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**COMPREHENSIVE GANG MODEL EVALUATION:
INTEGRATING RESEARCH INTO PRACTICE**

Final Report Summary Overview

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Study Purpose

This project provided an organizational change intervention to cities employing the Comprehensive Gang Model (CGM) in order to better meet the CGM goals of increasing community capacity to address gang and youth violence and decreasing gang and youth violence. Recent research has noted that the use of the CGM does not consistently result in crime reductions, largely due to lack of effective organizational change strategies. This study provided an intervention on the organizational change elements of the CGM to better understand whether targeted guidance around organizational change positively influenced CGM goals. A quasi-experimental design with two non-equivalent control groups was employed. Two intervention sites engaged in organizational change strategies to elicit greater communication, collaboration, and coordination among participating agencies. This project tests two hypotheses:

H₁: Providing RC support will increase community capacity to address gang and youth violence.

H₂: Increased community capacity will result in decreased gang and youth violence.

Study Background

Crimesolutions.gov identifies the Comprehensive Gang Model (CGM) as a promising practice to reduce gang and youth violence. The CGM is a program structure through which communities can organize gang and youth violence reduction efforts. It is through this structure that the strategies of suppression, intervention, prevention, community mobilization, and organizational change are combined to reduce gang and youth violence. When put into practice, particularly as mandated by funders, the CGM becomes a policy.

The CGM was developed and piloted in the Little Village area of Chicago (Spergel, 1997). Spergel and colleagues found that the model was effective at reducing some gang and youth crime. The model was quickly adopted by the Office of Juvenile Justice and Delinquency

Prevention, and five replication sites across the country were funded. Findings from these studies were mixed (Spergel, Wa, & Sosa, 2006). Subsequent reviews of CGM pilot and replication studies have questioned the model's impact on gang violence reduction, but the model continues to be adopted (Klein & Maxson, 2006).

The organizational change component of the CGM has been a key failing of sites implementing the model (Gebo, Bond, & Campos, 2015; Spergel, et al., 2006). Organizational change requires that agencies, such as police, schools, and community based organizations alter their practices to more effectively work together to reduce gang violence. In essence, entities must engage in organizational change to better communicate, collaborate, and coordinate toward shared goals. Unfortunately, organizational change is one of the most difficult tasks in any large-scale initiative, such as the CGM (Daley, 2009). Collaboration requires multiple levels of engagement, intra and inter organizational as well as a genuine connection with the larger community (Gebo, Boyes-Watson, & Pinto-Wilson, 2010).

There is a need to know more about effective mechanisms to create, support, and enhance organizational change, especially in the form of collaboration that can increase community capacity to reduce gang and youth violence. One possible solution to address the organizational change shortcomings in the CGM is to utilize knowledge from other fields. Relational coordination (RC) is a robust organizational theory and practice for guiding and measuring the effectiveness of group collaboration and of meeting shared goals.

A systematic review of the RC literature found that strong communication and coordination between individuals and organizations involved in a collaborative endeavor have positive impacts on desired outcomes (Gittell & Logan, 2015). RC is rooted in the belief that coordination is a relational process (i.e. Crowston & Kammerer, 1998; Faraj & Sproull, 2002),

and that positive results can occur through frequent, high quality communication supported by relationships of shared goals, shared knowledge and mutual respect (Gittell, 2002). RC theory is well-suited to be infused into the CGM as a way to improve the organizational change and development strategy.

Research Design

This project was an action research study that used RC to bolster organizational change in study sites in furtherance of the CGM goals of (a) increasing community capacity to address gang violence; and (b) reducing gang violence. The research design was a non-equivalent control group design with four cities. This design is appropriate and desirable when a randomized controlled trial is not feasible (Shadish, Cook, & Campbell, 2001). Two cities were purposefully chosen as intervention sites because they represented large and medium-size cities, respectively. Two comparable cities were matched on key characteristics.

Only cities that were identified as having gang and youth violence problems and that received state funding to address those problems were utilized. These cities had same state funding and structure mandates imposed that required adoption of the. Funded cities were required to have a steering committee to oversee the initiative, a lead agency to coordinate the work, and a local research partner to assist in employing best practices and providing analysis support. Generally, cities were well matched (see Appendix A). There is one significant difference in percentage white in Cities B; but were closely matched otherwise, and neighbor each other geographically.

Intervention

The intervention consisted of using relational coordination tools and measures to bolster intervention cities capacity to collaborate toward increasing community capacity to work

together and reducing gang and youth violence. The organizational change intervention consisted of an initial two-day relational coordination (RC) workshop, approximately monthly site meetings, and approximately monthly coaching calls with site liaisons. The two-day workshop on relational coordination introduced the concept of RC and concrete strategies of how the cities can enhance communication and collaboration in the CGM. Participants represented entities involved in the implementation of the five components of the CGM (e.g. police, faith-based, health services, after-school programming).

Subsequent to the RC workshop, site meetings occurred approximately monthly in each intervention site to explore communication and collaboration gaps relative to CGM implementation. Researchers facilitated conversation about common challenges and priorities, and introduced evidence-based and best practices research to inform the dialogue. As part of the site meetings, and in between, researchers were engaged in coaching and facilitated dialogue work with partners. Coaching calls with liaisons in each site were a central component of the intervention and allowed for communication and problem solving between monthly site meetings. Coaching calls were focused on crafting site meeting agenda, examining group dynamics to support effective meetings, and exploring and contemplating structures at each site to support change at the operational and policy levels of CGM implementation. Researchers also provided best-practice information to sites on various topics relevant to their initiative (e.g. engaging leadership; effective meeting techniques).

Measures

The project had several distinct measures that helped understand the process by which the intervention was implemented and the outcomes of the intervention. Those were a survey,

observational notes, semi-structured interviews, and crime data. Measures and results are described further in the Methods Report (see Appendix B).

RC Survey: The Relational Coordination Survey is a validated instrument to measure the nature of communication and coordination between partners (Gittell, 2001). The RC survey measures seven dimensions of relational coordination (shared goals, shared knowledge, mutual respect, timely, frequent, accurate, and problem solving communication). The RC survey was used in the current study to measure changes in community capacity to address gang and youth violence in intervention and comparison sites. The survey was administered at four points in time during the study (pre-intervention, twice during, and post-intervention). The survey was administered to individuals who represented key entities in teach city's CGM implementation. The instrument provides quantitative RC scores, where higher scores indicate greater community capacity to address gang and youth violence.

Observational Notes on Meeting Minutes & Coaching Calls: Observational notes from meeting minutes and coaching calls were used to understand implementation and outcomes. For each meeting, at least two members of the Research Team took handwritten notes, typed those notes typically within 48 hours, and then compiled a single file based on those collective notes. Two researchers line coded meeting notes and coaching calls as well as plan documents for content evidence and descriptions of how long, how intense, and how frequently RC tools were used. Themes that surfaced during the analysis were further explored and refined throughout the analysis process. Researchers discussed any discrepancies, and consensus was developed in accordance with qualitative data analysis strategies of inter-rater reliability (Armstrong et al., 1997; Patton, 2015).

Appreciative Inquiry Interviews: Appreciative inquiry interviews were conducted with intervention sites' key informants to qualitatively assess what positive changes have been made or could be made in the CGM initiative (Coghlan, Preskill, & Catsambas, 2003). The interviewees were identified by researchers and site liaisons as community leaders who could provide insights and perspective on the implementation and outcomes of the CGM and the organizational change intervention in their communities. Interviews were audiotaped and transcribed with participant permission. Two participants asked only for interviewers to take handwritten notes. The audiotapes and typed, contemporaneous notes were analyzed using a grounded theory method approach (Glaser & Strauss, 1967) to look for themes addressing outcomes of the intervention work from the perspective of these key informants.

Crime Data: National Incident-Based Reporting System monthly crime data for each of the four cities was used as was monthly gang arrests and shots fired data gathered from police departments in each research site. This data was used to examine violence reduction. Calls for Gang Service data was requested from sites, but because three sites did not collect that data and the one site that did felt that it was unreliable data, it was not utilized. In total, there were 48 months of pre-intervention crime data, 18 months of intervention crime data, and 16 months of post-intervention crime data. Dependent variables included violent and non-violent crime, gang arrests, and shots fired.

Results

H₁: Providing RC support will increase community capacity to address gang and youth violence.

The RC Survey and qualitative examination of implementation and outcomes was used to answer this question. Overall, results showed that there were significant and appreciative positive changes in Intervention City A that increased capacity to address gang and youth violence, while

in Intervention City B capacity was not increased as measured by the RC Survey (see Appendix B for Methods Report). Analysis of meeting minutes and observation notes show that implementation of the intervention was more uneven in Intervention City B and they received lower dosage of the intervention. Appreciative inquiry analysis revealed that there was a purposeful integration of organizational change within initiative documents, support from city leadership, and effective boundary spanners helped to institutionalize capacity-building in City A.

H₂: Increased community capacity will result in decreased gang and youth violence.

Given the results of the first hypothesis, it made substantive sense to disaggregate the intervention cities for analysis of the second hypothesis. There were not enough observations to run a interrupted time series analysis, so researchers opted to examine this question through a series of count regression models that assessed for difference-in-differences between paired intervention and comparison cities (see Appendix B for Methods Report). Crime was trending down in these cities over time. Results showed that violent crime decreased in Intervention City A during and post-intervention and that result was significantly different than Comparison City A which did not experience as sharp of a decline. No other discernable differences on outcomes of interest were shown in either city. Gang arrests were examined but it is not clear that gang arrests should be decreasing throughout the intervention or post-intervention period, so it is used only as an indicator of significant changes in gang and/or police behavior during this time. Generally, no large changes were seen. Importantly, because the CGM model initiatives in these cities had funding for programs that specifically focused on youth and young adults ages 12-25, future analysis should isolate these age groups.

This quasi-experiment was conducted in a natural setting where exogenous factors are likely to have an effect on outcomes. Further, this initiative was not the only funded project aimed directly at affecting change to crime and violence in the city. Over the course of this project, there were two other significant state-funded grants aimed at reducing gang and youth violence in each of these cities. Intervention and Comparison Cities A also received federal funding from a third source. To help isolate the effects of this initiative alone, a contribution analysis was conducted. Analysis to date (analysis in progress) shows that none of these sources directed funds at organizational change and development to directly impact Hypothesis #1, though the impact of these grants may be felt on Hypothesis #2.

Conclusions & Implications

This project was aimed at addressing the organizational change and development strategy of the CGM in pursuit of the CGM stated goals of increasing community capacity to work together on gang and youth violence and to reduce that violence. Relational coordination was used as an organizational change bolster in two cities with two other cities used as comparisons. Results support the contention that RC positively affected organizational change in one city but not the other. Process analyses reveals that the intervention was implemented differently in each city. Most notably, Intervention City A deliberately integrated organizational change into their citywide plan, and improved communication and coordination structures to support change across programs and policies. While crime in all cities was decreasing over the study time period, this analysis showed that violent crime had a significantly sharper drop in Intervention City A relative to its comparison city. Case study analysis lends credence to the finding that RC did bolster the organizational change aspect of the CGM in one intervention site.

As Spergel and colleagues (2006) note “Community-based gang research is not medical or experimental research, in which almost all elements are (ideally) rigidly controlled. At best, community-based gang research is quasi-experimental, with room for limited manipulation by the program operator and the evaluator” (Spergel, Wa, & Sosa, 2005, p. 2.5). This evaluation did not infuse programmatic strategies, and there is no direct link between the intervention and the specific programs utilized by cities to reduce violence, all which are likely to have some effect on violence reduction outcomes. While we could not control for rival factors and/or programmatic effects, a contribution analysis helped to understand what external factors may have played a role.

In terms of limitations, dosage may not have been robust enough to produce the strongest results in either intervention site. Researchers had frequent dosage discussions, and there were requests from sites, especially City A, for more meetings and calls. Funding constraints prohibited increasing dosage. The inconsistent use of RC tools by ICs, even at the end of the intervention period, was obvious in both sites. For example, action researchers facilitated early partner meetings in each site to model effective meeting techniques. Site coordinators gradually took over the meetings. While it seemed that this process was working well, the last intervention meeting in City A was unfocused without an agenda. The agenda for the last meeting in City B consisted of a laundry list of actionable items that were not addressed in the five months of previous meetings, yet the meeting was fully facilitated by a site coordinator. This may point to the need for a higher dosage and further reinforcement of RC tools, especially when clear connections between tools, such as productive meetings, and realization of goals is not readily apparent (Fawcett et al., 2000).

We need to understand more about organizational change, especially in light of implementation failures noted in the CGM and other comprehensive community initiatives. Indeed they are complex, but that does not mean we should attempt to understand and isolate effects. While many studies examine large cities that have the statistical power to assess changes, we also should not ignore medium and small cities that have gang and youth violence problems where research is needed. The RC intervention was used to examine cities that may be understudied due to their population size. A robust qualitative assessment was a key part of the evaluation because of that. There are some positive results from this study, but there may be “preconditions” where this type of intervention flourishes, having the strongest effect. Intervention City A had city leadership support, effective boundary spanners, and infused the intervention into the citywide youth violence prevention plan. With these elements in place, RC should further be explored as a way to effectively work together toward shared violence reduction goals.

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Appendix A:

Demographic Characteristics of Study Sites*

Site	Population	Ethnicity (Single Ethnicity)	Median HH Income	% Families in Poverty
Intervention City A	182,544	52.8% White 11.6% Black 20.9% Hispanic	\$45,932	17.0%
Comparison City A	108,861	57.8% White 6.8% Black 17.3% Hispanic	\$49,452	15.5%
Intervention City B	88,697	83.4% White 3.9% Black 7.4% Hispanic	\$33,211	19.3%
Comparison City B	95,078	67.9% White 6.4% Black 16.7% Hispanic	\$35,999	19.9%

*US Census Bureau 2013 estimates

APPENDIX B:
METHODS REPORT

**COMPREHENSIVE GANG MODEL EVALUATION:
INTEGRATING RESEARCH INTO PRACTICE**

**METHODS REPORT
9.27.19**

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Research Question 1:
Are communities better able to collaborate?

To answer Research Question 1, a mixed method approach was employed. The relational coordination (RC) survey quantitatively showed the strength of communication and coordination across four survey rounds (baseline, after six months of intervention, after the full 18 months of intervention, one year post-intervention). Qualitative measures included observations from intervention cities' steering committee meetings, coaching calls, appreciative interviews with key informants, and a review of each city's iterations of their youth violence prevention plans. This mixed method approach allowed for a more in-depth, nuanced analysis of results.

Researchers first examined intervention dosage and implementation prior to examining outcomes. Throughout the research project, researchers kept notes on meetings and coaching calls with intervention cities. A deductive qualitative approach used the RC framework as a starting point. Two researchers line coded meeting notes and coaching calls as well as plan documents for content evidence and descriptions of how long, how intense, and how frequently RC tools were used. Themes that surfaced during the analysis were further explored and refined throughout the analysis process. Researchers discussed any discrepancies, and consensus was developed in accordance with qualitative data analysis strategies of inter-rater reliability (Patton, 2015).

Dosage

RC intervention tool use was enumerated in the following ways, consistent with dosage operationalization at the individual level (Linning and Eck, 2018): *Frequency* – number of occurrences of tool use; *Duration* – how many months the tool was used over the 18-month intervention period; *Intensity*- how many additional supports were provided for each intervention tool, beyond coaching, humble inquiry, and active listening, which were standard practice for

action researchers. Additional supports were defined as facilitation and feedback from face-to-face breakout sessions; small partner survey administration and analysis; dissemination and discussion of literature on best practices and examples from other jurisdictions; and identification of individuals/entities that could further support ICs organizational change on specific tools. Counts of frequency, intensity, and duration were placed into a spreadsheet for basic descriptive analysis (see Table 1).

Overall, there was a higher dosage of RC intervention in City A in terms of frequency and duration, primarily driven by more proactive requests for assistance by those partners on key issues. The higher dosage on these dimensions was also due to the fact that the lead coordinator for the partnership in City B had surgery that removed him from work for two months, with no designated replacement. While researchers talked with other City B coordinators and partners and gently pushed them to act, no one wanted to move forward without the main coordinator leading the way. We used this feedback to help tailor the intervention to provide more intense support to boundary spanning roles and relational job design as well as more intensity in the number of additional supports.

The highest dosage for each tool varied by site, which is not surprising, given that these sites have different contextual dynamics and needs. Shared meetings and shared protocols were the tools that were most employed to support City A in their quest to work better together to reduce violence. Ensuring effective communication between entities and among different levels of organizational structure (e.g., line workers, administrators, governance) as well as formalizing protocol agreement to share information among various entities were the major themes of their work. Boundary spanner assistance and shared meeting were the highest dosage RC tools in City

B. Providing support and resources for coordinators and other that acted as boundary spanners as well as a structure for productive meetings to work on violence reduction issues were at the core of the work.

Table 1: RC Intervention Dosage

RC Tools	Frequency (number of occurrences)		Duration (number of months emphasized)		Intensity (number of additional supports)	
	City A	City B	City A	City B	City A	City B
Select and Train for Teamwork	2	2	4	2	1	1
Shared Accountability	5	4	4	6	2	3
Shared Rewards	2	0	3	0	1	0
Shared Conflict Resolution	3	0	4	0	2	0
Boundary Spanners Roles	4	7	4	18	0	4
Relational Job Design	5	3	4	4	1	3
Shared Meetings/Huddles	13	10	18	18	5	5
Shared Protocols	8	6	18	6	3	3
Shared Information Systems	13	6	18	8	3	4
Total	55	38	73	62	18	23

Implementation

Implementation results are illuminated below, highlighting what occurred in each city as they implemented the intervention.

Intervention City A Implementation

Overall, the work in Intervention City A was focused and action-oriented, aimed at codification of goals and process structures that would better facilitate IC communication between organizations. The RC intervention was formally and publicly recognized by city leadership as critical to the citywide youth violence prevention plan. Action researchers made suggestions throughout the intervention on how to incorporate organizational change

mechanisms (e.g. shared meetings, protocols, and information systems) into their city planning documents. The City A site coordinator and another partner from a local university took on much of the work of ensuring that many of these suggestions were adopted. These individuals served as site boundary spanners. The coordinator was required to facilitate meetings amongst partners, but their collective work went beyond any formal role. These individuals were well-respected, had been involved in public health issues in the city for years, and were committed to reducing youth and gang violence. They were the main communicators and central repositories of collective work. Coaching calls with them often centered on how to increase communication among group members and how to encourage partners to work together to address thorny issues, with racial inequities as a primary focus. During a discussion about longstanding racial disparities that were rarely discussed publicly, a director of a program captured a foundation block of RC practice of addressing conflict by stating, “*Good agendas have pushed us toward addressing these challenges.*”

Site boundary spanners took the lead in creating meeting structures to support better communication across groups. They used coaching calls to strategize and problem solve their work regarding organizational change, and implementation of the broader plan. They held standing, smaller, weekly planning meetings to ensure the IC was on track and to troubleshoot problems. Boundary spanners reached out to diverse entities and connected youth violence plan structure to the variety of youth violence working groups which included employment, early childhood, youth services, and male-youth-of-color serving agencies; thereby deliberately facilitating communication and coordination across agencies. They proactively asked researchers for examples of shared meeting agendas and meeting best practices.

Continual sharing and assessment of gang and youth violence data was central to City

A's work. City A's structure included time at monthly meetings for working groups to share data and monitor the gang and youth violence problem. Boundary spanners pushed to obtain data from entities to discuss at meetings that would tie into their overall violence prevention goals and address racial disparities. There was evidence that boundary spanner efforts were paying dividends. Approximately eight months into the intervention, a boundary spanner said, "[I] *didn't have to request monthly data from agencies and programs*" as collaboration partners were proactively sending it on their own at the end of each month. This is an example of the changes that partnering organizations made in support of the IC and was evidenced in their significantly increased RC scores.

Accountability and reward structures also were being built into the IC at the time the intervention ended. City A introduced a number of changes aligned with RC. This included working on a cross-agency shared protocol that would be signed by city leadership, including the mayor, city manager, police chief, school superintendent, chief judge, and district attorney to facilitate cross-agency work and expectations. The IC also began to take steps to build a platform for shared information systems to facilitate communication among partners. City A's IC use of the RC tools of boundary spanners, productive meetings, shared information systems, and protocols were at the forefront of work during the intervention period that helped facilitate increased collaboration and organizational change.

Intervention City B Implementation

RC intervention efforts in City B focused on encouraging, modeling, and providing resources for boundary spanning roles and productive shared meetings. As with City A, the site coordinator for the CGM initiative and another partner took on much of the work of helping to improve the partnership, but they were not effective boundary spanners, as will be detailed. To

strengthen boundary spanner roles, researchers provided resources on relational job design that would lead to formalized systems of coordination so that if one person was unavailable or absent for any length of time – as happened in this case when the site coordinator was on medical leave for two months – the collaboration work continued. Researchers also used a humble inquiry approach with collaborating partners to identify barriers and solutions for positive change in their violence prevention plan and in their IC.

Similar to Intervention City A, the Intervention City B site coordinator and supporting partner saw the need to ensure meeting agendas were out to members ahead of time with agreed upon and actionable items for planning and accountability. These individuals did not always meet their own standards, however. On four separate occasions, information was requested to be sent prior to an upcoming meeting, but no one in the IC did so. There was no true discussion about setting up shared accountability; rather, IC participants felt that they had informal agreements about how they would work and be held accountable for that work. On the last coaching call with City B, the coordinator and partner brought up the need to follow up on a request for data from partners. That did not occur. City B continued to operate solely at the informal program level, which did not increase their ability to better communicate or collaborate as reflected in the RC survey results.

In the early months of City B's intervention, there was a collective sense among partners that youth-serving entities had solid relationships and did not need formalized structures to link and to share information among them. One partner said, "*We believe our strengths are based in programs.*" This was reflected in strong RC survey results in the second round. The problems with a limited program-level focus became clear to many of them seven months into the intervention. During an action research-facilitated partner meeting exercise to identify strengths

and barriers for CGM organizational change, every suggestion identified was at the program or individual-level, with no larger system-level suggestion (e.g. shared information systems) that would produce the goal of working better together. Partners then held a protracted discussion of individuals and entities important to violence reduction who were not part of the partner committee. Researchers provided violence reduction examples and organizational best practices that illuminated the need to move beyond program-level membership, discussions, and actions. After nine months of intervention, the City B IC decided to reconstitute their steering committee to include individuals who could impact policy, leverage more power to make changes, provide vision, and engage city leaders. During one related coaching call, the site coordinator stated that trying to focus their gang and youth violence reduction efforts had been a “rollercoaster”, but with the reconstituted steering committee, “*we are regaining momentum.*” With support of the research team, the IC defined the purpose and roles for their CGM steering committee.

The City B site coordinator and partners tried to engage non-program personnel and city leadership. They had little access to leadership whose endorsement and support for cross-organization efforts would be beneficial for buy-in of other organizations, such as the police department. Their attempts to engage leadership were not successful. This absence of access and influence suggests that true boundary spanning mechanisms were lacking. The effort to engage more diverse stakeholders was redoubled with the decision to reconstitute the steering committee. Yet, schools were not actively involved until just prior to the end of the RC intervention, and other key entities still were not at the table. As one IC member said fifteen months into the eighteen-month intervention, “*I’m a little disappointed because we need some other big players, like the police department and the mayor’s office.*” Though the police department was on the steering committee roster, there was no consistent departmental

representation at the meetings until the advent of the reconstituted steering committee when the site coordinator secured a more formal commitment from the chief of police.

Fewer structural interventions took place than were initially identified in City B. Despite creating an ideal youth development model for violence prevention, City B struggled to make the changes needed to align diverse organizations in pursuit of shared goals. Productive meetings did not always occur, especially with important entities missing from the table and with the site coordinator out of work for several months. Accountability, while discussed, was never implemented as a tool to improve the IC. There also was a significant shift in focus during the intervention itself – a reconstituted steering committee. While this change was needed and aligned with RC tools, it likely influenced RC survey results as survey respondents recognized the problems they needed to address to produce positive change.

In sum, the IC in Intervention City A enhanced and strengthened a structure to formally communicate and coordinate as part of an overall youth violence prevention plan in which boundary spanners played a key role. Organizational change was added as a formal component of the youth violence prevention plan. The IC in Intervention City B worked entirely informally and did not adopt work process or structural interventions into any citywide plan, and effective boundary spanning roles were relatively non-existent. While each city was compared to its own baseline and in the use of RC tools, it is interesting to contrast how partners saw organizational change at the end of the intervention. In City A, when discussing how organizational change occurs, one IC partner said, *“It’s the structure that allows us to move forward.”* While in City B, an IC partner said, *“It’s [name of site coordinator] that moves things in this city.”*

Outcome of Intervention

The relational coordination survey quantitatively assesses if the RC intervention increased the capacity of communities to collaborate. Qualitative analysis shed more light on intervention effects than can be gleaned from quantitative analysis given the small sample size for each intervention site. Quantitative results are discussed first, followed by qualitative results.

RC Survey Results

The RC survey is a validated seven dimension instrument that assesses the strength of communication and coordination of work across different entities. The seven dimensions consist of an assessment of frequency, accuracy, timeliness, and problem-solving communication as well as shared goals, shared knowledge, and mutual respect. RC has been used as a best practice model in the US and abroad for increasing and strengthening communication and coordination between groups toward achievement of outcomes of interest (Cramm & Nieboer, 2012; Noël, et al., 2013). This study represents the first time that RC has been used in a collaborative criminal justice context.

The seven dimensions of RC have been shown to have a high factor loading on one dimension in previous research in the private sector (Gittell, 2000). For this project, a Principle Components Analysis was run to examine common factor space for this study. Across sites and surveys, these measures were consistently high on one dimension with Eigenvalues of less than 1.1 (See Table 2 for non-rotated scores).

Table 2: PCA Scores

RC Dimension	Round 1	Round 2	Round 3	Round 4
Frequent Communication	.715	.723	.671	.690
Accurate Communication	.784	.867	.850	.898
Timely Communication	.765	.869	.889	.892

Problem-solving Communication	.743	.824	.678	.836
Shared Goals	.754	.843	.819	.883
Shared Knowledge	.767	.789	.775	.527
Mutual Respect	.766	.706	.829	.766

Response rates varied slightly across survey rounds (see Tables 1-4 below), but averaged 55.4% in Intervention City A (between 9-14 respondents), 52.0% in Comparison City A (between 10-22 respondents), 58.9% in Intervention City B (between 14-17 respondents), and 57.5% in Comparison City B (between 9-12 respondents). These response rates are considered good for web-based surveys (Kaplowitz, et al., 2004). An examination of respondents versus non-respondents revealed no discernable differences with regard to gender or role in their city’s CGM initiative.

Tables 3 through 6 show that there were relatively consistent, positive changes in RC dimensions from Round 2 to Round 3 and Round 4 in Intervention City A. There were positive gains in Intervention City B from Round 2 to Round 3, but a drop in Round 4. No appreciative changes were observed in either comparison site. Global RC results offer a snapshot of how well these ICs are communicating and coordinating over time. Scores are normed on RC research, where “1” is considered “weak” and 5 is considered “strong” (Gittell, 2012). Global rankings should be in the 4’s to be considered strong. Overall, there was clear and significant improvement in Intervention Site A, improvement and a precipitous drop in Intervention Site B, and relatively no change in comparison sites. The relational coordination intervention significantly increased communication and coordination in one intervention site, but not the other. The fact that comparison sites saw no significant changes supports the contention that the RC intervention had a positive effect on one IC.

Table 3: Intervention City A Survey Results

RC Factor	Round 1 (n=13; 64% RR)	Round 2 (n=12; 71% RR)	Round 3 (n=14; 51.9% RR)	Round 4 (n=9; 34.6% RR)
Frequent communication	3.20	3.77	4.15***	4.20**
Timely communication	2.61	2.86	3.56***	3.69**
Accurate communication	3.29	3.32	3.58	3.80
Problem solving communication	3.36	3.46	3.77*	4.01*
Shared goals	3.22	3.44	3.69*	3.95**
Shared knowledge	2.85	3.15	3.38**	3.86***
Mutual respect	3.30	3.56	3.86**	4.13**
RC Index (global)	3.12	3.38	3.77***	4.00**

+ p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

Table 4: Comparison City A RC Survey Results

RC Factor	Round 1 (n=22; 67% RR)	Round 2 (n=15; 48% RR)	Round 3 (n=18; 52.9% RR)	Round 4 (n=10; 40.0% RR)
Frequent communication	4.33	4.01	4.12	3.98
Timely communication	3.17	3.45	3.04	2.93
Accurate communication	3.58	3.89	3.53	3.43
Problem solving communication	3.85	4.17	3.89	3.67
Shared goals	3.79	3.60	4.02	4.12
Shared knowledge	3.30	3.27	3.16	3.17
Mutual respect	3.71	4.12	3.66	3.68
RC Index (global)	3.75	3.66	3.64	3.58

+ p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

Table 5: Intervention City B Survey Results

RC Factor	Round 1 (n=14; 56% RR)	Round 2 (n=14; 58% RR)	Round 3 (n=17; 54.8% RR)	Round 4 (n=15; 44.1% RR)
Frequent communication	3.50	4.03	4.06*	3.86

Timely communication	2.90	3.46	3.18	3.08
Accurate communication	3.24	3.76	3.40	3.12
Problem solving communication	3.59	3.68	3.80	3.59
Shared goals	3.69	3.88	4.06*	3.43
Shared knowledge	3.16	3.68	3.47+	3.26
Mutual respect	3.65	3.87	3.98*	3.45
RC Index (global)	3.39	3.83	3.69+	3.40

+ p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

Table 6: Comparison City B RC Survey Results

RC Factor	Round 1 (n=10; 40% RR)	Round 2 (n=9; 64.3% RR)	Round 3 (n=10; 62.5% RR)	Round 4 (n=12; 63.2% RR)
Frequent communication	3.92	3.47	3.50	3.79
Timely communication	3.06	2.71	2.76	3.04
Accurate communication	3.15	3.10	3.09	3.22
Problem solving communication	3.41	3.53	3.38	3.38
Shared goals	3.32	3.65	3.38	3.44
Shared knowledge	3.37	3.33	3.27	3.13
Mutual respect	3.84	3.72	3.76	3.56
RC Index (global)	3.44	3.33	3.31	3.37

+ p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

Because there were some aggregate differences at the bivariate level, to further examine any differences among participants who responded to more than one survey, multivariate analyses were conducted. A fixed effect model was examined for Intervention and Comparison Cities A, and a separate model was run for Intervention and Comparison Cities B on participants who responded in more than one survey round. This resulted in the following number of respondents across sites: Intervention City A (N=14); Comparison City A (N=19); Intervention City B (N=16); Comparison City B (N=11). Post-estimation linear combination of parameters

was run for each set of cities to further detect differences among participants in each site. The rationale for separating intervention sites and their comparison cities into separate models was due the fact that qualitative analysis showed far different implementation of the intervention in these treatment sites.

Examining changes in RC scores over time was difficult because of the small number of participants in general, as well as the small number of participants who responded in more than one survey round. Analyses did not reveal significant differences in RC scores over time, the intervention, or due to time and the intervention combined (see Tables 7 & 8). These findings, however, should be interpreted with caution and they are exploratory because the sample size was so small. Any effects would be difficult to detect in such models.

There were a total of 33 groups and 91 observations in Intervention and Comparison Cities A. The model itself was not significant ($F=2.42$) and the overall R^2 was .004. Results show that time, the intervention, and the combination of time and intervention did not produce positive changes in RC scores, though the combination of time and intervention is significant at the .10 alpha level, yet the confidence interval still contains 0, or a null effect. Again, however, because of the small sample size, results should be interpreted as exploratory.

Table 7: Fixed Effects Intervention & Comparison Cities A

RC Ave	B (S.E.)	t	95% C.I.
Time	-.068 (.059)	-1.15	-.188 – .051
Pre-/Post- Intervention	-.125 (.348)	-0.36	-.821–.572
Time*Intervention	.221 (.129)	1.72*	-.037–.479
Constant	3.658 (.123)	29.76***	3.412–3.904

* $p < .10$

*** $p < .000$

Table 8 displays the results for Intervention and Comparison Cities B. There were a total of 27 groups and 79 observations. The model itself was not significant ($F=1.48$) with an overall R^2 of .063. Results show that time, the intervention, and the combination of time and intervention did not produce positive changes in RC scores. Again, however, because of the small sample size, results are exploratory, rather than definitive. Qualitative analysis lends more to this discussion.

Table 8: Fixed Effects Intervention & Comparison Cities B

RC Ave	B (S.E.)	t	95% C.I.
Time	-.075 (.079)	-0.96	-.235 – .083
Pre-/Post- Intervention	.384 (.280)	1.37	-.179 – .948
Time*Intervention	-.020 (.115)	-0.18	-.253 – .212
Constant	3.592 (.147)	24.36***	3.296 – 3.888

*** $p < .000$

Qualitative Results

Researchers analyzed observational notes from meeting minutes (Intervention City A, $N=12$; Intervention City B, $N=11$) and coaching calls (Intervention City A= 11 ; Intervention City B= 6), transcripts from appreciative inquiry (AI) interviews – six from City A and seven from City B – and youth violence prevention plans from each site ($N=2$) as a case study approach to understanding outcomes. AIs were conducted at the end of the intervention and therefore were not discussed in the implementation section. As a consequence, the data collection and analysis procedures for AI are discussed briefly first prior to the outcomes for each site.

Appreciative Inquiry Data Procedures: Beyond the meeting notes, coaching class, and youth violence prevention plan examination described above, researchers conducted appreciative inquiry interviews with key informants in each intervention site. These knowledgeable respondents were chosen based on their youth and gang violence prevention work in the city.

Researchers got to know who was central to youth and gang violence prevention in the city through the 18-month intervention in each site. Researchers came up with a list of interviewees and then presented those lists to each city's site coordinator to confirm that potential respondents had broad knowledge of youth and gang violence prevention efforts in the city. All individuals nominated were confirmed by each city's coordinator. Every individual asked agreed to participate; in other words, response rate was 100 percent. Every respondent had been to between one and 17 of their city's monthly youth and gang violence prevention meetings. Interviews were requested immediately following the conclusion of the intervention period. Lack of funding precluded interviews being conducted face-to-face. Phone interviews were conducted between September and November of 2017 and lasted between a half hour and an hour. All interviews were audio recorded and transcribed with the exception of one interviewee in each site who declined the audio recording, but agreed to have their comments recorded by hand. For these two interviewees, researchers took contemporaneous notes. Researchers asked four appreciative inquiry questions to get at what happened in their city over the course of the intervention and the idea

Appreciative inquiry interviews qualitatively assess what positive changes have been made or could be made in the CGM initiative (Coghlan, et al., 2003). Researchers used a grounded theory method approach (Glaser & Strauss, 1967) to look for themes addressing outcomes of the intervention work from the perspective of these key informants. An iterative process described above was used to uncover themes as well as references to the seven dimensions of RC. Respondents often did not use RC terminology for these seven dimensions, so researchers ensured that there was interrater reliability for each instance of RC. Overall, respondents from each city mentioned communication and relationship ties about equally (see

Table 9). The contextual information, however, helps to understand what evidence exists that there were changes in community capacity to address violence.

Table 9: Appreciative Inquiry RC Dimensions

Communication Ties	Intervention City A	Intervention City B
Frequency	7	3
Accuracy	4	2
Timeliness	2	1
Problem-solving	9	15
Relationship Ties		
Shared Goals	13	12
Shared Knowledge	15	16
Mutual Respect	10	13
Total	60	62

Intervention City A Outcomes

At the initial RC workshop, City A participants discussed needing to incorporate this 18month intervention into their existing gang and youth violence patchwork of programs and initiatives. At a follow-up meeting the next month after the training, participants, including the site coordinator, felt like the intervention should be incorporated into the city’s draft version of a youth violence prevention plan that was intended to make the approach to prevention and intervention more cohesive. They also discussed the need for city leadership (mayor, city manager, police commissioner, DA, school superintendent) to support the plan in order for things to move forward in their hierarchical city.

Researchers were asked to work with a representative from the city manager’s office and an academic support partner to put organizational change elements consistent with the intervention into the youth violence prevention plan so that there was a deliberate focus on improving collaboration, coordination, and systems. That was completed and adopted into the

structure of the plan. The two representatives, who were key boundary spanners for this site, convened city leadership to discuss key issues related to youth violence and to help garner support for the youth violence prevention plan.

City leadership met monthly to hear from various agencies on gang and youth violence and to problem-solve issues at their level, including trying to create a citywide memorandum of understanding to share gang and youth violence information among policy, schools, non-profits, and government agencies to better work together on individual youth as well as on collaborative processes. Action researchers brought information to committee meetings to help with that concrete task. Concomitantly, partners discussed how data could better be shared and how collaborative information systems could be developed with a main concern that youth of color would inadvertently be targeted.

Subsequent action research involvement based on coaching call conversations with these boundary spanners and other partners who sat on steering committee meetings focused on how to ensure productive meetings and how to address difficult topics, such as the overrepresentation of youth of color in the city's juvenile justice system as well as the lack of services for "proven" risk individuals – those who were identified as gang-involved and/or who had lengthy criminal records.

As a result of the intervention, City A institutionalized organizational change elements related to increasing capacity to work together into their city's youth violence prevention plan. They began to formalize meetings that as three of the six appreciative inquiry informants stated, helped them become more productive, eliminating the redundancy in discussions. Two key informants noted that this is what allowed them to have open conversations about disproportionate minority contact. One key informant stated statistics on disproportionate

minority contact and followed up by stating, *“I think we’re at a place now within the planning group where we’re like, ‘This is the conversation we need to be having now [about disparities].’”* Another key informant stated that institutionalizing these ideas helped gang and youth violence partners *“...share some information and be able to communicate more frequently”* across different agencies and programs.

A policy-level key informant felt that the intervention helped to focus *“...on systems, organizational change, where, you know, it’s not just implement programs, and let’s find new grant money to implement this, implement that. I think there’s been a more consistent messaging around – we need to find system issues that we can deal with and address. But then also making sure that we stay true to the assessment...which is the disparity in numbers in terms of the Latino and Black community.”*

AI interviews confirmed the top-down leadership model of the city and identified various challenges, including engaging youth and communities in the process as well as the head juvenile court judge who had not been at the table. These interviews also revealed positive changes in Intervention City A. The noted shifts in how meetings were conducted and the types of discussions that were addressed at meetings, as well as the institutionalization of organizational change was reflected in positive RC results over time at this site that allowed them to work better together on gang and youth violence issues.

Intervention City B Outcomes

The initial RC workshop with Intervention City B participants highlighted the strong program ties. This was further emphasized in the creation of a positive youth development model for the city of youth violence prevention that focused on various programmatic supports for youth and families from birth through age 24. This model was used as a platform for a youth

violence prevention plan for the city that was subsequently presented to city leaders and state representatives at a city forum.

As noted in the implementation analysis, it took time for participants in the monthly steering committee meetings to realize that there were missing entities from the table who had the power to make positive changes in the city and bring people together to better collaborate, thereby increasing the capacity of the city to work together on gang and youth violence issues. At the same time, action research work with the main site coordinator addressed how better to increase that capacity through the boundary spanning role. The end result of this work was a reconstituted steering committee with participants who had the power to address barriers to better work together which included raising awareness among community members of different supports and addressing transportation and physical space barriers for collaboration and youth work.

All appreciative inquiry respondents in City B noted that there were excellent working relationships among program providers and that all gang and youth violence prevention initiatives flowed through one person in the city. That person alone cannot impact change. One AI noted, *“A lot is driven by X [person], but he can’t be the only person doing the outreach because I think it doesn’t have the impact.”* The need for formalizing relationships as a way to communicate and sustain work after someone leaves a position or is out for an extended period of time was identified by two respondents. One said, *“And you don’t want to be so formal that you don’t have flexibility, but I think, you know, just thinking about the future and how to ensure certain things happen in certain ways can be very valuable, especially if people do change in organizations.”*

Creating these formal communication structures was identified by another respondent in a concrete way. One respondent said that since the intervention, they now have an email chain and meetings about gangs and high-risk youth. Yet barriers remained in how to work better together. Four out of the six identified the need for government leaders to support their work in order to increase capacity. One of those respondents identified the difficulty of that given the city's "*very dysfunctional civil infrastructure*" of elections every two years. Despite that, it was clear from meeting notes that, as another AI respondent stated, "*the need for more integration in terms of [city] leadership.*"

Another respondent stated that the intervention was helpful for "*shaking it up*" to "*reignite*" the work that needed to be done to effectively address gang and youth violence. The main site coordinator and an AI respondent both discussed the need for better coordination of gang and youth violence task forces and issues to eliminate overlap. The reconstituted steering committee was an attempt to address this problem. Another AI respondent said that there was now a concerted effort to "*considering it [gang and youth violence prevention] more holistically*" since the intervention took place. Overall, there was some movement toward building capacity to work better together in Intervention City B, but by the end of the intervention period, the steering committee had not been solidified, and there had yet to be city government support for the initiative. The site coordinator continued to work to build bridges and boundary spanning capacity as an avenue for better city-wide ability to address gang and youth violence, but those gains were not fully realized a year and half later. The lack of change in RC scores reflect these challenges.

Research Question 2:

Did the intervention reduce gang and youth violence in intervention cities?

National Incident-Based Reporting System monthly crime data for each of the four cities was used to help answer this question, as was monthly gang arrests and shots fired data gathered from police departments in each research site. In total, there were 48 months of pre-intervention crime data, 18 months of intervention crime data, and 16 months of post-intervention crime data. Given the evidence from Research Question 1 that showed changes began to occur in Intervention City A during the first six months, using intervention and post-intervention data points in a model that examines pre and during/post-intervention made substantive sense and increased statistical power to examine effects. Even with this combination, there still were not enough data points (34) to adequately assess differences through the use of an interrupted time series design with a control group. An alternative difference-in-differences regression model was used. One model compared Intervention City A and Comparison City A and another model compared Intervention City B and Comparison City B.

Dependent variables included violent and non-violent crime, gang arrests, and shots fired. Researchers were interested in the average marginal effect over time, so raw counts were used instead of rates. Also, given that it would be difficult to ascertain what the denominator is for arrests and shots fired, analyses using counts as the metric are consistent across all dependent variables. Regression count models were examined to account for overdispersion in the dependent variable. For all models, with the exception of nonviolent gang arrests in Intervention and Comparison Cities B, the likelihood ratio test for negative binomial vs. Poisson model indicated that the negative binomial model fit significantly better ($p < 0.01$). A dummy variable for seasonal effects was included to account for higher crime rates during the summer months. For simplicity, only differences-in-differences tables are displayed. Pre-intervention slopes were allowed to vary in all models.

Overall, crime rates were dropping in these cities. A difference-in-differences test examined whether the drop in intervention cities was significantly different than comparison cities on the outcomes of interest. Outcomes were violent crime, nonviolent crime, and shots fired. Again, gang calls for service was not recorded, or not reliably recorded for these cities, so any intervention effect on reducing gangs or gang violence exclusively cannot be determined with available data. Gang arrests are examined but because there is no clear argument that gang arrests should be decreasing throughout the intervention or post-intervention period. It could be that there was an increase in arrests of those most active and serious offenders in order to reduce violent and nonviolent crime, or it could be that a decrease in arrest was the result of decreasing gang activity. Regardless, gang arrests should not be viewed as an outcome variable, rather they are an indicator of any significant changes in gang and/or police behavior over this time period.

Intervention & Comparison Cities A

Violent Crime

Table 9 displays the results of the model in which pre-intervention slopes were allowed to vary. Results show that crime rates trends were fairly similar in these two cities pre-intervention, and while violent crime decreased in both cities during the intervention, violent crime decreased slightly more in Intervention City A, though there is not a high degree of confidence in this result.

Table 9: Violent Crime in Intervention & Comparison Cities A

	β (SE)	Z	95% c.i.
Difference-indifferences	-.927 (.574)	-1.62*	-2.052-.197

* $p < .10$

A further test of whether the average marginal effect was lower in Intervention City A during and post-intervention as compared to pre-intervention revealed that this was indeed the case.

Table 9: Violent Crime in Intervention & Comparison Cities A

	β (SE)	Z	95% c.i.
Difference-indifferences	1.375 (.633)	2.17**	.134-2.615

** $p < .05$

Nonviolent Crime

Nonviolent crime rates significantly dropped over time in both cities, and the differences in that drop were not significant between intervention and comparison cities.

Table 10: Nonviolent Crime in Intervention & Comparison Cities A

	β (SE)	z	95% c.i.
Difference-indifferences	-1.360 (1.125)	-1.21	-3.565-.844

Shots Fired

There appears to be an uptick in shots fired in Comparison City A from pre-intervention to post intervention, but no discernable differences in Intervention City A. The difference-indifferences analysis, however, showed that comparatively, the change was not significantly different between cities.

Table 11: Shots Fired in Intervention & Comparison Cities A

	β (SE)	z	95% c.i.
Difference-indifferences	.140 (.128)	1.09	-.111-.390

Gang Arrests

Again, it is difficult to use gang arrests as an outcome variable because a theoretical argument can be made either way – that arrests should decrease over the intervention period, or because there has to be initial arrests for crime and violence to decrease in the long run, arrest should increase during and post-intervention. Results are used as indicators of possible gang and/or police behavior change. Taken together, it appears that arrests for violent and nonviolent gang crimes significantly decreased during and post-intervention in the comparison site, while they held constant in the intervention site. These findings are elaborated upon below.

Violent gang arrests (Table 12) show that the change in arrests for violent gang crimes over time were similar pre- and post- intervention in both these cities, but arrests for violent gang crimes appeared to decrease over time after the intervention in the comparison city.

Table 12: Violent Gang Arrests in Intervention & Comparison Cities A

	β (SE)	z	95% c.i.
Difference-indifferences	-.156 (.160)	-0.98	-.469-.156

There was a significant difference in nonviolent gang arrests between these cities.

Predicted nonviolent gang arrests decreased faster after the intervention in Comparison City A than in Intervention City A. Again, these results are informative, and do not support or fail to support the hypothesis.

Table 13: Nonviolent Gang Arrests in Intervention & Comparison Cities A

	β (SE)	z	95% c.i.
Difference-indifferences	-2.721 (1.114)	-2.44	-4.905 – -.536

Intervention & Comparison Cities B

Violent Crime

Violent crime trends in Intervention and Comparison Cities B both show a decrease over time. The difference-in-differences test, however, shows that there were no significant violent crime differences between cities post-intervention.

Table 14: Violent Crime in Intervention & Comparison Cities B

	β (SE)	z	95% c.i.
Difference-indifferences	.650 (.514)	1.27	-3.568-1.656

Nonviolent Crime

Neither the pre-post differences, nor the difference between pre-post differences in the intervention and control city are statistically significant.

Table 15: Nonviolent Crime in Intervention & Comparison Cities B

	β (SE)	z	95% c.i.
Difference-indifferences	-1.067 (1.274)	-0.84	-3.564-1.429

Shots Fired

Shots fired did not vary significantly in either city pre or during and post-intervention. Difference-in-differences analysis also show that there were no differences between Intervention and Comparison Cities B pre or during and post-intervention.

Table 16: Shots Fired in Intervention & Comparison Cities B

	β (SE)	z	95% c.i.
Difference-indifferences	-0.077 (.105)	-0.73	-.282-.129

Violent Gang Arrests

While there were significant decreases in the number of arrests for violent gang arrests in Intervention City B during and post-intervention, the average marginal effect is very close to 0. Conservatively, then, it appears that there were no significant differences in violent gang arrests between cities.

Table 17: Violent Gang Arrests in Intervention & Comparison Cities B

	β (SE)	z	95% c.i.
Difference-indifferences	.242 (.121)	2.00*	.005-.478

$p=.045$

Nonviolent Gang Arrests

Comparing the pre-post change in the comparison city to the pre-post change in the intervention city, the change in nonviolent arrests is significantly greater in the intervention city. Specifically, the average marginal effect (AME) for time in the intervention city is close to zero in both the pre- and post- intervention time periods, while the AME is close to zero in the preintervention time period for the intervention city, but negative after.

Table 18: Nonviolent Gang Arrests in Intervention & Comparison Cities B

	β (SE)	z	95% c.i.
Difference-indifferences	1.446 (.373)	0.000***	.715-2.177

*** $p < .000$

Demographic Decomposition Analysis of NIBRS data

Because these cities had specific funding targeted at gang and youth violence for those between the ages of 12-29, a further analysis needs to be conducted isolating these ages.

Bivariate and multivariate models should be analyzed in the future.

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