

Relations of Public Art, Collective Efficacy, and Crime in Chicago

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THESIS

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SUMMARY

This study examined the relation of public art and neighborhood involvement in public art with factors of collective efficacy in 30 Chicago neighborhoods (defined as US Census Tracts) to evaluate art's potential as a violence prevention tool. Public art data were collected and then coded by two independent observers. Mixed effects regression models were analyzed by incorporating public art data, Neighborhood Matters Study data (Henry, Gorman-Smith, Schoeny, & Tolan, 2014) and crime data from the Chicago City Data Portal. Results indicate that there were no main effects of public art or neighborhood involvement, however, when a high proportion of public art has a clear indicator of neighborhood involvement, there are higher perceptions of informal social control in neighborhoods that have average to high public art presence. Discussion focuses on differential influence of public art type, culture, and the potential uses of public art in future violence prevention efforts that incorporate informal social control.

I. INTRODUCTION

Although crime is a major problem in many cities, including Chicago, little attention has been paid to public art as a violence prevention tool. Public art projects that involve neighborhood members may catalyze neighborhood investment and change, which in turn has the potential to reduce neighborhood crime. In making public art, people come together to create symbols of neighborhood identity and enhance neighborhood appearance (Fleming, 2007). Neighborhood residents have the opportunity to get to know each other, to choose representative symbols, and to collaborate on a long-lasting final product (Gude, 2003; Lowe, 2000). This final product, viewable by anyone passing by, can symbolize the neighborhoods' past, present, and future while also serving as neighborhood capacity for change (Smith, 2014). These aspects of the public art process can be conceptualized as social cohesion and informal social control, elements of collective efficacy.

Neighborhood collective efficacy, defined in terms of informal social control and social cohesion, has been linked to lower acceptability and frequency of crime (Sampson, Raudenbush & Earls, 1997). Informal social control is the "willingness of members of the community to intervene for the common good" (Sampson et al., 1997, p. 919) with common good defined as a desired public order or central goals. These goals are often the manifestation of neighborhood norms. For example, residents may begin a neighborhood watch group or advocate for better street lighting in order to create a safer environment ideally free of crime. Residents may also work to improve neighborhood appearance through litter control or beautification projects, or may advocate for a school to stay open. These goals become informal social control when neighborhood residents feel able to take action to complete them or to prevent behaviors that oppose them. A certain degree of social cohesion among members is also required to develop

informal social control (Sampson et al., 1997). Social cohesion captures the social ties or mutual trust that exists among neighbors. Therefore, informal social control and social cohesion are interrelated dimensions of collective efficacy, which has emerged as an important construct in understanding neighborhood processes, specifically those related to crime (Sampson et al., 1997).

Theory and research suggest that public art might promote neighborhood collective efficacy, but empirical work in this area is limited. Moreover, the relationship between public art, collective efficacy, and crime has yet to be empirically tested. By integrating observational, survey, and administrative data, this study is one of the first to explore the relations between public art, collective efficacy, and crime in Chicago neighborhoods. In this study, the presence and condition of art as well as neighborhood involvement in art was assessed in 30 Chicago neighborhoods using a direct observation tool. This information was combined with interview data from The Neighborhood Matters Study, which developed and validated measures of neighborhood norms, informal social control, and social cohesion (Henry, Gorman-Smith, Schoeny & Tolan, 2014). This study examines the relationships between public art and collective efficacy by combining these two data sources, with a specific focus on whether neighborhood involvement in public art strengthens these relationships. Finally, this study uses publically available Chicago crime data to test relations between public art and neighborhood crime.

History of Public Art in Chicago

Public art has many manifestations, making it hard to define and difficult to evaluate both aesthetic quality and social effects. For example, the public art think tank, IXIA, describes public art as a “broad process of engaging artists’ creative ideas in the public realm” (IXIA 2013, p. 1). Cartiere and Willis (2008) outline public art to be “art outside of museums and galleries” that

falls “within at least one of the following categories: 1) in a place accessible or visible to the public: *in public*, 2) concerned with or affecting the community or individuals: *public interest*, 3) maintained for or used by the community or individuals: *public place*, 4) paid for by the public: *publicly funded*” (p. 15). Although this definition highlights the complexity of public art and the different stakeholders involved in its creation (i.e. artists, funders, and neighborhood members), the information needed to assess the criteria is not always observable. Therefore, this study defines public art as any work of any type that can be viewed by the public without any barriers to access. This matches the definition of Public Art Chicago, a nonprofit organization currently cataloguing Chicago’s public art (E. McDevitt, personal communication, August 20, 2013).

Today there are over 5,000 public art works in Chicago. The first known object was “Union Soldier,” created by an unknown artist and installed in Oak Woods Cemetery in 1876 (Riedy, 1981). From that point in time, the amount of public art continued to grow through expositions (e.g. The World Columbian Exposition of 1893) and federal funding for individual artists (e.g. the Federal Art Project of the New Deal). These works of art are primarily monuments, paintings depicting pro-government messages, or abstract sculptures. In 1965, the National Endowment for the Arts (NEA) began a funding program encouraging artists to develop transformative public art that valued and incorporated the community. This funding source helped to expand public art methods to include murals, street art (e.g. spray can works and graffiti) and mosaics as well as messages conveying social critiques and community values.

The Chicago community public art movement began in 1967 when 20 artists came together on the South Side to create a mural titled the Wall of Respect (Gude & Huebner, 2000). This project was the beginning of a revolution that used art as a catalyst for social change, a

reclamation of culture and history, and a depiction of pride (Gude & Huebner, 2000). The Wall of Respect was a new kind of public art—socially conscious art generated by people and without government sanction. This community-based mural was one artwork that inspired the spread of similar work from the predominantly Black South Side into other ethnic neighborhoods of Chicago (Cockcroft, Pitman Weber, Cockcroft, 1977).

This model of artists working within neighborhoods with residents to portray social issues often includes cultural history in Chicago. For example, in West Town, murals line Division St. celebrating Puerto Rican history and culture (Figure 1a). In Bronzeville, the 1995 Great Migration mural (Figure 1b) honors the journey of African Americans from the South to the North in search of better opportunities; in Kenwood, the mural Feed Your Child the Truth honors Jessie ‘Ma’ Houston, an activist for civil rights and prisoner rights (Figure 1c). In Pilsen, The Declaration of Immigration mural (Figure 1d) draws attention to the need for immigration reform, and the mural A la Esperanza represents the struggles and aspirations of Mexican American youth and their families. Each individual artwork is a part of the public art movement; it may also be a part of the Chicano, Puerto Rican, or Mexican American art movement, the African American art movement, or the community mural movement. Each movement shares the value of art being seen outside of a museum or gallery, but may have additional values based on culture, social justice, or design and may or may not involve neighborhood members.

Street art is another public art movement that uses the street as an integral part of the work’s meaning (Riggle, 2010). Although some community artists refer to their mural work as street art, today the term street art is often used to describe graffiti writing, images or other spray can pieces. These pieces might be located at the edge of an alley, on the wall of a building or

underpass, or even on a trashcan. They are often temporary and use bright colors, large words, and imagery. A recent play at Steppenwolf Theater, titled “This is Modern Art”, explored conflicting views of street art after a graffiti crew created an illegal piece (i.e. “bombed”) the Art Institute. Some people call graffiti crews vandals, but graffiti crews see their pieces—short for masterpieces—as art (Austin & Sanders, 2007). Despite conflicting perspectives and the lack of legality, there is a growing acceptance of street art as can be seen in Pilsen on the 16th street wall (Figure 2a), which is partially funded by the Alderman. Additionally, Little Village has a wall dedicated to an annual artistic collaboration of street art crews, called the “Meeting of Styles”(Figure 2b) (Meeting of Styles, 2014). Street art is another movement of public art that questions society and continues to create art outside of museums and galleries with or without formal approval.

In addition to public art movement values, art has been identified as essential part of human existence and awareness. Art is viewed as a “human birthright”—creating social movements and human connection and providing a voice for the oppressed (Fromm, 1955; Rich, 2001). Similarly, community artists have been inspired by Freire’s (1980) idea of critical consciousness (*conscientização*) in which collaborative education, and sometimes art, are used to raise awareness and understanding in order to inspire social change. These beliefs underlie the public art movement and suggest that art may have a meaningful effect on neighborhood appearance, development, engagement, and levels of violence, especially in marginalized communities. More specifically, these beliefs contribute evidence to the connection between public art and collective efficacy.

Public Art and Collective Efficacy

Despite the history and prevalence of public art, there has been little empirical evaluation of its social impact. The connection of public art to sense of community, social inclusion, and sense of place is often claimed but seldom evaluated (Hall & Robertson, 2001). The lack of evaluation may be attributed to low external pressure because public art is generally believed to be positive. As such, funding art creation is prioritized over art evaluation (Hall & Robertson, 2000). Another barrier to evaluation is that artists and art advocates may believe that evaluating public arts' social impact is unnecessary because they see arts' influence in their lived experience. Alternatively, they might think that evaluation takes too much time, energy, or could potentially reveal flaws. Lastly, artists and art advocates often prioritize aesthetic quality and sustainability of public art over long-term social impacts because they are more visible.

Urban planning and place-making studies have found that transforming a space through art can impact social outcomes related to collective efficacy. In Portland, Oregon the transformation of a typical urban intersection into a vibrant public gathering space increased social interactions and decreased social isolation in a low SES community (Semenza & March, 2008). The renovation of this space included a painted sunflower in the intersection, hanging trellises, and a wall designed with colorful mosaics. All of the changes aimed to reduce urban decay to make the space, and neighborhood as a whole, look more appealing. This addition attracted residents, giving them a space to build relationships, and increased the sense of community. Urban regeneration is one common motivator for public art installation to make spaces more appealing for residents or to promote tourist business and economic growth.

An increased sense of community has also been linked to engagement and neighborhood

collaboration in public art. Engagement in public mural creation and play production in a low-income Denver community evoked a strong positive sense of community among neighborhood residents (Lowe, 2000). Public art projects have consistently provided a supportive setting for people to explore their commonalities and differences and to create works that exhibit the neighborhood's most representative characteristics (Gude, 2000; Lowe, 2000). Through engagement, residents become more involved in each other's lives as well as in neighborhood organizations (Cindy Medeiros as cited by Costello, 1995, p. 52). Freire (1986) suggested that community member reflection through art, whether it be before, during, or after the installation of public art, may be the first steps to raising awareness, strengthening connection to their neighborhoods, and increasing their capacity to make changes. Muralists confirm that although art cannot magically create community, defined as "people coming together around common problems, discovering common values, and developing their sense of solidarity" (p72), public art can act as a catalyst that makes a community stronger and makes their values and beliefs more visible (Cockcroft, Weber and Cockcroft, 1998). Often neighborhood redefinition along with relationship building happen during the creation of public art, but the impact of art may last long after completion of a project.

Neighborhoods that participate in public art projects may experience an increase in pride. For example, residents may display an eagerness to become docents in their neighborhoods and talk about the artwork, what it means to them, and how it came to be there to strangers (O. Gude, personal communication, February 10, 2014). People often identify with public art and see their lives depicted on a large, heroic scale (Cockcroft, Weber & Cockcroft, 1998). Additionally, residents and outside observers may see public art as a neighborhood symbol, and sometimes the

art is incorporated as illustrations on neighborhood maps (Cockcroft, Weber & Cockcroft, 1998). The neighborhood artwork permanence serves as a lasting reminder of the group unity that was developed throughout the process (Lowe, 2000). Art may be a reminder of collaboration between neighborhood residents and organizations demonstrating capacity of such structures to collectively enhance community life (Gude, 2003). This suggests that public art may be a marker of neighborhood organization or portray neighborhood values and norms, which are related to informal social control.

Public Art, Collective Efficacy, and Crime

The collective efficacy construct was initially linked to crime as a mediator of neighborhood disorder, such that the associations of concentrated disadvantage, immigrant concentration, and residential stability (i.e. neighborhood disorder) were significantly reduced or removed by accounting for levels of collective efficacy (Sampson et al., 1997). When residential stability is low, residents do not have the same financial investment in their neighborhood and therefore, may not have the same opportunities to build relationships or the same commitment to improving neighborhood appearance (Sampson et al., 1997). This lack of neighborhood investment is associated with higher levels of crime. However, collective efficacy mediates the relation between high concentrated disadvantage and low residential stability and is associated with lower levels of crime. Other research has identified informal social control as the necessary factor for achieving low rates of crime (Hipp & Wo, 2015; Sampson, Morenoff & Gannon-Rowley, 2002; Silver & Miller, 2004). Although many studies have examined social ties, neighborhood attachment (i.e. place ties), and satisfaction with police as factors that contribute to informal social control (for review, see Silver & Miller, 2004) none have assessed public art.

Public art is often discussed as a way to improve neighborhood appearance and possibly increase neighborhood attachment. Public art projects can beautify a space and increase feelings of identity and connection to place (Hall & Robertson, 2001; Lowe, 2000; 2001). Framed another way, neighborhoods in disrepair have been theorized to invite more crime. The Broken Window Theory links community appearance to crime by theorizing that evidence of minor crimes, such as a broken window, increases fear, which lowers community member's connection to their neighborhood, making additional broken windows and severe crime more likely and acceptable (Wilson & Kelling, 1982). Graffiti is often seen as an indication of disorder (Austin & Sanders, 2006; Sampson & Raudenbush, 2004). When combined, these findings suggest that non-graffiti public art can improve neighborhood appearance, which may help to reduce crime. On the other hand, if public art objects in the community are damaged, unmaintained, or largely graffiti-based, art may be perceived as disorder and be positively associated with crime.

Other links between public art and crime reduction come from literature on community development and urban design. The community development can be a protective factor against crime by strengthening weak social bonds among residents (Godfredson & Hirschi, 1990; Lowe, 2000; Sampson & Laub, 1992). Community social bonds are represented by social cohesion and shared goals, which are elements of collective efficacy. This suggests that the creation of public art, as well as its long-lasting presence, increases collective efficacy, which may decrease crime.

Even though direct research on art and violence prevention at a neighborhood level is lacking, the relation between collective efficacy and crime is well established (Sampson et al., 1997; Wickes, Hipp, Sargeant & Homel, 2013). Therefore it is reasonable to believe that public art may reduce crime levels by creating a space for social connection and symbolizing

neighborhood values or norms, ultimately increasing collective efficacy. Public art and social factors have been partially assessed for individuals collaborating on a project, but this study will examine whether impacts of public art on collective efficacy can be detected at a neighborhood level.

The Current Study

This project uses an ecological perspective to understand the interrelations between public art projects, neighborhood level collective efficacy (i.e. social cohesion and informal social control) and crime in 30 Chicago neighborhoods. Specifically, I aim to (1) examine public art patterns, neighborhood involvement, and public art density within neighborhoods based on direct observation; (2) establish if neighborhoods with public art are associated with higher levels of social cohesion and informal social control, which are elements of collective efficacy, (3) establish if neighborhoods with public art are associated with lower levels of crime and (4) determine if neighborhood involvement in public art moderates any of these relationships. I hypothesize that public art objects will be mostly murals that involve neighborhood residents and that a large portion of art will be located in Pilsen neighborhoods, which are well known for their art. Additionally, I hypothesize that neighborhoods with more public art and more neighborhood involvement in the art will have higher levels of informal social control and social cohesion with lower levels of crime. Lastly, I predict that neighborhood involvement will moderate the impact of public art, such that neighborhoods with high art and high involvement will have the highest ratings of informal social control and social cohesion and lowest levels of crime. This study is one of the first to test the association of public art and a validated measure of neighborhood

social factors while also considering how public art projects might be used to address pressing issues of violence in our neighborhoods

II. METHOD

Sampling Frame

This study uses observational data on the presence of public art data as well as measures of collective efficacy, and crime data in 30 Chicago neighborhoods (i.e. census tracts). Targeted neighborhoods were previously sampled as a part of the Neighborhood Matters study (Henry, Gorman-Smith, Schoeny, & Tolan, 2014), designed to develop and validate measures of neighborhood norms, informal social control, and social cohesion. Neighborhoods were selected using stratified random sampling from pools of eligible census tracts within Chicago. Eligible neighborhoods (1) were predominately (>50%) Latino/Hispanic or African American; (2) had a population of at least 1000 people; (3) had 20-45% of households below poverty level; and (4) had a tract crime rate of <150 aggravated assaults per 10,000 residents per year. Neighborhoods were first stratified by percentage below poverty level (20-25, 25-30, 30-35, 35-40, or 40-45) and then six neighborhoods were selected from each poverty level stratum (three Latino and three African American). Interviewers in the Neighborhood Matters study administered questionnaires to 606 individuals from randomly selected households (approximately 20 individuals per neighborhood); Half of those interviewed from each neighborhood were male; half were between 18 and 25 years old while the remainder were older than 30. Individual level responses were checked for consistency and there was significant shared variance within the 30 neighborhoods. All Neighborhood Matters interviews were conducted between 2009 and 2010. For a list of neighborhoods, see Table 1. For a description of data sources and time of collection, see Figure 3.

Public Art Data Collection and Coding

Public art data were collected in four phases to identify public art presence, neighborhood involvement, art object condition and year of creation for use in analysis. Descriptive

information on art type, location and content were also assessed.

Phase one: Initial research. Information about the location of public art came from material published by the Chicago Public Art Group (CPAG) (2014), an organization that has been leading the creation of community public art projects in Chicago for over 40 years, and Public Art Chicago (PAC), a non-profit organization that is currently documenting Chicago's public art. The City of Chicago Public Art Guide also identified public art installations. These resources indicated that 15 of the 30 neighborhoods had one or more art object.

Phase two: Canvassing. Neighborhoods were canvassed to document the location of the art object and nearby businesses. Canvassing included driving the streets of the neighborhoods at 10 to 15 mph and walking or biking streets and parks that had public art objects. In addition to recording location information, every object was photographed from multiple angles and distances for coding and visible phone numbers of local businesses were recorded for use in phase three. Canvassing began in mid-June and ended in late September, 2014.

Phase three: Follow up with community businesses. Neighborhood organizations, institutions or artists were telephoned for art objects missing information on installment and neighborhood involvement. Contacts were chosen based on their location near the art object or indicated involvement with the art. Whoever answered the phone was asked questions about awareness of art, year of completion, and neighborhood involvement in the art object (Appendix A). When individuals knew about neighborhood involvement, they were asked probing questions to determine how many people were involved and to what extent (e.g. planning, designing, painting or installing). If a number was disconnected or no one at the first contact knew about the art work, one other business in the area was contacted. Identifying information about

organizations or individuals was not recorded and no private residences were contacted. At the end of phase three, 128 businesses or artists had been contacted and relevant installment information was identified for 127 of the public art objects (82%). Neighborhood involvement details from these phone calls did not provide enough information to be included in the study.

Phase four: Mapping. Public art objects in these 30 neighborhoods were mapped using ArcGIS 10.2.2. Analysis tools in ArcGIS were then used to determine density of art objects within neighborhood. Density was assessed by dividing the total number of art objects by each neighborhood's area.

Coding. Previous research and the IXIA Public Art Evaluation Toolkit (2013) guided decisions about what aspects of public art were coded to describe key aspects of public art and to understand how it might impact and portray the values of the neighborhood. As a result, I created an initial coding form including five main categories: (1) artwork condition, (2) artwork type, (3) message content, (4) neighborhood involvement indicators, and (5) location. These categories were chosen to identify public art patterns and were used in the analytic model. All public art objects were coded by two independent raters using images of the artwork taken during canvassing (phase two) and a coding form (Appendix B) ($AC1^1 = .774$ and $.886$). Disagreements were discussed and resolved with a third rater. Artwork was scored on multiple sub-categories described below. For definitions of each category and sub-category, see Appendix C.

Artwork condition. Each public art object was coded according to four sub-categories: graffiti tags, crumbling infrastructure, fading imagery or other damage such as rust or water

¹ The AC1 statistic is a chance-corrected estimate of interrater reliability that yields more consistently reliable results than Cohen's (1960) Kappa. See Gwet (2002) for a detailed description.

damage. Graffiti tags refer to “mere graffiti,” which is small scrawled signature to note someone’s presence, and does not include larger spray pieces (Riggle, 2010). If present, the item was scored with a one to indicate presence or a zero to indicate absence.

Artwork type. Artwork type was coded according to six sub-categories: graffiti, mural, mosaic, sculpture, functional, or other. During initial coding, multiple categories could be coded with a one (presence) or zero (absence). For example, if a public art object was largely a cohesive painted image that also incorporated mosaics for some of the features, it could be coded as both a mural and a mosaic. If coded as multiple types, the combination sub-category was also assigned a value of one.

Message content. Each public art object message was coded according to seven sub-categories: health promotion, crime prevention, community pride, religious, cultural, business promotion or other. In order for any of these sub-categories to be assigned a value of one indicating a presence of the message, the “clear message” sub-category had to be coded with a one. The other sub-category was only coded with a one if the art object had a clear message that did not fit one of the other six sub-categories. For example, a mosaic on the side of a school, “What Do You Need to Know?” had symbols related to education as well as child play, neither of which fit a specific sub-category so it was assigned a value of one. Message content was coded as a possible indicator of neighborhood relevance, identity, and values, but was not incorporated in analysis.

Neighborhood involvement indicators. Each public art object was coded for two sub-categories of neighborhood involvement: the presence of a neighborhood involvement indicator or sponsorship by a neighborhood organization. A neighborhood involvement indicator was a

plaque acknowledging people other than the artist that assisted in the work, or a painted list of names. An indicator of neighborhood organization sponsorship was also coded with a one for presence if a plaque or painted message clearly acknowledged or thanked a local organization. If there was no physical indication of involvement, the item was coded with a zero. If at least one of the sub-categories was coded with a one, the art object received a one for overall indication of neighborhood involvement.

Artwork location. Location of artwork was coded using address information according to seven sub-categories: school, park or other green space, library, police station, church, community service organization, or other. Salient sub-categories were identified during canvassing and included on the coding form to reach a consensus. Only one location sub-category per public art object was assigned a value of one.

Analysis Variables

Public art. All public art information was aggregated to the neighborhood (i.e. US Census Tract) level. The following variables were included in analyses.

Public art presence. Public art presence is a count variable signifying how many public art objects exist within each neighborhood. This includes all categories of art such as murals, large graffiti works (i.e. not graffiti tags), sculptures, mosaics, and functional art (e.g., benches).

Street art ratio. In this analysis, street art is defined as spray can art work without an indicator of neighborhood involvement, large graffiti walls of writing or imagery, and temporary works that are known to change rapidly including a series of painted doors in Pilsen. Spray can work was coded by two raters ($AC1 = .67$). Disagreements were discussed and resolved. Street art ratio was calculated by dividing the number of street artworks in a neighborhood by the total

number of artworks identified in that same neighborhood.

Neighborhood involvement in public art. The neighborhood involvement variable identifies—through direct observation coding—how many art objects had a neighborhood involvement or organizational sponsorship indicator. Values from coding were aggregated by neighborhood and divided by the total number of art objects in the neighborhood to calculate the ratio of art objects that indicated neighborhood involvement.

Art object condition. The condition of each public art object was coded to determine if there were graffiti tags, crumbling infrastructure, fading imagery or other damage such as rust or water damage. Any visibly damaged art object was assigned a value of one. Objects without any visible damage were assigned a value of 0. Scores were then aggregated by neighborhood to determine a count of damaged art objects and divided by the total number of art objects in the neighborhood to calculate the ratio of visibly damaged art objects. This variable was included to determine if unmaintained art objects were negatively associated perceptions of collective efficacy.

Collective Efficacy. Two dimensions of neighborhood collective efficacy were assessed as a part of the Neighborhood Matters study: informal social control and social cohesion. This was done in accordance with Katz and Kahn's (1978) defining features of system norms such that created items (1) tapped individual beliefs, (2) asked about perceptions of neighborhood support for such beliefs (e.g. informal social control related to neighborhood norms), and (3) evaluated the statistical commonality of such beliefs and perceptions within a neighborhood as well as consistency of responses to items within individuals (see Henry, Gorman-Smith, Schoeny, and Tolan, 2015 for more details).

Neighborhood informal social control: General factor. Neighborhood informal social control is the willingness of residents to intervene in a situation in the neighborhood and measured norm behavior (e.g. “In general, what would someone in this neighborhood most likely do if...”). Items were ranked on a four-point scale, (1) Do nothing, (2) Complain to or discuss with other neighbors, (3) Talk to someone who can do something about it, for example the police a landlord, or a parent, and (4) Do something directly, for example step in and/or talk to the person or people involved. This scale included 47 items with questions about child welfare, child management, adolescent behavior, neighborhood management, neighborhood organization, and crime ($\alpha = .95$).

Neighborhood social cohesion. Neighborhood social cohesion represents the quality of relationships in the neighborhood, specifically mutual trust and willingness to help each other (e.g. “In general, people in this neighborhood can find a neighbor to watch their children for them.”). Items were ranked on a five-point scale from (1) strongly disagree to (5) strongly agree. The scale included 32 items ($\alpha = .92$).

Crime. Violent and property crime data from the year 2010 and the year 2014 were obtained through the Chicago Data Portal, which is an open source of archival crime data that are updated by the Chicago Police Department (CPD). Crimes are reported on the website at the police beat level. Police beats are geographical areas that define police patrolling routes. Because this study used census tracts that do not match police beat boundaries, crimes were imported into ArcGIS 10.2.2 as point data using latitude and longitude coordinates provided by the Chicago Data Portal. Crimes were then matched to census tracts based on the location and according to boundaries defined by the 2000 U.S. Decennial Census using ArcGIS 10.2.2. Lastly, points were

aggregated to the neighborhood (i.e. census tract) level as count data. Violent crime is an aggregate category summarizing any instance of homicide, shootings, and aggravated, non-domestic battery. Property crime is an aggregate category summarizing any instance of theft or criminal damage.

Neighborhood Matters Covariates.

Length of residence. Length of residence was measured in years and months at the individual level. Responses were group mean centered at average length of residence within the 30 neighborhoods to represent individual deviance from others in their neighborhood and included as a general measure of residential stability.

Individual ethnicity. Individual ethnicity was a dummy coded variable that represented if the individual identified as Hispanic (1) or non-Hispanic (0).

Gender. Gender was a dummy coded variable that represented if the individual identified as male (0) or female (1).

Age. Age was a dummy coded variable that represented if the individual was between the ages of 18 and 25 (0) or over 30 (1).

Predominant ethnicity. Neighborhoods included in the study were predominantly (>50%) Latino or African American. Predominant ethnicity was dummy coded and included in the model at the neighborhood level. A dummy code was included instead of a percentage variable due to high negative correlations between Percent Hispanic and Percent African American ($r=-.95$, $p<.001$).

Poverty strata. Neighborhoods included in the study were separated into five strata representing 5% increments with 0 representing 20%-25% of households falling below poverty

level and 4 representing 40%-45% of households falling below poverty level. As a result, higher values represented a greater proportion of households within the neighborhood living in poverty.

Neighborhood resources. Neighborhood resources measured existing neighborhood resources (e.g. grocery store, recreational facilities, and schools). Items were asked on a yes/no scale so that (0) represented the absence of the resource and (1) represented the existence of the resource. Ratings on the scale were then averaged and aggregated to the neighborhood level. Scores ranged between .57 and .88. This variable was included to control generally for how scarcity (or abundance) of basic resources contributes to collective efficacy and crime.

Observational coding covariate.

Year of Public Art Project. Art object year was included as a ratio representing the proportion of art completed before 2010. The number of art objects completed prior to 2010 was divided by the total number of art objects identified in the neighborhood during 2014 data collection. Year information was unavailable for 27 art objects, which reduced the sample from 26 to 24 neighborhoods with complete art information (4 neighborhoods had zero art objects) and from 606 to 480 individuals.

Data Analysis

Aim 1: Art descriptives. After codes were finalized, patterns of art objects across and within neighborhoods were assessed using descriptive information and linear regression models.

Aim 2: The relation between public art and collective efficacy. Random intercept models were used to examine the relation between the presence of public art objects and two outcomes of collective efficacy: 1) individual level social cohesion and 2) individual level informal social control. Multilevel models included predictors and covariates at both the

individual and the neighborhood level. Models were run using the *lmer* function in the *lme4* package of *R*.

The model predicting collective efficacy factors can be expressed as:

Level 1 (Individual observation within neighborhood)

$$y_{ij} = \pi_{0j} + \pi_{1j} (\text{individual covariates}) + e_{ij}$$

where y_{ij} is an outcome (social cohesion or informal social control) for individual i within neighborhood j , π_{0j} represents, and π_{1j} represents a vector of individual-level covariates including group mean centered length of residence, individual ethnicity, gender, and age.

Level 2 (Neighborhood)

$$\pi_{0j} = \beta_{00} + \beta_{01} (\text{public art presence}) + \beta_{02} (\text{neighborhood involvement}) + \beta_{03} (\text{art work condition}) + \beta_{04} (\text{neighborhood covariates}) + u_{0j}$$

$$\pi_{1j} = \beta_{10}$$

where π_{0j} is the intercept for neighborhood j , π_{1j} is the neighborhood's linear slope, β_{00} is the intercept, β_{01} estimates the effect of public art presence, β_{02} estimates the effect of neighborhood involvement in the public art projects, β_{03} estimates the effect of damaged art work, β_{04} represents neighborhood level covariate estimates including the effect of the neighborhood's poverty strata, predominant ethnicity, and neighborhood resources aggregated at the neighborhood level. A Random error term was included for the intercepts at the neighborhood level (u_{0j}) in addition to the residual error term at the individual level (e_{ij}).

Aim 3: The relation between public art and crime. Linear regression analysis was used to examine the relation between the presence of public art objects and two crime outcomes 1) property crime and 2) violent crime. All variables in the models were at the neighborhood level.

Crime outcomes were analyzed using in the *lme4* package of *R* using the linear model (*lm*) function.

The model predicting crime outcomes can be expressed as:

$$y_i = \pi_0 + \pi_1(\text{public art presence}) + \pi_2(\text{neighborhood involvement}) + \pi_3(\text{art object condition}) + \pi_4(\text{covariates}) + e_{0j}$$

where y_i is the crime outcome (i.e. property or violent crime) for neighborhood i , π_0 is the intercept, π_1 is the effect of public art presence, π_2 is the effect of neighborhood involvement, π_3 is the effect of the condition of art objects, π_4 represents the covariate effects including effects of the neighborhood's poverty strata, predominant ethnicity, and resources, and e_{0j} represents the residual variance.

Aim 4: Moderation by neighborhood involvement. A public art presence by neighborhood involvement interaction term was added to the above models to assess moderation by neighborhood involvement.

Sensitivity analyses. Due to missing data, a variable representing the proportion of art objects completed prior to 2010 was only included for analysis on a partial sample of 24 neighborhoods (480 individuals) to assess if neighborhoods with art prior to Neighborhood Matters interviews had higher levels of informal social control. Additionally, a simplified neighborhood level regression analysis was also used to examine the relation between proportion of street art and ratings of collective efficacy.

This model can be expressed as:

$$y_i = \pi_0 + \pi_1(\text{street art}) + \pi_2(\text{neighborhood ethnicity}) + \pi_3(\text{neighborhood poverty}) + e_{0j}$$

where y_i is the collective efficacy outcome (i.e. informal social control or social cohesion) for neighborhood i , π_0 is the intercept, π_1 is the effect of street art ratio, π_2 is the effect of predominant neighborhood ethnicity, and π_3 is the effect of neighborhood level poverty strata.

III. RESULTS

The results are presented in four sections reflecting the four study aims. The first section describes public art object patterns. The second section describes the relations between public art and elements of collective efficacy whereas the third section describes the relations between public art and crime. The fourth section describes moderation effects of neighborhood involvement on all outcomes. Additionally a sensitivity analyses section describes results of a partial sample analysis including art object installation year as well as results of street art as opposed to all public art on outcomes of interest. Correlations of main analysis variables are reported in Table 3.

Aim 1: Public Art Direct Observation Coding and Patterns

Interrater reliability. During coding, the 154 art objects were divided into sections of 15 to 50 art objects and coded by two independent observers. AC1 calculations were computed for each section of codes and ranged between .774 and .886. Object codes were finalized once all disagreements were resolved by consensus between the two main observers and a third observer.

Public art patterns and density. Similarities of public art within neighborhoods and public art density were examined. Table 2 describes frequency of art type, location, and neighborhood involvement for the 154 art objects identified in this study. On average there were approximately 5 art objects per neighborhood ($M = 5.13$, $SD = 6.47$). Public art murals were the most prevalent type of art ($N = 83$). Additionally, 65 of the art objects were located in, or on the walls of, public places such as schools, parks, and community service organizations. Lastly, 62 out of 154 art objects had a clear indicator of neighborhood involvement. Neighborhood involvement was defined as neighborhood member involvement in the piece or sponsorship by a

neighborhood organization. This information provides a basic understanding of what public art objects exist, but does not explain the spatial distribution of art objects within neighborhoods.

Table 3 contains counts of art object data per neighborhood and density, defined as count of art objects divided by neighborhood area. The map (Appendix D) shows art density in three categories taking into account the number of art objects per ¼ mile of neighborhood area. Neighborhoods that were predominately Latino had more public art objects ($N=114$) than predominately African American neighborhoods ($N=40$; $B = 5.34$, $p = .023$). Lastly, neighborhoods with greater neighborhood resources had more public art objects ($B = 40.49$, $p = .016$). Evidence implies that for these 30 neighborhoods, those that are predominantly Latino or have more resources are more likely to have public art objects.

Aim 2: Public Art and Collective Efficacy

Informal social control. There was no association between public art presence and levels of the general factor of informal social control ($B = .003$, ns). Likewise, neighborhood involvement in public art projects did not predict informal social control ($B = .018$, ns). Individuals that identified themselves as Hispanic had higher ratings of informal social control ($B = 0.173$, $p = .007$) compared to non-Hispanic individuals and individuals over the age of 30 had higher ratings of informal social control ($B = .213$, $p < .001$) compared to individuals 18 to 25. Additionally, as a greater percentage of the neighborhood population was living below the poverty line, informal social control ratings decreased ($B = -.041$, $p = .027$).

Neighborhood social cohesion. There was no association between public art presence and levels of neighborhood social cohesion ($B = .004$, ns). Similarly, neighborhood involvement in public art projects did not predict neighborhood social cohesion ($B = -.020$, ns). For covariates,

females had lower ratings of social cohesion compared to males ($B = -.117, p = .012$) and individuals over the age of 30 had higher ratings of social cohesion compared to individuals between 18 and 25 ($B = .176, p < .001$). Therefore, although there are significant associations with individual level covariates, no evidence implies that public art presence or neighborhood involvement are associated with levels of neighborhood social cohesion.

Aim 3: Public Art and Crime

Crime analyses were completed for property crime and violent crime counts in both 2010 and 2014. Because there was no difference in significance patterns, only the results from 2014 are presented.

Property crime. There was no association between public art presence and levels of property crime ($B = 3.08, ns$). Additionally, neighborhood involvement in public art was not associated with property crime ($B = 18.89, ns$). Therefore, there is no evidence that public art presence or neighborhood involvement impacts levels of property crime.

Violent crime. There was no association between public art presence and levels of violent crime ($B = .172, ns$). Similarly, there was no main effect for neighborhood involvement in public art ($B = 16.21, ns$). There was an association between predominant tract ethnicity and crime such that tracts that were predominantly African American had higher rates of violent crime than predominantly Latino tracts ($B = 13.48, p = .045$). Overall, there is no evidence that public art presence or neighborhood involvement is associated with lower levels of violent crime based on these findings.

Aim 4: Moderation of Neighborhood Involvement

Complete moderated regression model results analyzing the relations between public art,

neighborhood involvement, and collective efficacy are reported in Table 5 and moderated regression results analyzing the relations between public art, neighborhood involvement, and crime are reported in Table 6.

Factors of collective efficacy. There was an interaction between neighborhood involvement and public art presence for informal social control indicating that as the ratio of public art involving the neighborhood increases, perceptions of informal social control also increase ($B = .057, p = .044$). To examine the nature of these relations, the interactions were graphed at ± 1 standard deviation for neighborhood involvement and ± 0.5 standard deviation for public art presence. Examining Figure 4, it is apparent that when the presence of art is low, there is no association of neighborhood involvement ($B = -.085, ns$). However, when there is a high presence of art, there is a positive effect of neighborhood involvement, such that when neighborhood involvement is higher informal social control is also higher ($B = .323, p = .049$). Therefore, as presence of art increases, informal social control is positively linked to public art when a greater proportion of art objects involve people or organizations from the neighborhood. In contrast, there was no interaction between neighborhood involvement and public art presence for social cohesion ($B = .002, ns$).

Types of crime. There was no interaction between neighborhood involvement and public art presence for property crime ($B = 1.73, ns$) or for violent crime ($B = -1.99, ns$). Therefore, there is no evidence that public art and neighborhood involvement are associated with crime.

Sensitivity Analysis

Two additional analyses were conducted. The first analysis examined how the year of art object installation relates to factors of collective efficacy in select neighborhoods. The second

analysis assessed how the presence of street art as opposed to all public art relates to factors of collective efficacy.

Art object installation year. The partial sample analyses included only neighborhoods with at least one public art object whose year of installation was known. In this sample including 24 neighborhoods (480 individuals), as proportion of art objects completed prior to 2010 increased, there was a marginal main effect of increasing informal social control ($B = 0.17, p = .0713$). This indicates that neighborhoods with a greater presence of public art prior to Neighborhood Matters data collection had marginally higher levels of informal social control. The addition of this covariate and decrease in sample size due to missing data did not impact the significance of any other predictors reported in the full sample analyses. Neighborhood social cohesion was not associated with proportion of art objects completed prior to 2010.

Street art analyses: Neighborhood level. Due to a high presence of street art in the sample, a neighborhood level model was analyzed to determine possible street art effects. In the model, street art had a significant negative association with informal social control ($B = -0.17, p = .023$) suggesting that as the proportion of street art in a neighborhood increased, neighborhood level perceptions of informal social control decreased. In the same model, predominant ethnicity was a significant predictor with predominantly African American neighborhoods being associated with lower levels of informal social control compared to predominantly Latino neighborhoods ($B = -0.17, p < .001$). A greater proportion of neighborhood poverty was also linked to lower informal social control ($B = -.03, p = .020$) suggesting that as poverty became more severe, perception of informal social control decreased. Together, these three variables explained 45% of the variance in neighborhood level informal social control (Adjusted R -

squared = .420). Conversely, street art ratio had no association with neighborhood social cohesion. These results are congruent with the main data analyses and indicate that presence of public art, regardless of type, is not related to perceptions of social cohesion but is related to perceptions of informal social control. Additionally, it indicates that the type of art has a differential association with neighborhood level perceptions.

IV. DISCUSSION

This study describes predictors of public art and assesses how public art presence, type, and resident involvement in art are related to collective efficacy and crime in 30 Chicago neighborhoods. Results indicate that predominant neighborhood ethnicity and neighborhood resources are associated with a higher presence of public art. These findings highlight the importance of cultural norms as well as gathering spaces and organizations that may facilitate the presence of public art. Results also indicate that a high proportion of neighborhood involvement is positively associated with perceptions of informal social control when there was an average or high presence of public art. However, there was no effect of neighborhood involvement on informal social control when there was a low presence of public art. This supports the belief that neighborhood involved art is connected to informal social control, but only if there is a great enough presence. There was also a main negative effect of street art on informal social control, such that as the ratio of street art increased, perceptions of informal social control decreased. This finding aligns with theories that street art is perceived as a neighborhood disorder indicator; neighborhood disorder is negatively associated with informal social control (Sampson et al, 2002). Despite the connections with informal social control, there was no evidence of public art effects on social cohesion or crime. Overall, results provide preliminary support that public art projects incorporating neighborhood residents and organizations are positively associated with informal social control. However, more research into the potential of public art projects as mechanisms to increase informal social control is needed.

Public Art Predictors

Predominant ethnicity was one predictor of public art presence; it is possible that this finding is a result of sampling. Neighborhoods were balanced by poverty, ethnicity, and crime,

but not by amount of public art. As a consequence, three Latino neighborhoods were selected that are centers for Latino art. Alternately, no African American art hubs were selected despite known public art collections and the South Side being where the community mural movement began in Chicago (Gude & Huebner, 2000). In some cases, public art objects located only a few blocks away from the neighborhood boundary were excluded due to data collection constraints. The result may also be partially explained by different meanings and histories of art. This possibility emphasizes that more attention needs to be paid to cultural movements within public art. For example, African American public art often speaks out against oppression, while also merging traditional African art styles with contemporary art and celebrating African American history. The Chicano public art movement began in the 1960s to raise awareness of collective history and fight for worker's rights as well as enhanced education and political rights. In addition to these messages speaking out against political and societal oppression, Mexican American public art has deep historical ties that began in Mexico and continued as more and more individuals and artists immigrated to the United States. In the United States, Chicago is one of the epicenters for these artworks. This difference in traditions may partially explain why neighborhoods with largely Latino, immigrant populations, have more public art.

Even though Chicano art celebrates culture and history and involves the community, the Pilsen neighborhood did not have the highest level of social cohesion despite having, the highest amount of public art. Pilsen is a Chicago community that has seen (and fought) signs of gentrification for over 50 years (Lulay, 2015). One aspect of this change is an increase in middle-class White and Hispanic families. It is possible that any Non-Latino White individuals may feel a lowered sense of belonging (Neal & Neal, 2014). The continued threat of gentrification, which

often results in higher rent prices and forces relocation, may make current residents feel their neighborhood no longer belongs to them. Public art has been linked to some benefits of gentrification (e.g. attracting tourists and improving appearance) that are associated with decreased crime, but can also promote cultural diversity, encourage integration of marginalized groups, and promote a sense of community, which may be lost during gentrification (McCarthy, 2006; Hall & Smith, 2005). However, future research on sense of community and cohesion should further consider that gentrification could divide residents. Studies of public art intervention should ensure that if art is used as a catalyst for social change, steps are taken to respect the views and opinions of the people currently living in the neighborhood while also promoting inclusivity for multiple group identities.

Lastly, reports of more neighborhood resources were associated with more public art. As mentioned, almost half of the art objects were located in parks, schools or community service organizations, which are all surveyed neighborhood resources. This finding may indicate that when neighborhood members are more aware of such spaces, they use the spaces more and promote their improvement. Likewise, it indicates that when a neighborhood does not have organizations that provide the space for public art, it is less likely to exist. This partially suggests that the lack of public art may be a sign of structural disadvantage for neighborhoods that have fewer recreational spaces, schools, and entertainment places.

Public Art and Informal Social Control

Results indicate that art has the greatest association with neighborhood perceptions of informal social control when there is a clear indication that neighborhood residents were involved. There are several ways to interpret this finding. It could be that public art with clear

indicators of neighborhood involvement serve as an environmental cue to residents about neighborhood relationships and norms. Alternately, neighborhoods that have higher informal social control to begin with may be more able to come together and complete a public art project. It is also possible that the relationship between public art and informal social control is a reciprocal one; after one public art object was created, residents came together to obtain space and resources for more public art projects. This desire for more public art after observing the process and completion of one public art piece is one of the most universal results of a successful mural (Cockcroft, Weber & Cockcroft, 1998). Overall, this finding suggests that neighborhood public art projects are a potential tool for increasing informal social control.

Public art presence and neighborhood involvement were not associated with social cohesion. Neighborhood social cohesion is believed to be the basis of informal social control and therefore the two factors combine to create collective efficacy (Groff, 2015). Although both factors were correlated with each other at the neighborhood level ($r=.73, p < .001$) and at the individual level ($r=.49, p < .001$), the lower correlation at the individual level suggests that the two may not be equal factors of collective efficacy (Hipp & Wo, 2015). Furthermore, the lack of public art association with social cohesion is somewhat contradictory. Previous research has suggested that when people work together to create a public art project, social connection increases and neighborhood members build trust (Gude, 2003; Lowe, 2000). It may be that the 20 individuals interviewed from each neighborhood were not involved in any public art project. As a result, they may view public art as evidence of neighborhood norms and neighborhood capacity for change without having experienced any change in social cohesion. Alternatively, because this study only assessed the presence of completed public art projects, it is possible that

social cohesion usually observed during public art creation does not last long after art work completion. However, results from this study are unable to properly assess that possibility. Even though social cohesion is correlated with informal social control, study results suggest that the two factors can change independently.

The results also indicate that the proportion of street art in the neighborhood is associated with perceptions of informal social control. Street art and graffiti murals often evoke strong responses in people, some of which are negative. Negative responses may be attributed to beliefs that street art is vandalism, that the police and neighborhood members are ineffective at preventing this sometimes-illegal art, or beliefs that street art is not high quality (Austin & Sanders, 2006). Furthermore, even though street and graffiti art have many forms and styles, people may not perceive them to be any different from graffiti tags that are commonly linked to neighborhood disorder (Austin & Sanders, 2006; Sampson & Raudenbush, 2004). Despite these responses, recent studies have found that the street art movement is based in questioning assumptions, modeling creative behavior and belonging to a creative group and environment (Daichendt, 2013). Therefore, even though street art may sometimes be perceived as negative, it is based in similar ideas as the community public art movement that calls for social awareness and critique and also takes an immense amount of skill and planning. Future studies should examine differences between community public art and street art as well as how perceptions of these art forms vary by age, gender, ethnicity, and educational background.

Predominant neighborhood ethnicity and existing neighborhood resources were other predictors of informal social control. Although previous studies have found lower ratings of informal social control among racial and ethnic minorities due to concentrated disadvantage and

lower police satisfaction (Drakulich & Crutchfield, 2013; Silver & Miller, 2004) there has not been any comparisons between predominantly Latino and predominantly African American communities. It is possible that differences in an unmeasured variable, such as neighborhood attachment or police satisfaction, which have been associated with informal social control in previous research, exists between Latino and African American neighborhoods (Silver & Miller, 2004). However, further research comparing these two populations is needed to understand how perceptions differ by racial and ethnic minority group status. The relation between informal social control and existing resources may suggest that places, such as religious institutions, parks, and entertainment places, establish behavioral norms and provide spaces for people to intervene when behavior is discordant with social norms. These variables were not the hypothesized predictors, but they do provide insight into what settings may be most responsive to public art interventions.

Another goal of this research was to determine how public art and collective efficacy are associated with crime. No direct relationship between public art and crime was found. Additionally, social cohesion was not linked to levels of crime within these neighborhoods. This finding matches evidence from Warner and Rountree (1997) that found a connection between social ties and crime in predominantly White neighborhoods but no connection in minority neighborhoods. However, informal social control has consistently been linked to crime (Ahlin, 2010; Hipp & Wo, 2015; Sampson et al., 2002; Silver & Miller, 2004). The connection of informal social control and crime implies an indirect association between public art projects and crime. In this study, there was no mediation effect, but it is possible that the sample size was too small to detect such an effect.

Limitations

The aims of this study were to make an initial assessment of the impact of public art on neighborhood level social factors. As a result, this study used heavily quantitative methods and had low neighborhood involvement in data collection. Quantitative methods provided a broad picture of public art in these Chicago neighborhoods, but did not answer questions about why the artwork was created and what it might mean to the neighborhood. Furthermore, coders were outside observers, and as such were unfamiliar with cultural symbols, social movements, and neighborhood history. The commonality of being outside observers may have allowed for high reliability in coding, but future studies should assess the quality and validity of the measure with in-depth community member interviews about perception and knowledge of public art in their neighborhood. Similarly, this study does not incorporate neighborhood art creation process information. Multiple studies of cultural and community development, as well as writings about community public art, emphasize that art is more than the product; the process is when the development of critical consciousness, relationships, and knowledge gathering of the past and present occur (Cockcroft, Weber & Cockcroft, 1998; Freire, 1986).

Sampling methods and size were other major limitations. This study was cross sectional and retrospective, limiting abilities to make causal claims. Significant results may be attributed to some third, unmeasured variable that was not considered in this study. Additionally, the separation of time between data collection by Neighborhood Matters in 2009-2010 and public art data collection in 2014 introduces unknown error. For example, year of installation was not known for all public art objects, which limited abilities to make retrospective claims about how much public art was present during 2010. Likewise, public art can change quickly and some of

the pieces that existed in 2010 may not have been present in 2014 or were in worse condition due to time. Furthermore, a neighborhood, operationalized here as a census tract, is a moderate sized area that represents a geographical area, but not necessarily a community of people that share beliefs, values, or goals. The Neighborhood Matters study did assess residents' perceptions of social factors and resources using maps of census tracts and a block of surrounding area to promote a consistent definition of "neighborhood" across respondents, but there is still a disconnect between a geographical area and a neighborhood. Neighborhoods were selected from previous research and although discovering public art in 30 neighborhoods with similar levels of crime that are also balanced by race and poverty was ambitious, the sample is still small, increasing the possibility of Type II error.

Future Directions

This study has raised possible areas for future inquiry of the role of public art on neighborhood level perceptions and individual behavior. First, qualitative research addressing how the process of public art impacts factors of collective efficacy is needed. Past qualitative work assessing the public art process has identified what makes projects successful and how relationships appear to be strengthened among neighborhood members (Lowe, 2001; McNeely, 1999), but these studies have not addressed long-term social impacts within the neighborhood. Furthermore, past research has focused on the public art process and relationship building without looking at informal social control. Future research should incorporate informal social control because it has stronger ties to crime prevention and was also linked with community public art in this study. Similarly, artists involved in public art projects should consider not just the outcome they hope the project has, but also how they can assess the outcomes. There are

many claims made about public art but not enough evaluation of these claims. In order for meaningful evaluations to occur, more attention is needed from individuals actively involved in the creation and advocacy of public art.

Another related line of inquiry would be to investigate differential impacts of street art and community art movements, ideally with qualitative methods. Street art is growing and often involves youth. Even when street art is the result of a youth art program (Daichendt, 2013), adults may view it to be vandalism or not valuable. Community public art may be viewed more positively because of perceptions that the art represents the neighborhood, incorporates residents' beliefs, and enhances the space. Lastly, public art created by outside artists may be placed in a neighborhood to improve appearance or increase arts awareness with little value for neighborhood relevance. For example, "Sculpture on the Boulevards", a temporary art installation series was launched in Chicago placing sculptures along Logan, Independence, California, Garfield and Western Boulevards as part of Chicago's Cultural Plan (Office of the Mayor, 2013). The goals of this installation were to bring culture and art to more of Chicago's communities and potentially promote economic development, attract tourists, and foster innovation (Office of the Mayor, 2013). Often, public art projects like this do not offend anyone, but they also do not resonate deeply with anyone despite promises made in press releases. Therefore, future studies should address how different types of public art are perceived and how those perceptions impact awareness of art and neighborhood social behaviors.

Lastly, in addition to coding and describing public art objects, future studies should assess the quality of created measures with neighborhood member interviews about perception and knowledge of public art in their community. IXIA has worked to create an aesthetically

based evaluation and the coding form in this study was based on observable information, but an evaluation that addresses long term social impacts is needed. Interviews with residents can reveal meanings and values attributed to public art that is often unknown by an outside observer. Additionally, residents may identify that a public art piece has little meaning to them even if it is historically valuable or aesthetically high quality. Either way, qualitative understanding of resident opinions on art would be useful in deciding how public art can represent artistic expression and social critique while also impacting social behaviors within communities. Additionally, interview information would help design future evaluations of public art that value public opinion and possibly help balance the concern of aesthetic quality and neighborhood relevance.

Conclusion

This study is an initial step to understand the potential relations of unique cultural expressions and resources within communities (i.e. public art projects) to factors of collective efficacy and levels of crime. Results show that when the neighborhood is involved in public art, informal social control increases in neighborhoods with medium to high amounts of public art, indicating a potential for public art intervention. Findings also highlight that the types of artwork (i.e. street art vs. other public art) are differentially related to informal social control. This suggests a need for a deeper examination of people's perceptions of art and how those perceptions impact social factors. Lastly, results provide an understanding of public art patterns within some of Chicago's communities and highlight in what contexts art may be an appropriate tool in the ongoing violence prevention efforts.

TABLE 1*2000 Census Tracts sampled by Neighborhood Matters Study, 2009*

<u>Tract</u>	<u>Community Area</u>	<u>Predominant Ethnicity</u>
2223	Logan Square	Latino
2226	Logan Square	Latino
2229	Logan Square	Latino
2307	Humboldt Park	Latino
2309	Humboldt Park	Latino
2411	West Town	Latino
2432	West Town	Latino
2503	Austin	African American
2513	Austin	African American
2519	Austin	African American
2603	West Garfield Park	African American
2609	West Garfield Park	African American
2715	Homan Square	African American
3001	South Lawndale/Little Village	Latino
3010	South Lawndale/Little Village	Latino
3015	South Lawndale/Little Village	Latino
3106	Pilsen	Latino
3109	Pilsen	Latino
3804	The Gap	African American
3819	Grand Boulevard	African American
3904	Kenwood	African American
4306	South Shore	African American
4701	Burnside	African American
5803	Brighton Park	Latino
6113	New City	Latino
6305	Gage Park	Latino
6706	West Englewood	African American
6720	West Englewood	African American
6904	Greater Grand Crossing	African American
7101	Auburn Gresham	African American

TABLE 2

Descriptives about public art objects

Variable	Count	Percent
<i>Art Type</i>		
Mural	83	53.90
Graffiti	24	15.58
Mosaic	18	11.69
Sculpture	16	10.39
Combination	13	8.44
<i>Community Involvement</i>		
None	114	74.03
Both Indicators	22	14.29
Sponsor Only	10	6.49
Involved Only	8	5.19
<i>Damage Type</i>		
Chipped or Faded	73	47.40
Crumbling	20	12.99
Tagged	15	9.74
Other	35	22.73
<i>Location</i>		
School	26	16.88
Park	21	13.64
Local Organization	18	11.69
Other	89	57.79
<i>Message</i>		
Cultural Pride	57	37.01
Neighborhood Pride	33	21.43
Religion	19	12.34
Other	81	52.60

TABLE 3*Density of public art objects by census tract*

<u>Community Area</u>	<u>Tract</u>	<u>Count</u>	<u>Density</u>
Austin	2503	0	0
Burnside	4701	0	0
West Englewood	6706	0	0
West Englewood	6720	0	0
Austin	2513	1	0.01
Gage Park	6305	1	0.01
Austin	2519	2	0.03
Greater Grand Crossing	6904	2	0.03
Grand Boulevard	3819	1	0.05
Homan Square	2715	1	0.06
South Lawndale/Little Village	3001	2	0.06
Brighton Park	5803	3	0.06
West Garfield Park	2603	3	0.08
Humboldt Park	2307	7	0.1
South Shore	4306	4	0.11
Logan Square	2223	2	0.12
Humboldt Park	2309	6	0.12
West Garfield Park	2609	3	0.12
Auburn Gresham	7101	3	0.13
West Town	2432	5	0.14
South Lawndale/Little Village	3010	2	0.14
South Lawndale/Little Village	3015	7	0.2
Logan Square	2229	5	0.21
The Gap	3804	8	0.23
New City	6113	9	0.26
Ken	3904	10	0.28
Logan Square	2226	5	0.29
Pilsen	3109	22	0.42
West Town	2411	17	0.48
Pilsen	3106	31	0.53

Note: Density represents count of public art work divided by area of the census tract

TABLE 4

Main analysis variables correlation matrix

Analysis Variables	Informal Social Control	Social Cohesion	Social Resources	Resources	Violent Crime	Property Crime	Percent Hispanic	Percent African American	Poverty Level	Public Art Count	Neighborhood Involvement Ratio	Damaged Art Ratio	Tagged Art Ratio	Street Art Ratio
Informal Social Control	--													
Social Cohesion	.73**	--												
Social Resources	-.34+	-.03	--											
Resources	-.13	-.08	.34+	--										
Violent Crime	-.49**	-.40+	.42*	-.07	--									
Property Crime	-.32+	-.26	.33+	-.10	.87*	--								
Percent Hispanic	0.3	0.137	-.36+	0.22	-.35+	-.25	--							
Percent African American	-.39*	-.15	.37*	-.20	.43*	.35+	.95**	--						
Poverty Level	-.40*	-.25	-.21	0.28	0.08	0.12	0.08	0.002	--					
Public Art Count	0.04	0.05	0.15	.44*	-.16	-.08	.39*	-.43*	0.2	--				
Neighborhood Involvement Ratio	-.15	-.22	.41*	0.04	.38*	0.16	-.13	0.1	-.10	0.04	--			
Damaged Object Ratio	-.29	-.36*	.15	-.12	0.25	0.03	0.29	0.07	0.09	0.18	.52*	--		
Tagged Object Ratio	0.07	-.03	-.13	-.05	0.13	0.03	0.29	-.27	0.06	0.04	0.21	0.26	--	
Street Art Ratio	-.16	-.21	-.21	-.09	-.32+	-.38*	.39*	-.42*	0.11	0.24	-.26	0.16	0.14	--

TABLE 5

Moderated mixed effects regression analyses results for each factor of collective efficacy

Predictors	Informal Social Control			Social Cohesion		
	B (SE)	p		B (SE)	p	
Intercept	2.46 (.070)	<.001	***	3.34 (.073)	<.001	***
<i>Individual Level</i>						
Length of Residence	.0002 (.0002)			.0003 (.0002)		
Ethnicity (Hispanic)	.166 (.064)	0.01	*	.0002 (.070)		
Gender (Female)	-.041 (.043)			-.116 (.046)	0.012	*
Age (30+)	.201 (.045)	<.001	***	.155 (.048)	0.001	**
<i>Tract Level</i>						
Public Art Presence	.001 (.004)			.004 (.005)		
Community Involvement	.124 (.096)			.039 (.104)		
Damaged Objects	-.022 (.084)			-.083 (.091)		
Poverty	-.041 (.017)	0.013	*	-.025 (.018)		
Ethnicity (Latino)	-.012 (.067)			.004 (.071)		
Resources	-.210 (.383)			-.168 (.415)		
Public Art*Community Involvement	.061(.028)	0.027	*	.031 (.030)		

+ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Note: p value is specified for significant results only

TABLE 6*Linear regression analyses of public art presence and crime (2014)*

Predictors	<u>Property Crime</u>		<u>Violent Crime</u>	
	B (SE)	p	B (SE)	p
Intercept	82.85 (25.54)	0.004 **	13.12 (7.36)	0.089 +
Public Art Presence	3.05 (1.99)		.212 (.574)	
Community Involvement	22.12 (44.63)		12.38 (12.87)	
Damaged Objects	-14.47 (39.38)		-3.88 (11.35)	
Poverty	-2.03 (7.86)		1.80 (2.26)	
Ethnicity (African American)	45.52 (22.46)	0.055 +	13.24(6.47)	0.053 +
Resources	-70.11 (180.45)		-24.60 (52.02)	
Public Art*Community Involvement	1.73 (12.78)		-2.05(3.68)	

+ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Note: p value is specified for significant results only



Figure 1. Example images of public art in Chicago including *Honor Boricua* (A) located on Paseo Boricua in West Town, *The Great Migration* (B) located in Bronzeville, *Feed Your Child the Truth* (C) located in Kenwood, and *Declaration of Immigration* (D) located in Pilsen



Figure 2. Examples of street art walls in Chicago including images from the 16th St Wall in Pilsen (A) and from the Meeting of Styles in Little Village (B).

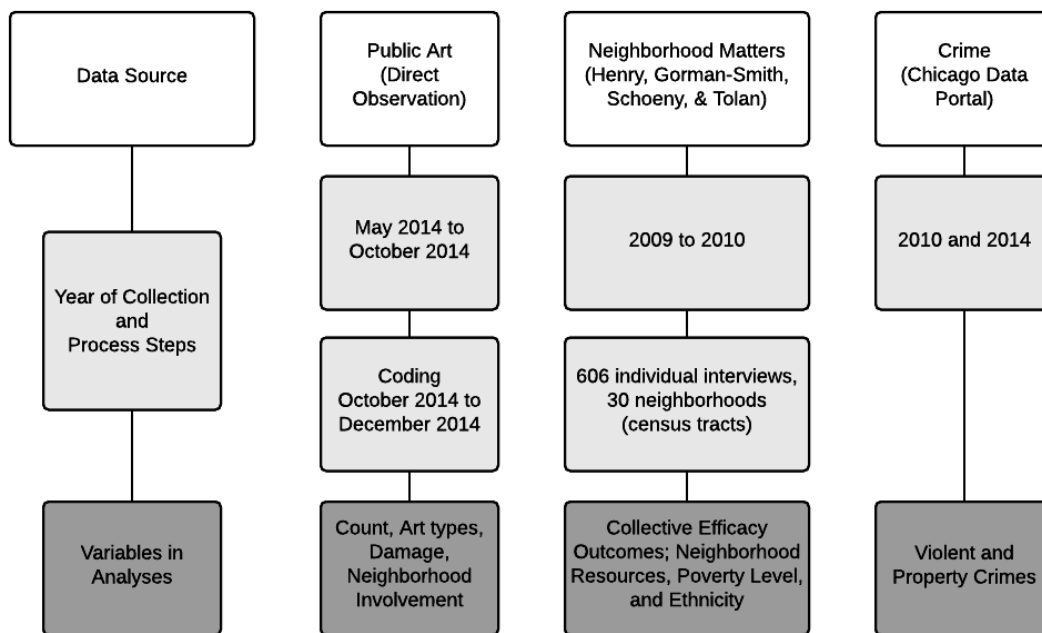


Figure 3. Data sources and year for variables included in analysis

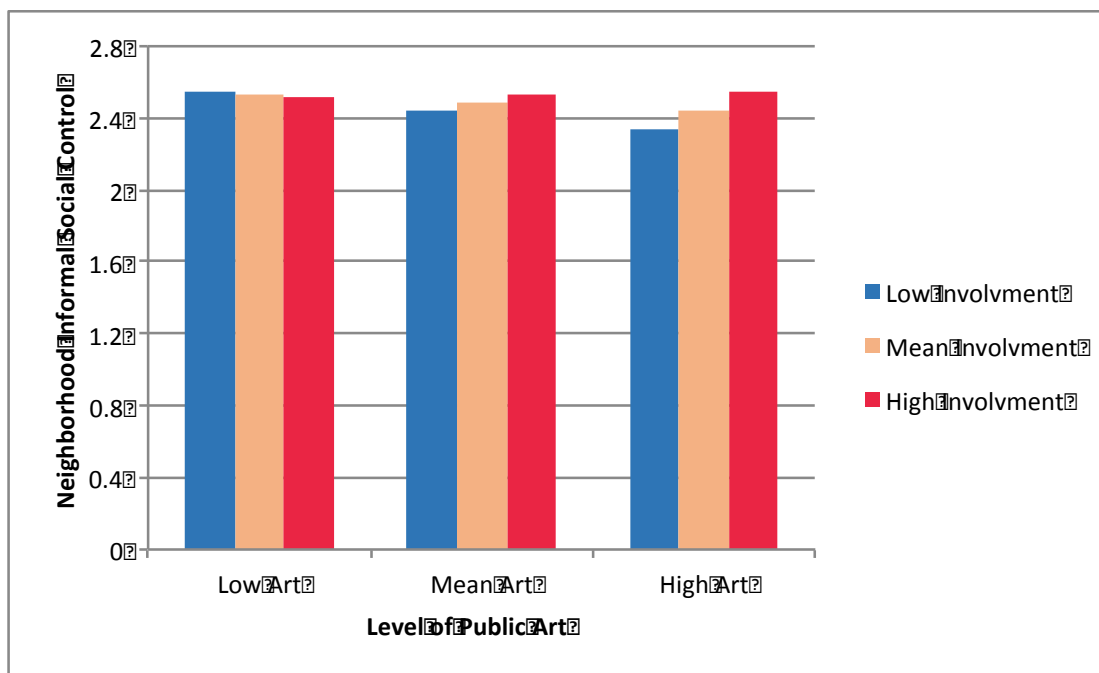


Figure 4. Interaction of public art presence and neighborhood involvement on ratings of informal social control. Categories are defined as ± 1 standard deviation from the mean for public art and $\pm 1/2$ standard deviation from the mean for neighborhood involvement.

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APPENDIX A

Calling Script

VERSION A:

If the art work is ON their building

Hello _____,

My name is _____ and I am a student at the University of Illinois at Chicago conducting research on public art pieces in Chicago neighborhoods. The reason I am calling is to ask you a few brief questions about the (mural/mosaic/art piece) on your building.

Do you know about the creation of that piece?

IF YES: Would you be willing to answer a few questions about it?

If Yes: Great!

1. For starters: Do you know when the art piece was created and who worked on it?
(What you are looking for with that sentence: year of installment, artist, and if the community was involved)
2. Did anyone from the community help advocate for, plan, or work on the art piece? Could you tell me a little more about their involvement?
3. Do you know who paid for or sponsored the art work?
4. Do you think that the art work represents the community or is in any way part of the community's identity?
5. Is there any other information about the piece you would like to share with me?

If No: Would there be a better time that I could call back and ask or someone else I could speak with?

IF NO: Would you happen to know someone or an organization I could contact that does know about the art piece?

AT THE END OF THE CALL: Do you have any questions you would like to ask me?

Thank you very much for your time.

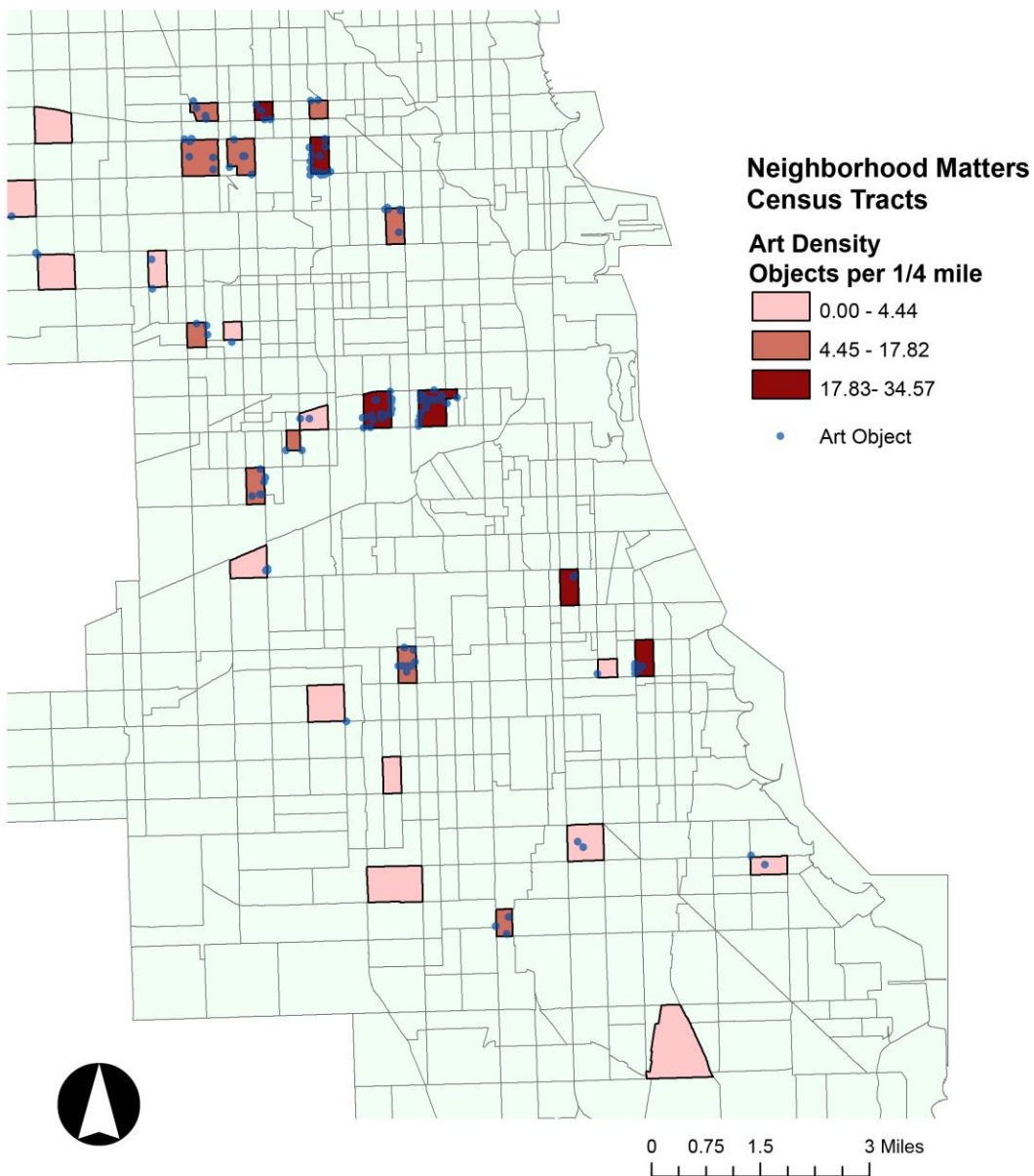
APPENDIX B

Coding Terms and Definitions for Direct Observation Measure

Shortened Code	Definition	Shortened Code	Definition
Tract	Census Tract (2000)	Type of Artwork (Multiple subcategories can be coded with this)	
Artwork	Number identifier and object title from data sheet	Graffiti	Largely spray painted works that feature large colorful words and some imagery
Condition Artwork (Multiple subcategories can be coded with this)		Mural	Painted works that contain cohesive/aesthetic imagery
Graffiti tag	Small graffiti tag on top of the artwork. Not to be confused with the larger words and tags that compose graffiti art	Mosaic	Works that utilize broken glass or ceramic pieces to create imagery
Crumbling Infrastructure	Large cracks in wall or chunks of surface missing	Sculpture or Relief	Three dimensional artwork or the build up of a surface so that part of the imagery becomes 3D despite being largely 2D
Chipping or Faded	Chipped paint, faded or the point that is hard to read/see, or missing/broken mosaic pieces	Functional	Art that serves some purpose other than just being viewed. For example bench.
Other Damage	Water stains, rust, or other similar damage	Other	Works that do not quite fit any of these categories (e.g. photography or signs)
Content Message (Multiple subcategories can be coded with this)		Community Involvement (Multiple subcategories can be coded with this)	
Clear Message?	All art has some type of message, but is there a clear message indicated by common symbols, words, or imagery that is more than just a feeling that something is being conveyed.	Indicator of community involvement	An indicator such as plaque or painted imagery that clearly acknowledges community member involvement
Health/Activity Promotion	Healthy eating, play, or sports	Sponsored by Community Organization	An indicator such as plaque or painted imagery that clearly states the community/local Chicago organization sponsored the work
Crime Prevention/Peace Promotion	Unity, anti-violence, anti-weapon, peace, love in terms of acceptance and tolerance	Location (Only one subcategory can be coded with this)	
Community Pride or description	Images or titles of the specific geographic neighborhood (e.g. Pilsen or Paseo Boricua). Not just broad Chicago pride.	School	Artwork is located on or right next to school
Cultural Message	All tracts chosen were predominantly Latino or African American. Therefore, this refers to the representation of non-white culture including flags, people of color, symbols, etc.	Park/Garden	Artwork is located in park, garden or other green space used for recreation and gathering
Religious Message	The depiction of religious symbols such as lady Guadalupe and roses as well as bible verses or expressions of God's love	Library	Artwork is located on, inside or right outside of library
Business Promotion	Art that draws attention to what is produced within building, provides contact information, or displays business sponsor logos	Church	Artwork is located on, or right outside of church
Other	Another clear message that does not fit the above, one that came up in the middle of coding was an educational message or respecting the earth message. This is NOT a category for "something" being conveyed but it is not clear what	Police Station	Artwork is located on, inside or right outside of police station
		Community Service Organization	Artwork is located on, inside of, or right outside a community organization that provides some sort of service (e.g. daycare, mental health, child services, etc.)
		Other	Artwork is located somewhere other than listed

APPENDIX D

Public Art Density in 30 Chicago Census Tracts, 2014



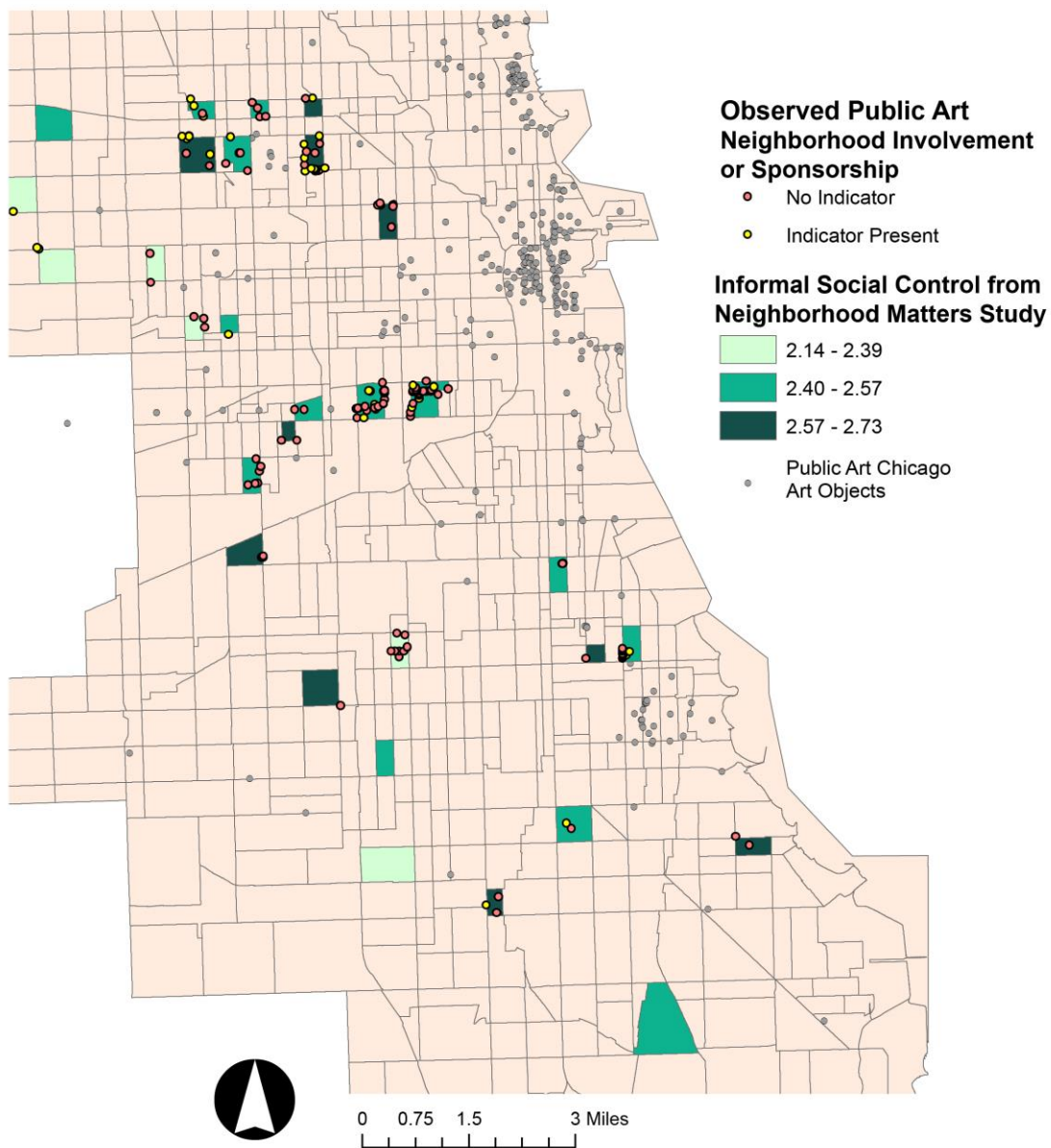
Projected Coordinate System:
North American Datum 1983
Illinois State Plane East FIPS 1201

Data Sources
US Census Bureau,
the Neighborhood Matters Study
and Public Art Chicago

Map Prepared by Shannon Knoblauch
04.15.15

APPENDIX E

Public Art Presence (2014) and Informal Social Control (2010) in 30 Chicago Census Tracts



Projected Coordinate System:
North American Datum 1983
Illinois State Plane East FIPS 1201

Data Sources
US Census Bureau,
the Neighborhood Matters Study
and Public Art Chicago

Map Prepared by Shannon Knoblauch
04.15.15

Shannon Leigh Knoblauch, M.A.

EDUCATION

University of Illinois at Chicago, Chicago, IL

Doctorate of Philosophy in Community Psychology and Prevention Research, Expected May 2017

Masters of Arts in Psychology, May 2015

- Minor in Statistics, Methods and Measurement
- Geospatial Analysis and Visualization (GSAV) Certificate

Bradley University, Peoria, IL

Bachelor of Arts in Psychology, May 2012

Bachelor of Arts in Art (Painting Concentration), May 2012

- Minor in Spanish

RESEARCH INTERESTS

The impact of public art projects on community cohesion, pride, and collective efficacy as well as violence prevention; youth art and leadership development; public policy.

PUBLICATIONS

Wyman, P. A, Henry, D., **Knoblauch, S.**, & Hendricks Brown, C. (2014). Designs for testing interventions that address community needs and challenges of small samples: The dynamic wait-listed and regression point displacement designs. *Society for Prevention Research*

POSTERS & PRESENTATIONS

Knoblauch, S. & Henry, D. B. *Effects of violence related school climate variables on academic outcomes*. Oral Presentation at the 5th International Conference for Community Psychology, Fortaleza, CE, Brazil, September 6, 2014

Knoblauch, S. & Henry, D.B. *Effects of violence related school climate variables on academic outcomes*. Presentation at Midwest Ecological Community Psychology Conference, Chicago, IL, November 16, 2013

School Contexts in the Middle Years: Facilitating Developmental and School Transitions Paper Symposium

- **Knoblauch, S.** & Henry, D. B. *Influence of school level variables on academic outcomes*. Presentation at the Society for Research in Child Development Biennial, Seattle, WA, April 20, 2013

A different perspective: Presentation at Bradley University's Celebrate Psychology, Spring 2011

- Used brain imagery, including the hippocampus and amygdala, OCD brain scans and brain activity in patients diagnosed with Schizophrenia, to create three abstract oil paintings
- Explained different parts of the human brain and how the shapes and functions influence the work

Knoblauch, S., Schwartz, N. & Etaugh, C. E. *Women over 40: Invisible in psychology of women/gender textbooks?* Poster presentation at Bradley University's Student Research Expo, Spring 2011

Knoblauch, S. *The effects of color on mood.* Poster presentation at Bradley University's Celebrate Psychology, Fall 2009

Knoblauch, S. *Literature Review of Obsessive Compulsive Disorder and treatment using SSRIs.* Poster presentation at Bradley University's Celebrate Psychology, Fall 2009

AWARDS

- **UIC Department of Psychology Travel Award** (Fall 2014; Spring 2013)
- **LAS PhD Presenter's Award** (Fall 2014; Spring 2013)
- **UIC Graduate Student Council Travel Award** (Fall 2014; Spring 2013)

RESEARCH AND TEACHING EXPERIENCE

Relations of public art, collective efficacy and crime in Chicago, Master's Thesis, May 6th, 2015

- Identified and coded art objects in 30 of Chicago's census tracts
- Conducted quantitative multi-level regression analyses of the presence of public art, neighborhood involvement, and outcome variables of collective efficacy and crime

Research Assistant, Spring 2013 – Present

- Conducted multi-level regression analysis of school climate variables and student outcomes
- Used Regression Point Displacement Design to evaluate the effectiveness of CeaseFire intervention in four police beats
 - Co-wrote an evaluation report with Dr. David Henry and Rannveig Sigurvinsdottir (Accessible at <http://cureviolence.org/wp-content/uploads/2015/01/McCormick-CeaseFire-Evaluation-Quantitative.pdf>)

Teaching Assistant, Fall 2012 - Spring 2015

- Taught discussion classes for Introduction to Psychology (PSCH 100), Psychology Research Methods (PSCH 242), Statistics (PSCH 343), and Writing in Psychology (PSCH 303)
- Created weekly lesson plans based on lecture materials
- Guest lecture on Sampling Methods for Research Methods (Spring 2014)

Service Learning Coordinator. Spring 2012

- Established a service learning project for Dean Claire Etaugh's Psychology of Women course
- Collaborated with 22 students to place them as volunteers with the Peoria Park District, Center for Prevention of Abuse, or YWCA in Peoria, IL
- Established a volunteer schedule, orientation, and successful completion of service

Big Five and achievement motivation. Small scale study completed in class, Fall 2011

- Developed a personality theory based on personality theorists throughout the history of

psychology

- Distributed a Big Five Inventory and achievement motivation scale to classmates
- Conducted correlational analysis between conscientiousness and intrinsic motivation
- Consulted with Dr. David P. Schmitt

Women over 40: Invisible in psychology of women/gender textbooks? Archival research with Dean Claire Etaugh. Spring 2009-2010

- Evaluated the 16 most current psychology of women/gender textbooks (published between 2002 and 2010) for the amount of coverage on older women for 37 different categories
- Co-wrote a research article and abstract with Dean Etaugh and another student that were presented at the 2010 MPA Conference in Chicago
- Created a poster using Microsoft PowerPoint to present results

RELATED EXPERIENCE

Community Psychology Practicum at Alternatives, Inc. July 2014- Present

- Assisted with the Urban Arts Program focusing on youth development through spoken word poetry, dance, and DJing
- Designed a descriptive packet for program marketing and training purposes using InDesign
- Created and administered a survey to Alternatives' staff

Program Evaluation at Project Onward. August 2013 – December 2013.

- Conducted an assessment of organization practices
- Collaborated with staff to align program goals with actions
- Co-wrote an evaluation plan with UIC colleagues

Psychology Practicum at Methodist Hospital. June 2010-August 2010

- Assisted on the 25 bed Child and Adolescent Behavior Health Unit
- Observed daily group therapy sessions for both the children and adolescents
- Led group therapy sessions with the children covering topics such as anger management and manners
- Performed room checks to confiscate any contraband
- Learned about daily charting and abbreviations used in reporting

Tutoring with CommonPlace. Fall 2009

- Worked one-on-one with first to fourth grade students from a low socioeconomic status.
- Reviewed homework for all subjects and read with the students

RELEVANT WORK EXPERIENCE

Georgia O'Keeffe Museum. Santa Fe, NM

Art and Leadership Program Intern. June 2011-August 2011

- Led art activities and topic discussions with 11-14 year old girls from disadvantaged backgrounds.
- Educated the girls about the life and work of successful female artists
- Collaborated with visiting artists and co-workers to plan and improve the program
- Created a portfolio of artists' references to strengthen lessons in future years

- Took pictures of every session and used them to create a photo book of this year's program that will be used to obtain grants and spread awareness of the program

Public Art Chicago, Chicago, IL

Research Intern, July 2013 – Present

- Wrote audio scripts about artists and public art objects
- Mapped art objects using Arc GIS 10.2.2. Software

SOFTWARE AND SKILLS

- Statistical Software proficiency in SPSS and R, as well as familiarity with MPlus and SAS
- ArcGIS 10.2.2.
- Adobe Creative Cloud including Photoshop, Illustrator and InDesign
- Microsoft Office
- Program Evaluation
- Organizational Assessment

HONORS AND ACTIVITIES

SCRA Member – Spring 2013-Present

Psi Chi – International Honor Society for Psychology – Spring 2010-Present

Phi Kappa Phi – Honor Society for all academic disciplines, Fall 2009-Present

Mortar Board – Senior Honor Society, Spring 2011-Present

Order of Omega – Greek Honor Society, Spring 2011-Present

James and Gina Briggs Scholarship, Fall 2009

Don M Volturno Tri-County Area Scholarship, Spring 2009

Phi Kappa Phi Academic Hall of Fame Inductee, Spring 2012