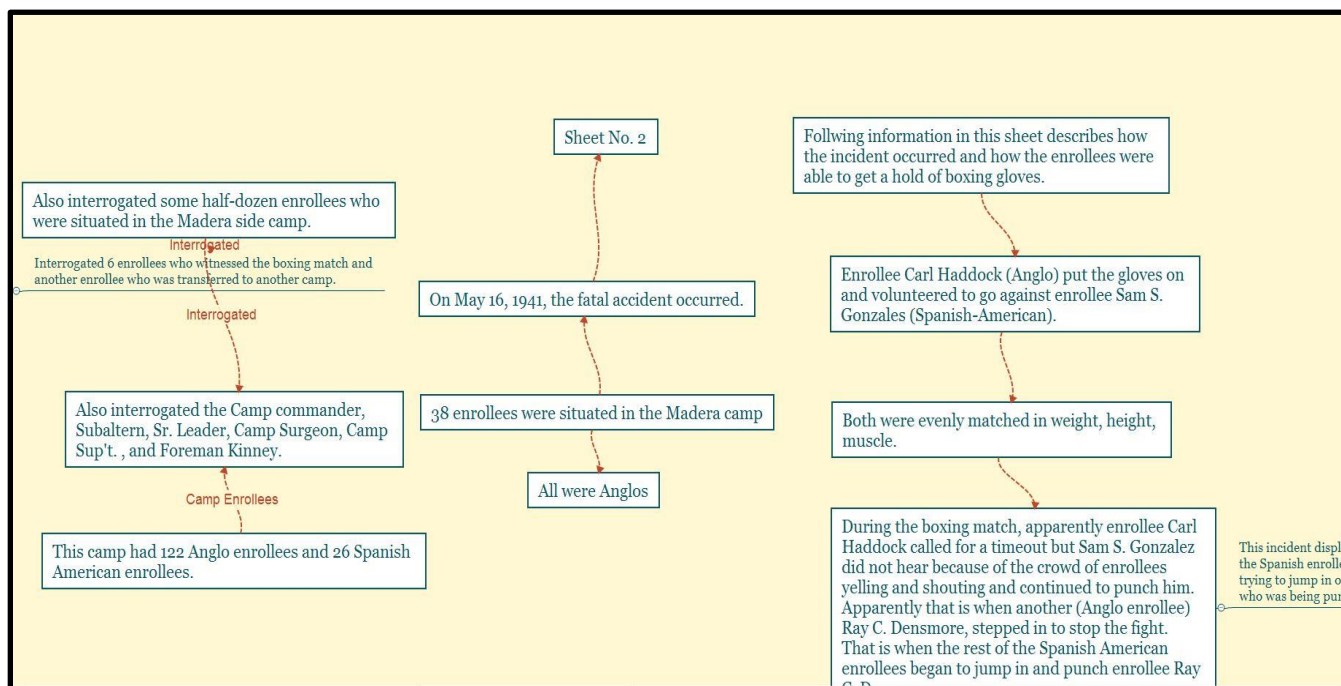
MIND MAP 2. DIAGRAM OF CAMPS INVESTIGATED FOR INTERETHNIC CONFLICT BETWEEN ANGLOS AND MEXICAN ENROLLEES (COURTESY OF JESUS JIMENEZ)

and 26 Mexican enrollees. In this camp, enrollees were tasked with the building of infrastructure that included the construction of trails, boundary fences, and telephone poles. On May 16, 1941, a white enrollee named Ray C. Densmore was accidently injured during a boxing match with a Mexican enrollee. Densmore later died of his injuries. [20] The U.S. Army's response was to remove thirteen Mexican enrollees: five enrollees were dishonorably discharged and eight were sent to a different camp. The CCC declined to prosecute any Anglo enrollees. The incident at Camp Nogales illustrates how the ways in which camp inspectors recorded conflict between enrollees was racialized. Students noted the number of Mexican enrollees that were disproportionately punished compared to Anglo enrollees, that is, 13 to 0. CCC records demonstrated the ways in which rivalries unfolded between

to his mind map (mind map 1), there was a geography to the ways in which Mexican enrollees experienced discrimination via segregation. CCC records revealed practices of segregation and the ways in which race was a major factor in structuring social outcomes for enrollees. According to Jimenez's mind map, boxing matches between Anglos and Mexicans occurred in peripheral spaces in between cabins that were connected to internal territory disputes between enrollees. Drawing from the intersections of race and space, Jimenez viewed the altercation that resulted in Densmore's death as potentially tied to disputes over space within the Nogales camp. According to Jimenez's mind map, the spaces that were shaped by racial segregation shaped the contours of conflicts within camp life for Mexicans and Anglos. On a digital platform, mind mapping activities illustrated the

ways in which students identified correlations between space in shaping conflict and how space was shaped by race relations in camps. Race was central to how lab participants understood the political dimensions of life in camps. Mind mapping was a means to express these relations across different camps at an institutional level.

The integration of mind maps in our research helped us visualize the racial workings that occurred within the CCC, working across multiple federal agencies. Mind maps allowed us to talk about race at the institutional level by breaking down the incidents that occurred within the CCC. This allowed us to understand issues and policies that were implemented within the CCC due to these incidents and reports and to analyze the information and gather topics and ideas that were illustrated in the archives. Those topics included race, space, conflict, and punishments, which we expanded on in our research.

PHOTOGRAPH OF AFRICAN-AMERICAN YOUTH AT CAMP NORTH RIM OF GRAND CANYON, COMPANY 818, CIVILIAN CONSERVATION CORPS, RECORD GROUP 35, NATIONAL ARCHIVES, COLLEGE PARK, MARYLAND.

Integrating mind maps into this research allowed us to illustrate structures of government at the federal and state level and to note who was in charge in the camps. By using mind maps, we could see how issues were handled in the CCC by commanding officials and the government. As noted earlier, expulsion from camps was one method the CCC used to discriminate against youth of color.

The students who examined archival documents concentrated on the spatial dimensions of urban youth of color's experiences in camps. For the purposes of this research project, students documented acts of discrimination in almost every state where Mexicans and Black enrollees were enlisted, including Arizona, California, Utah, New Mexico and Texas. This meant that race and class shaped enrollees' spatial experiences in camps by determining which bunks they could sleep in, work assignments, and restrictions placed upon their leisure time. In their diagrams, students frequently took note of

segregation, which became a primary code for our collective to work with. Though CCC officers pointed out that segregating black and Mexican enrollees might "cause problems for the U.S. Army," they quote one camp commander/administrator:

"Lieutenant Hastings does not hear, or expect any on account of such discrimination, as he believes these classes are accustomed to it."[21] The CCC inspectors' hesitation to segregate on the basis of race might have been due to changing inter-war attitudes about the negative appearance of segregation sponsored by a civil service program. However, as students identified segregation practices in assigned archival documents, they began to connect to institutional structures within the CCC nationally and how they functioned as a major component in the construction of the U.S. national parks system.

Mind mapping empowered students to reimagine race and power relations across different scales. Mind maps, for example, identified numerous camps where Mexicans and African-Americans were segregated. Mind maps allowed students to take notes and synthesize information in a way that provided a better visualization of their thought process along with connecting ideas that Western Eurocentric traditional note-taking misses. [22] If there is no association, then there is no connection, thus no retention of memory and little critical thinking. Mind maps serve as an alternative avenue for learning and creating which can be vital when learning spaces such as the university can constrain variable methods of learning. Westernized traditional note taking often confines students to particular learning methods that follow a linear system of thinking. A part of deconstructing these institutionalized methods of thinking is exploring other techniques that may be more amenable to the Chicana/o student population. We hope that this can capture the spirit of climate resilience so that Chicana/o and Latino/a communities can be better informed about our own history of environmental resilience as we face the history of discrimination within the CCC.

We engaged in critical analyses of our archival research by bringing in our own cultural experiences. For example, our lived experiences as Chicana/o students paired with the types of discrimination we have experienced in public education made our evaluation of the research more enriching. As first-generation Chicana/o students, we recognize the lack of resources our high schools historically were allocated in our communities, as

well as consistent harassment by immigration control. As we critically analyzed materials related to the discriminatory practices against youth of color in the CCC, it enabled us to translate our personal knowledge outside of our formal public education.

This lab provided us with the ability to radically democratize the space of the classroom. This radical democratization included how lab participants engaged with one another, how they viewed materials, and the physical seating design of our classroom. Typically, professors instruct from the front of the classroom, spatially organizing information in a unidirectional way. In our lab, we purposely arranged seats so that we physically faced one another in the lab so that all information could be shared as students walked their way from each laptop to the next. Students shared network passwords, retained public control over the mind map information, and publicly shared mind maps after each session with one another to view their findings. We didn't have a formal social media account to share information. Rather, we relied upon our physical arrangement of the classroom. We wanted to reduce asymmetrical relationships in the lab to spatially be attentive to how power was positioned in the classroom. No formal director was appointed for instruction, as our professor attended sessions when invited to provide greater context for the archival documents. We felt that this transforming of the design of the classroom was significant because it allowed us to work collaboratively in a hub.

Mind maps include the use of lines, colors, words, images, or symbols in the mapping process and therefore combine art and science. We view this as collaboration between technology, science, and art because of the creative expression mind maps allow that other brainstorming activities can't accommodate. Color schema, structure, and shape sizes, as well as images were determined by students. Western traditional note taking outlines tend to be scanned in a linear format, from left to right or top to bottom. Some scholars in digital humanities have noted that mind maps have proven to enhance the use of several cortical skills like numbers, imagination, lists, logic, rhythm, color, or speech, and these skills are operated by either the left or right side of the brain. [23] When both sides of human brain activity are engaged, researchers have found compelling evidence that students retain higher rates of information and that critical thinking skills are augmented.[24] Thus, there are cognitive reasoning and argumentation functions that mind maps illuminate from a biological standpoint that enables students to creatively express their engagement with research materials.

Conclusion

Mind maps illustrate the power of undergraduate students' hidden potential to transform research and teaching practicum. As digital humanities initiatives become popular at universities in the United States, we hope that this research project serves as a model of the potential radicalism that professors and students can foster in labs, especially in its rebellion against oppressive

disciplinary borders as the humanities turns toward cultivating interdisciplinarity through the use of technology. The radical potential that we see illustrated by mind maps is one avenue among many technological tools that may be used in the digital humanities, including Geographic Information Systems (GIS), metadata storage, and digital public humanities, to serve the needs of underrepresented communities. Environmental justice research is enhanced by the perspectives of undergraduate students. Certainly, we hope that our research into CCC history will better inform Chicana/o and Latina/o communities of our own history of environmental oppression and resilience. We see the technology as a way to achieve a more democratic public education, and we acknowledge that the technology must accommodate the needs of poor working-class communities in their pursuit for environmental justice.

Notes

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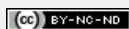
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