

Complex City: A Student Atlas of San Diego Cartography at High Tech High Media Arts

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ABSTRACT Mapping projects challenge students to engage in critical thinking, research, and analysis in ways that customarily written-only assignments may not. The effort to place their findings in a greater context inspires questions in both the production of mapping outcomes as well through the responses and interest of viewers who see such outcomes. We tested this process by asking students to design maps of San Diego that juxtaposed contradictory or paradoxical elements of our social and geographical environment. As a background to the specificity of our assignment, we grappled with the following questions: How do we help students to become more aware of their surroundings in order to foster an educated, ethical, and empathetic community? How do we facilitate opportunities to help students translate experiences, investigations, and ideas into artistic maps that effectively communicate new knowledge or new insights? In order to further help students think critically about their communities, we asked them to map an area of San Diego of personal significance. We desired that they should step back from the familiar aspects of their community and city and translate those aspects into a visual map. Students researched their city and community in myriad ways. By compiling their findings and making collective and idiosyncratic maps of San Diego they were challenged to rethink what they understood to be the reality of the built environment around them, as well as to accept the new knowledge that their classmates contributed. They were also challenged to learn principles of visual literacy through effective communication of complex meanings articulated through two-dimensional design. As a result of undertaking the project, the students became more invested in their own community because their new knowledge implicates them as involved citizens. By exhibiting their digital maps in multiple venues, students invited their communities to participate in

this project of making San Diego a complex city.

INTRODUCTION

“I loved my map! I have never been so passionate about a project before.”

—Livy Solis, 12th grade student,
High Tech High Media Arts

We are two teachers at High Tech High Media Arts, one in English and one in Media Arts, located in San Diego, California. The school we teach in extols both technology and creativity; we integrate these disciplines in the classroom while fostering a spirit of intellectual inquiry and ethical engagement among our students. We regard our students as emerging global citizens. Our sense is that young people have become more and more insulated from their own surroundings, culture, and community. In light of this trend, we felt compelled to encourage students to become more aware of their surroundings, and to foster an educated, ethical, and empathetic younger generation. We also encourage students to pursue abstract thinking through the creative exploration of experimentalism in art making.

The challenge we faced in addressing these concerns is to create interesting and exciting ways to help students analyze their communities, and to do so in ways that are important to them. Our first principle, then, was to design a project that would give students a broad scale upon which they could design a research topic of particular interest to them. As a second principle, we wanted to design a project that required archival research, community outreach, and technological integration. By using a multidimensional approach such as combining written and visual texts, as well as essays and maps, we encouraged students to effectively communicate and translate their experiences, investigations, and ideas in more than one way. Our hope is that students would feel a sense of ownership in the vision they created of San Diego and the experiences they reflected there, and that these visions would overlap in ways that would lead us to compelling questions for future research and engagement in our communities.

ADVOCATING A COLLABORATIVE PROCESS

Students worked in pairs during each stage of the process, including: data collection (interviews and archival research), map making, and drafting a paper. As a first step, each team decided upon their object of study, deliberated over that objective, and agreed upon the essential ques-

tion that would guide their research. As they gathered information, the partners had to decide the means by which they could best communicate their findings in both text and symbolically through maps. While they were working on the conceptual parameters of their San Diego maps, Rachel began the practice of teaching mapping by asking students to make “significant moment” maps of the school. Each of them had a map of the school and a piece of tracing paper; each then mapped the school in terms of significant experiences they had had there; they were free to interpret this as they wanted. Typical things that students chose to put on these maps included such situations as where they had met their best friend, where they had eaten lunch, where they had gotten their heart’s broken, etc. We then layered these collective maps one on-top-of-the other. Suddenly the maps seemed to come alive, merging into a single map of their collective high school experiences. The results told a rich story about the class that was both individualized and collective.¹

For Ms. Noble’s class, students were prepared for the visual design aspects of the map-making challenge through exposure to, and pursuance of, a variety of conceptual graphic design and photography exercises and preparatory assignments. Students participated in weekly group discussions analyzing the nature of visual communication as elements of symbol, metaphor, and form. Always challenging each other to think deeper, students pushed their artistic analytical skills to ask, “Is this representation appropriate to the intended meaning and will it read to outside audiences?”

Our next step was to take students to the San Diego History Center, where they were taken on a tour by docents. At the San Diego History Center they were introduced to archives. For most of them, this was the first time in any archive and they were fascinated to see and hold old documents and photographs. This inspired a sense of intrigue, as many students wanted to dig in to find information about their neighborhoods or communities. At this point they were trying to get a sense of the essential question they wanted to map; the archival librarians worked with them, as did we, to define the topics that were compelling to them. For many students the hardest part of the project was defining a good topic for the mapping project. This, in itself was a lesson of great value: many students found that though they had interesting analytical questions to ask, such a question would likely yield an uninteresting map; other students had trouble defining their project in terms of information that realistically could be researched and analyzed. Students had to grapple with defining a project that could be researched and would

allow them to make compelling visual and textual representations.

Once they defined their topics of study, students began to work independently for a period of a few weeks. Working in pairs, they conducted interviews, this brought members of their communities into the process of knowledge production, another valuable lesson. They did archival research at the San Diego Historical Society and at local city, county, and university libraries. In addition, the students interviewed college professors who had done research relevant to their topic. These efforts were often done outside of class, with constant feedback and discussion from us. We then began the first of two stages of critique. As they began to compile their information, they proposed tentative maps, which the class workshopped together. All the students met in one room where their map images were projected on a large screen. This presentation established a protocol for asking questions and presenting the map-makers’ intentions and concerns. The shared presentation provided the opportunity to learn from each others’ decisions, successes, and challenges. We collectively translated what “works” into a visual representation. Then they continued their work on the maps over several weeks as they began to write essays that defined their essential questions and explain the maps they produced. While Ms. Nichols was working with them on the stories that their maps would tell, and the essays that would accompany them, Ms. Noble worked with students on the visual aspects of their developing map. Students then recreated their two-dimensional maps into animated tours of the worlds they defined. Students also expanded their design skills to include training in motion graphics and sound design. This training in the technological arts is an important part of their education, introducing them to critical 21st century tools that they will continue to use. We then had a second round of workshops/critiques, this time focusing more specifically on the work that each map intended to do, discussing its strong points and weak points. This helped them to sharpen the message of each team map, clarify the accompanying essays, and articulate a critical thread that would link the maps together into a coherent and provocative project.

Along the way, we also had the very fruitful input of three important intellectuals. First, Rebecca Solnit, author of *Infinite City*, the book that inspired our project, agreed to skype with us. She commiserated with students about the difficulty of the project, and offered tips about defining a research goal and making user-friendly maps. We also Skyped with Professor Natalia Molina, of UCSD, whose work on public health in Los Angeles worked as a model

for thinking about how racialized and segregated spaces come into being through specific political decisions. Lastly, we welcomed Professor Teddy Cruz, of UCSD, into our classroom. He presented his work on border maps and rethinking the U.S.–Mexico border, and his use of visual media inspired us to push ourselves in representing our research creatively.

In the end, students exhibited their work in multiple formats. They staged an exhibition at school, projecting maps onto an exterior wall of the school and then showing them individually inside to an audience who listened as each pair explained their essential questions and their research process. We then collected their papers and maps and produced a book which we entitled *Complex City*, self-published on Blurb.com.² Finally, we accompanied some of our students to present their maps and their findings at an experiential learning conference at UCSD. We were thrilled with the result of the project. In compiling their findings and making collective and idiosyncratic maps of San Diego our students were challenged to rethink what they understood to be the reality of the built environment around them, as well as to consider the new knowledge contributed by their classmates. They became more invested in their own community because their new knowledge implicated them as involved citizens. Further, by exhibiting their digital maps in multiple venues, students invited their communities to participate in this project of making San Diego a complex city. A selection from the series maps follows.

EXAMPLES FROM THE STUDENT MAP OUTCOMES

The students responded to their assigned task of posing essential questions. Then they were asked to consider how comparing or juxtaposing particular social phenomena or institutions would reveal complex and obscured truths about our social world and built environment respective to their essential question. Many students aimed to juxtapose elements that pointed to absurdities and illogical aspects in our city and then to demonstrate these absurdities via visual juxtapositions and overlappings (crossings) on their map.

As an example, one group decided to complete a project on skateboarding: they were frustrated by the abundance of restrictive laws that impose severe limitations on when and where youth can skateboard, even though the city advocates for activity that provides much-needed opportunities for exercise and sociality for young people. They also recognized that many adults have a negative impression of skateboarders; thus, they decided to use a basis of comparison that most citizens can appreciate:



FIGURE 1: *Skateboarding map by Javonne McCulloch and Filipina Pascasio*

the use of public funds to create and maintain public parks. With extensive research into city laws and ordinances, they produced ample evidence to support the thesis that dogs have greater access to public space, to varied terrain for exercise, and more rights to access San Diego’s public parks than do San Diego skateboarders. Juxtaposing the human and the animal, this group asked viewers to think about the public’s freedom to use public space, and about the historical and social reasons for the negative view of skateboarding (FIGURE 1).

Another group examined San Diego’s nickname “America’s Finest City” and their own inability, because of transportation costs, to fully enjoy their “Finest” city. They wondered why, in a city that has excellent year-round weather, they had such trouble being able to use one of the least expensive transportation options available, a bicycle, to go where they wanted (FIGURE 2, next page). They wondered why they saw more runners than bicyclists on the roads. Their research revealed the high incidence of bicycle accidents caused by unsafe roads and a dire need for bicycle lanes. Simply, bicyclists do not feel safe using San Diego streets despite San Diego’s rating as a bike-friendly city; their research showed that the situation for bicyclists has been negatively impacted by the city’s budget problems, as roads are infrequently repaired and programs that support creative commuting solutions have been cut. Their map illustrated that San Diego’s official bicycle paths are arbitrary, truncated, and often funnel bicyclists into very busy streets. Consequently, the reality for many San Diegans is that they cannot safely use bicycles and, instead, have to rely on other, more expensive forms of transportation.

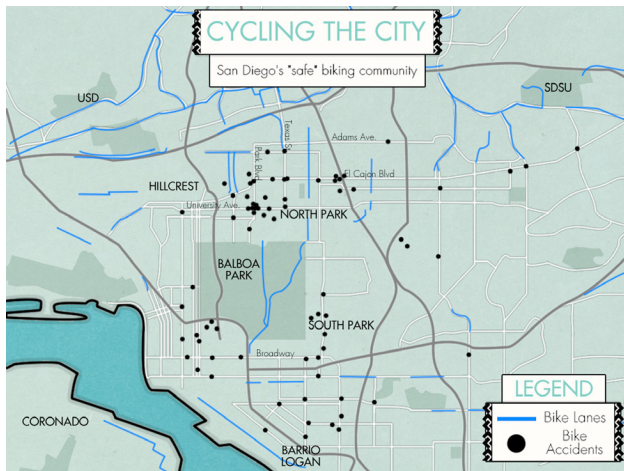


FIGURE 2: *Bicycling map by Jose Gonzalez and Nathaniel Ross*



FIGURE 3: *American Dream and Nightmare map by Marlene Barajas and Livy Solis*

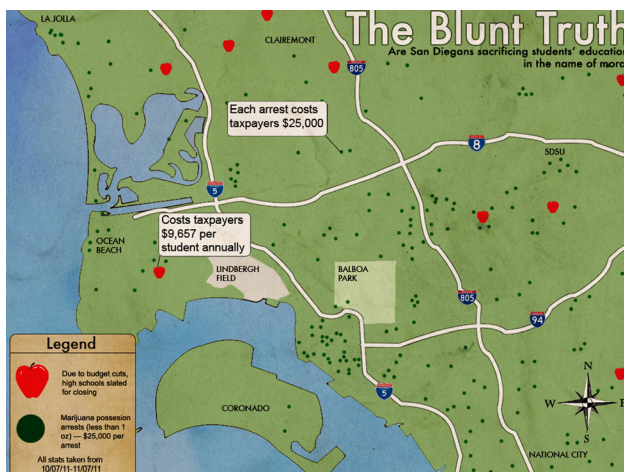


FIGURE 4: *The Blunt Truth map by Neil Baffert and Kiraleigh Cooper*

For many, San Diego conjures images of beautiful beaches and its world-class zoo. For others, it represents the gateway to the American dream. Two students wanted to know the extent to which this dream was a reality for undocumented immigrants crossing the border from Mexico into the United States. For their project, they conducted research and interviews with the Border Angels, an organization dedicated to helping these immigrants safely cross the barren desert that stretches along much of the U.S.–Mexico border (FIGURE 3).

While some may see assisting illegal border crossing as a political issue, the Border Angeles views it as a humanitarian issue. They leave water, food, and warm clothing in the desert to help immigrants avoid hypothermia and dehydration. However, despite these efforts, students found that immigrants continue to die as a result of exposure and lack of water, as well as through encounters with wild animals. As such, their map does not accurately point to where people died, but serves as a symbolic message of the deaths occurring at the U.S.–Mexico border. While the students began the project with a humanitarian interest in the stories of those who died while crossing the border, their investigations left them with many questions. For example, their investigation revealed apparent disparities in border patrol activity across the Southwestern states with little evidence justifying the variation in enforcement. This demonstrates that even as students educate themselves through finding answers to their questions, they continue to open up new avenues of inquiry.

Another student group addressed the controversy about California's medical marijuana laws by studying the recent closure of many medical marijuana dispensaries in the City of San Diego through analyzing the public discussion that accompanied those closures. They were intrigued by the long history of the connection between marijuana and medical healing and wondered about the high costs of arresting and imprisoning citizens for marijuana possession. They were also interested in why drug possession inspires a kind of public panic that alcohol possession and usage does not. Their map juxtaposes slated closures of high schools in San Diego and suggests that the high costs of marijuana possession arrests uses public funds that might otherwise be spent on social goods like education (FIGURE 4).

San Diego is favored as a beautiful beach town; our shores are among the biggest draws to the area. Sadly, yet rarely, there have been incidents of shark attacks on swimmers in the ocean for the greater part there is no threat. However, the image of the shark as a dangerous and eager predator persists, making the shark the seeming enemy



FIGURE 5: *The Dangers of the Shore* by Michelina Miedema and Jasmine Thomas

of tourists and residents alike. One group questioned the usefulness of this fear, and investigated the rate of injury or fatality in humans as the result of other human action (largely boating accidents) in comparison with that rate as the result of shark attacks (FIGURE 5). They found that the number of fatalities and dangerous injuries caused in boating accidents in 2010 surpassed the total number of victims to shark attacks for the past seventy years. Their map thus aims to illustrate the significance of humans as the greatest source of danger in the sea.

In this final example, a group studied the economic segregation of the City of San Diego. Private banks, they discovered, bring a host of economic advantages to their clients: the opportunity to accumulate savings and wealth; investment assistance and services; promotions and financial incentives, and others. They noticed a preponderance of private banks in some areas of San Diego, and a paucity of them in others (FIGURE 6). This led them to ask, what

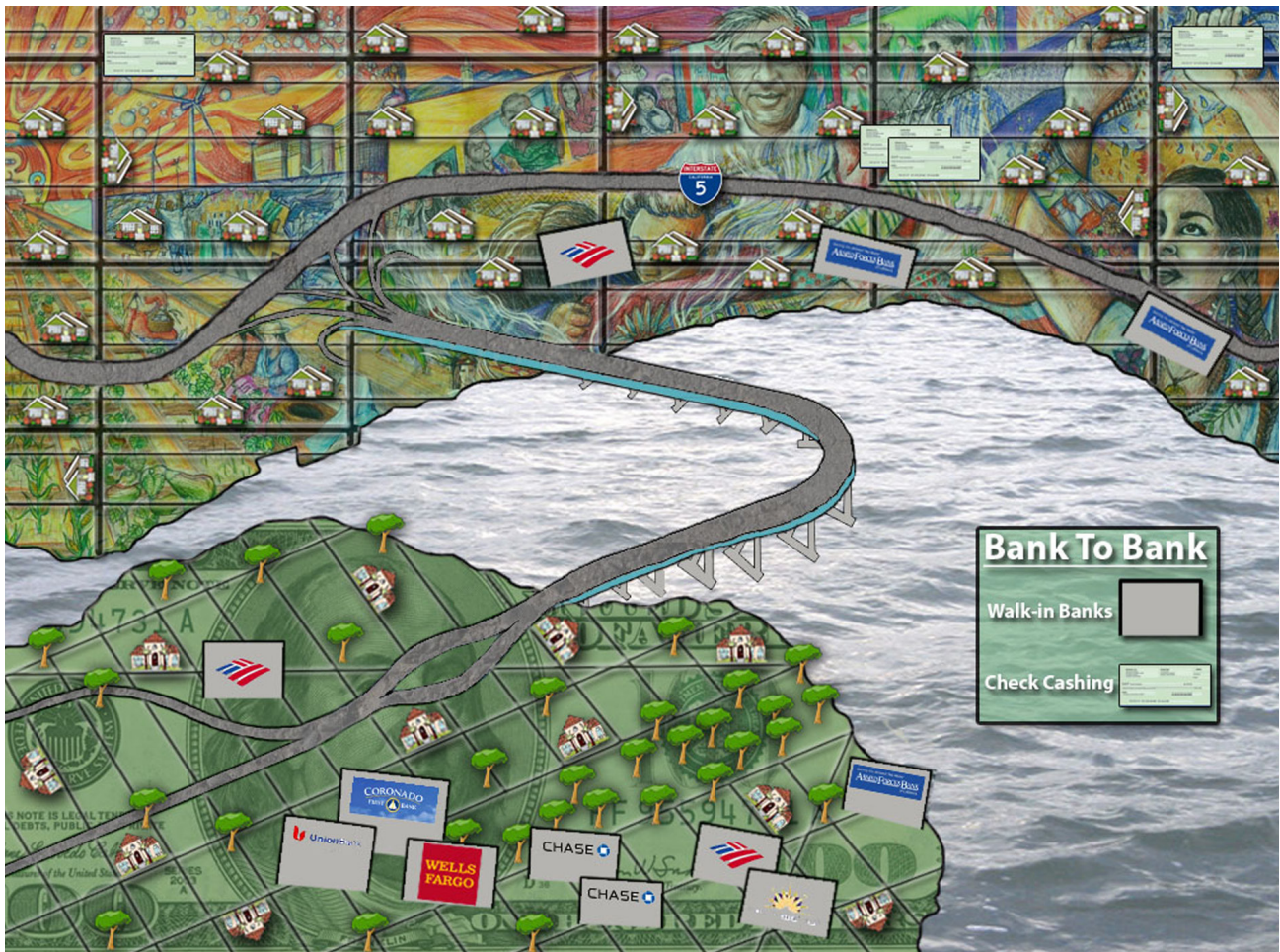


FIGURE 6: *Bank to Bank* map by Victoria Anderson and Carlos Zaragoza

are the effects of this banking desert for communities who live in them? This group studied the demographic research for different communities of San Diego, including total population and median household income. They discovered that working-class communities not only had less access to institutions that offered financial security and assistance, but they also then had less access to loans and a whole host of financial services. Forced instead to use check-cashing shops, working-class citizens are thus further financially penalized for their lack of wealth. Their map thus juxtaposes private banks with check-cashing sites, leading viewers to ask questions about institutionalized and entrenched forms of class and racial prejudice that continue to exist.

CONCLUSION

From the same brief high school students created maps of incredible variety and sophisticated complexity. Taken in the aggregate, the maps demonstrate the many San Diegos that are present depending on the perspective of the viewer. It should not come as a surprise to teachers, yet we are consistently amazed with the creativity and innovation our students demonstrate when they are allowed free rein to expand the scope of their own knowledge within a loosely defined framework. Moreover, while it was our goal to expose students to the many subtle, yet complex, issues that exist in our city, they, in turn, educated us about their own unique issues and obstacles that they deal with on a daily basis. Our intention was to help create responsible citizens—citizens cognizant of, not only the mainstream political issues, but also knowledgeable about the interconnectedness of society, of cause and effect, and of the importance of voices that are too-often silenced. In the end, we learned that our students are not only prepared to assume the leadership roles we hoped they would fill, they are prepared to exceed our expectations.

BIOGRAPHY

Since 1997, *Rachel Nichols* has played many pedagogical roles: including posts in Indiana, New York, and California. Currently, she teaches English at High Tech High Media Arts, where she pushes students to ask and answer important ethical questions and encourages students to hone their skills as critical thinkers and knowledge-producers.

Margaret Noble's artistic and educational work has been showcased nationally and internationally over the past ten years. In 2011, she won two Microsoft Innovative Educator global awards. Currently, she is a working artist, performer, and sound and mixed media arts instructor at High Tech High in San Diego, California.

Megan Wesling is an Associate Professor of Literature at UC, San Diego. Her first book, *Empire's Proxy: American Literature and U. S. Imperialism in the Phillipines*, was published by New York University Press in 2011.

Natalia Molina is an Associate Professor of History at UC, San Diego. Her first book is *Fit to Be Citizens: Public Health and Race in Los Angeles, 1879–1939* was published by University of California Press in 2006. research for different communities of San Diego, including total population and median household income. They discovered that working-class communities not only had less access to institutions that offered financial security and assistance, but they also then had less access to loans and a whole host of financial services. Forced instead to use check-cashing shops, working-class citizens are thus further financially penalized for their lack of wealth. Their map thus juxtaposes private banks with check-cashing sites, leading viewers to ask questions about institutionalized and entrenched forms of class and racial prejudice that continue to exist.

NOTES

1 I should note that this exercise is usually practiced by making emotional maps of the home (inspired by Kevin Lynch). However, some of our students are homeless; others live across the border in Mexico; some are wealthy and other are poor. Therefore, homes are not safe spaces to talk about.

2 These projects were inspired by Rebecca Solnit's, *Infinite City: A San Francisco Atlas: Of Principal Landmarks and Treasures of the Region, Including*. Berkeley: University of California Press, 2010. *Complex City* was self-published on Blurb.com.