

Assessing an Educational Mentorship Program in an Urban Context

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Abstract

Mentorships are important relationships that pair youth with more experienced members of the community. Mentorships facilitated by organizations often connect two community members who are unlikely to meet by happenstance, thus increasing social capital and aiding community development.

Yet, difficulties in measuring how formal mentorships improve a city's social capital and participant welfare might dissuade communities from investing in such programs. We describe a mixed-methods approach for measuring the impact of mentorship programs using a case study in Santa Fe, New Mexico. We survey participants and analyze differences between mentor and protégé neighborhoods using U.S. Census data in a Geographic Information System.

We find that participants report increases in social capital indicators including connections between individuals with socio-economic differences. However, Census data indicate that mentors and protégés have relatively few socio-economic differences in their neighborhoods. This divergence emphasizes the importance of measuring social capital in an urban and spatial context.

Keywords: Youth; school-based mentorships; Santa Fe, New Mexico; social capital; geography

1: INTRODUCTION

1.1 The Cohesive City and Community

Cities and communities are at their best when social ties exist across different types of social groups (Gilchrest, 2009); thus, cities should invest in creating diverse social and economic networks. Communities tend to exhibit homophily, the tendency for people to associate with similar people (ex. McPherson, Smith-Lovin and Cook, 2001) as relationships are often generated by traditional connections between family and friends (DuBois et al., 2011). A lack of non-family and non-friend ties can have negative effects on the well-being of a city and its residents. For instance, homogenous groups tend to lack upward mobility (Narayan and Cassidy, 2001, p. 60) while the heterogeneity of a group has been shown to correlate with positive economic outcomes (2001, p. 60). Heterogeneous relationships are associated with health, educational achievement and a strong 'sense of community' (Gilchrist, 2009). Moreover, *mutual* social support created by mentorships yields a healthy community (Hancock and Duhl, 1986). At the individual level, adults that invest time and effort to join in community life see higher social capital returns (Morrow, 1999, p. 761), which impacts both themselves and the broader community.

A community's health can also be considered in an urban, spatial context. For example, a city with many amenities and entertainment options can help facilitate existing and new relationships. Likewise the transportation options and form of an urban

space plays a role in an individual's ability to meet others and foster relationships through face-to-face co-location. On a holistic level, spatial context is important because it determines whether residents have contacts and experience in a variety of places within a city. Residential racial segregation is a prime example of how social relationships exist in a spatial context. When neighborhoods are segregated and there are few inter-racial relationships (professional, personal, family, etc.), research shows that the city has weak integration of ideas, social support and cultural spreading across places and space, since social systems and relationships can be a primary driver of segregation (Galster, 1988).

This article asks how these social ties and spatial relationships are exhibited through the mentorship program at Monte del Sol Charter School in Santa Fe, New Mexico. Using a mixed-method approach that combines survey responses with census block-level geocoding, we are able to map a relationship that bridges racial and class divisions in the Santa Fe area. Although the school plays a large role in fostering these connections, we show that the flow of ideas from mentor to protégé has an important spatial component.

1.2 The Monte del Sol School: Santa Fe, New Mexico

Within the City of Santa Fe, New Mexico, (pop. 68,130) (U.S. Census, 2010), Monte del Sol (MdS) is a public charter school for grades 7-12 founded in 2000. The school has 360 students and is chartered and funded by the Santa Fe Public Schools (SFPS) District. MdS is governed by its own board, but is also subject to SFPS requirements. MdS provides students with a traditional classroom atmosphere as well as a

mandatory after-school mentorship program that matches teenagers with professionals in the community for an apprenticeship. MdS is known in the Santa Fe community for its mentorship program, which requires all students to complete at least two mentorship credits. We choose MdS as a case study because, according to the school's administrators, by middle school, students often disengage from the classroom and resist the idea of investing in cross-generational human capital. This geographic locale is especially notable because New Mexico students have the second lowest national rate of graduating with their cohort (63%) (U.S. DOE, 2012) and the highest rate of teen pregnancy (47.5 births per 1000 girls aged 15-19) (U.S. CDC, 2014 for year 2012), which deters teens from completing high school.

There is no admissions test or cost to attend MdS. All students live within Santa Fe County and are selected by lottery, a typical method for U.S. public charter schools. Most enter the school in the 7th grade. In 2013, of 255 students who applied for the 7th grade, 65 were admitted. There is some attrition in other grades that is replaced via the lottery system each year. Students are expected to spend a minimum of two hours per week with their mentors, and often earn more than the two required mentorship credits during their school years. In the 2013-14 school year, about half MdS freshman (47%) and sophomores (53%) and three-quarters of juniors (76%) and seniors (77%) participated, along with a small number of middle school students. Like classes, mentorship grades are recorded on students' official transcripts based on successful completion of the mentorship, which also requires a 20-page portfolio and formal presentation of their work.

Demographic makeup At MdS, 65% of the student population describe their ethnicity as Hispanic. Of non-Hispanic students, 85% of students are white, while the remainder are another race. 28% of the student population qualifies as English Language Learners (ELL). Over half (59%) qualify for the federal free and reduced lunch program. Of 375 students currently enrolled, 182 live at or below 130% of the federal poverty level (nearly \$30,000 per year for a family of 4). Students live in households led by a variety of family members. Of our sample, 15% of students alternate between (separated or divorced) parents, 52% live with both parents, 6% live with the father only and 27% live with the mother only. As mentorships occur after regular school hours and generally take place off school grounds, students are expected to arrange their own transportation, which often requires the help of parents.

Internship program There have been 2,305 mentorships, 881 Mentors, over 1,000 students, and over 450 professional topics in the program's 14 years. The mentorship program does not target at-risk youth (although some participants can be considered at-risk due to household economic circumstances), nor is it a career-readiness program. Instead, students are matched with a member of the community who is a professional in the student's topic of personal interest in order to foster students' self-knowledge.

MdS recruits new mentors each year using new and existing networks. About one-third of the mentors are new to the program each year. Popular mentorships include photography (89 mentorships) and culinary arts (82 mentorships). Many popular mentorship topics are arts-related, including film, dance, guitar, art, theater, creative

writing, music, auto mechanics, sports, design, and computers.

1.3 Approach

We use a mixed-methods approach to assess the ability of the required community mentorship program at MdS to increase bridging social capital through ties that connect individuals of divergent social or physical distances. First, using four years of records on mentors and protégés, we ask MdS mentors and MdS protégés about their experiences through unsigned written surveys. We then explore the dynamics of a public school chartered mentorship program within the context of Santa Fe's urban environment. Using the home locations of mentor-protégé pairs and local demographic U.S. Census data in a Geographic Information System (GIS), we analyze the extent to which these neighborhood-to-neighborhood ties bridge demographically-disparate communities (in terms of income, college-level graduation rates, etc.) to evaluate how well a mentorship program creates crucial bridging social capital that unites a disconnected community (Briggs, 2007). We next review social capital and mentoring, and describe our survey questions, spatial techniques. Then, we report results from surveys and the U.S. Census data and conclude.

2: SOCIAL CAPITAL AND MENTORSHIPS

2.1 Social Capital

Broadly, social capital can be described as the benefits to individuals and broader society arising from relationships between individuals and groups. As described by Bourdieu

(1980), *social capital* is based on the “investment in social relations with expected returns” (Lin, 2001 p. 30), and can reflect the resources available to an individual due to membership in a group (Bourdieu, 1986, p. 248) and is often used as a factor in public policy decisions (Adam and Roncevic, 2003; Lin, 2001; Bjornskov, 2006). Social capital has since been redefined by many scholars (Coleman, 1988; Portes, 1998; Lin, 2001). We define social capital as an investment made by individuals into social interactions that allow access to embedded resources (following Lin, 2001). Social capital can be obligations/expectations, information channels, and social norms (Coleman, 1988) in the form of information, influence, verification of social credentials, and reinforcement (Lin, 2001, p. 35). Social capital can also be considered a “public good” through which investments of human capital benefit from the increased social capital of the community (Coleman, 1988). By encouraging youth to connect to the larger community, mentorships hope to build positive social capital.

2.2 How Organizations Foster Social Capital

We study social capital using a community program. Programs of this type add to urban cohesion by exposing members to new experiences and cultures, across generational, ethnic and socio-economic divides. The hosting of new relationships can counteract socially-insular neighborhood effects and the negative effects of homophily described in the previous section. Cities often rely on ‘formal’ organizations (Putnam, 2001) to facilitate relationships that are unlikely to form organically or by happenstance (e.g. a high school orchestra playing for a nursing home). These organizations, such as

community youth programs, adult courses, library programs, volunteer opportunities, etc., facilitate new social ties that are not constrained by geographic borders (e.g. school districts) or wealth attainment (e.g. social clubs). Moreover, mentoring occurs in a number of contexts, including classrooms, youth development organizations, work and service-learning, and faith-based organizations (Hamilton et al., 2006). Schools are found to create community-based social capital by benefiting not only parents (as studied by (Glickman and Scally, 2008), but to all members of a community (Neal and Neal, 2012).

Importantly, such formal organizations reduce the transaction costs for community members to forge new relationships, since organizations specialize in managing, organizing and overseeing programs. This oversight includes recruiting, matching mentors with protégés, defining rules and goals, and scheduling meeting places and times. Because of their ability to create and oversee the relationship of two people who would otherwise be strangers, institutions can elicit both instrumental (gaining new resources) or expressive (maintaining resources) benefits of social capital (Lin, 2001, p. 40). Organizations are key facilitators towards the goals that are shown to make a city and its individuals healthier.

2.3 Mentorships and Measurement

A mentorship is a relationship that links two individuals, a mentor and protégé, where the mentor is typically more experienced, knowledgeable, and typically older. These relationships are traditionally found between members of the same family or within

friend and peer networks but are also facilitated by a variety of “formal” organizations lying outside of these networks (Putnam, 2001).

The effects of mentorships are usually measured by conducting meta-analysis on the results of mentorship studies (questionnaires) found in literature reviews (DuBois et al., 2002; Eby et al., 2008; Wheeler, Keller and Dubois, 2010; DuBois et al., 2011). In contrast to effectiveness measures, the investment in the mentor-protégé relationship can be quantified in terms of frequency, quality, and longevity (Grossman and Rhodes, 2002; Eby et al., 2008; DuBois et al., 2011). The mentor-youth protégé relationship yields access to primarily instrumental returns for the protégé, and secondarily expressive returns (namely life satisfaction) for both the protégé and mentor.

In meta-analytical studies of the effects of mentorships, youth mentorships consistently have smaller effect sizes than academic and workplace mentorships (DuBois et al., 2002; Eby et al., 2008). The smaller effect sizes of youth mentoring are at least partially due to premature termination of mentorships, which can have *negative* effects on youth protégés (Grossman and Rhodes, 2002). This may be especially true for “at-risk” youth with pre-existing episodes of difficulty with home relationships (Freedman 1992 via DuBois et al., 2002; Grossman and Rhodes, 2002; Eby et al., 2008). Another contributor to smaller effect sizes may be the difficulty of matching youth to mentors with similar interests (Eby et al., 2008). Notably, the mentorship program we examine seeks to match youth to adults based on a common passion, which allows students to shape their own education. Accordingly, agency (Larson 2006) and sense of control (Martinek et al. 2001) have been found to be positive factors in youth development.

2.4 Bridging Social Capital

Of particular interest to this study is the quantification of *bridging social capital*. The at-risk community, particularly the working class and poor, make ties nearly exclusively through kinship, and tend to deal with issues individually (Horvat, Weininger and Lareau, 2003). Mentorships introduce at-risk students to community members outside of their immediate social networks. Having a ‘stranger’ as a trusted tie positively effects at-risk youth (Grossman and Tierney, 1998; DuBois et al., 2002; Eby et al., 2008; DuBois et al., 2011) and widens their social world in terms of career or employment benefits (DuBois et al., 2011), attitude and motivation (Eby et al., 2008) and increased trust (Grossman and Rhodes, 2002). These bridging relationships can change an individual’s access to future personal, academic and professional opportunities, and can similarly expose mentors to different opportunities and experiences, all of which may ultimately strengthen the broader community by binding diverse groups (Briggs, 2007).

Ties forged across two separate, insular groups can yield increased social capital, which can generate opportunities for jobs and education (Granovetter, 1983), inside knowledge on the quality of different services, social life improvements, increased cultural transmission, and increased diversity of information sources (Batty and Cheshire, 2011). For instance, mentors often tell protégés about a university or job opportunity, information that he or she may not have been able to access without the relationship.

To realize a connected community, bridging social capital is often necessary. Ties, whether strong or weak (Granovetter, 1983) can bridge networks and enrich quality

of life for network members.

Mentor-protégé relationships are well-situated for bridging social capital because they often comprise two members of the community who are not considered peers. Though the mentor and protégé may *bond* across one dimension (in our study, a professional occupation or interest) the pair *bridges* on others dimensions (in our study, age and education level) (as in Briggs, 2007). Additionally, mentorships create bridges for information to flow between groups (Coleman, 1988), further integrating a community.

2.5 Geographic Bridging Social Capital

Social ties that connect different socio-economic and demographic (age, income, ethnicity) groups create bridging social capital, whereas ties within those groups create bonding social capital (Putnam, 2000; Woolcock and Narayan, 2000; Briggs, 2007). In addition to this useful distinction, we believe the component of physical distance between individuals within a city offers a useful alternative metric for bridging social capital, since such distance can affect the creation of within-neighborhood ties (Hipp and Perrin, 2009) and individuals living farther apart can have divergent economic attributes such as employment status (Conley and Topa, 2002).

We extend the term *bridging social capital* to include a *geographic bridging* measure that examines how a program increases a city's connectedness by (1) exposing participants to new parts of the city, and (2) connecting people living in different parts of the city. We do not approach the question of whether the mentorship program increases

geographic bridging social capital in a quantitative sense, but rather as an open-ended concept that involves the geo-location of agents. This new concept stems from theories of community attachment and exposure. Previous work has found students report positive experiences and community empowerment when engaging and connecting with different parts of a city (Su and Jagninski, 2013).

Also, when disparate geographies are tied together, youth seem to understand how different the communities may be. For example, youth are aware of and affected by areas associated with high crime in their communities (McCray and Mora, 2011). Students can also understand the benefits of returning to deep bonding social ties of one's a "home" neighborhood (Rich, 2013).

3: METHODOLOGY

We use two techniques to analyze the impact of the mentorship program in improving social capital in the city of Santa Fe: mentor and protégé surveys and GIS analysis. Two separate Google Forms surveys were sent out via email to mentors active within the last five years in the MdS Mentorship Program. A total of 364 mentors served during this time period, of which 248 had an active e-mail in the MdS database, and of which 63 mentors completed the online survey. Students received a paper form.

3.1 Survey Questions: Mentor

Mentors were asked to complete two surveys. The first gathers demographic data, including age, gender, ethnicity, address and education (see Appendix A). The mentor

is identified directly in this survey. Another goal of this survey is to collect home addresses of mentors for GIS analysis. Mds records contain work addresses of mentors and home addresses of protégés.

A separate survey that did not ask for name or other identifying information asks mentors about their perception of the quality and impact of the mentorship. Questions include the degree to which the relationship has continued and developed over the year following this mentorship, the changes in students' technical and social skills, and how the mentorship has affected the mentor. All questions were open response except for Q5, which provides a list of attributes and allows the mentor to choose one or more (Appendix B). Questions were delivered via an email that contained a link to an online survey.

Q1. About the mentor: Some mentors join this program to be in touch with the community, or to teach new skills. What were some of your motivations for being involved in this program?

Q2. About the partnership: Some protégés maintain contact with their mentors in the form of seeking advice, or sending updates. Has your protégé maintained contact with you post-mentorship, in what ways and about how often?

Q3. About the mentor: Are you involved in other interactions with students outside of the Monte del Sol program?

Q4. About your protégé: Do you think there are cultural and/or socio-economic differences between yourself and your protégé?

Q5. About your protégé: Did any of the following protégé attributes improve during the course of the Mentorship?

Q6. About the mentor: How did this mentorship affect you?

Our open-ended survey was loosely based on the Rhodes et al. (2006)'s findings on

mentored youth development effects, specifically: (1) Social and emotional development (human interaction, improving communication skills); (2) Cognitive development (encouraging academic success, generating new opportunities for learning, and intellectual challenges) and (3) Identity development (serving as role models and advocates on which youth may model their behavior). The questions are also based on the findings of a school-based mentorship program whose volunteers expressed the desire to connect with youth, and whose goals were to teach personal responsibility and self-direction (see Martinek et al. 2001).

3.2 Survey Questions: Protégé

The following survey is intended to measure the quality and impact of the protégé's mentorship. These questions were administered during school hours in homeroom classes, to those who have completed a mentorship. The responses were hand-written on paper. Unlike the mentor survey, these responses were entirely open-ended.

Q1. Please think about your mentor and mentorship. Before you met your mentor, was there anyone in your life (such as a relative, family friend, or friend's parent) that could have provided you with a learning experience that was as helpful as your experience with your mentor?

Q2. In what ways has your mentor exposed you to people or opportunities that you would not have otherwise had?

Q3. Is your mentorship in a neighborhood or area of town that you are familiar with and/or visited often before you were matched, or did the mentorship expose you to a new location/part of town?

Q4. How did your mentorship experience change you?

In both the mentor and protégé surveys, we code text using a-posteriori labels based on

common themes (Montgomery and Crittenden, 1977). We record positive and negative responses (such as yes, no, maybe, probably not) into categories reflecting level of agreement. We also code themes that synthesize responses: such as when a mentor discusses a desire to volunteer, we code this as “community involvement/service.” One author coded the responses and the other authors reviewed his or her results.

3.3 Census Data Analysis using GIS

In addition to the mentor and protégé responses, we use a GIS model to show whether the relationships forged by the mentorship program are tying together neighborhoods that may not have many interpersonal relationships connecting them, due to social differences (Briggs, 2006).

Using information supplied by MdS student address records and a separate mentor survey, we geo-locate pairs of mentors and protégés by their approximate home addresses. No actual addresses or names are used in this analysis, but addresses are approximated by retrieving a participant’s home Census block, and randomly re-assigning the participant a location within this block. GIS analysis is performed in the ESRI ArcGIS 10.2 environment. For each pair, we absorb demographic information about each member’s neighborhood to determine extent to which mentor and protégé hail from similar demographic surroundings. Neighborhoods are designated as U.S. Census 2010 Block Groups. Variables of interest include median household income, median per capita income, education measured as the fraction of individuals over 25 years old with a bachelor’s degree, and employment, measured as the fraction of people between ages 16 and 64 employed, as reported by the five-year U.S. Census American Community Survey

(ACS) 2006-2010. Crime data is from the Esri Crime Index (Esri, 2011).

4: FINDINGS

In this section we describe qualitative mentor and protégé survey and quantitative demographic neighborhood analysis results.

4.1 Mentor Responses

Demographic sample Most mentors hold a 4-year college degree or higher (86%) and all mentors completed high school. Mentors reported their genders as 55% male and 45% female. The majority of the mentors are White (76%), with all other identified racial categories contributing less than 10% each. Twelve percent of the population identified as Hispanic or Latino. Twelve members (18%) did not identify a racial or ethnic category.

Mentors are fairly evenly distributed in each of the 30-40, 41-50, and 51-65 age groups, with fewer than 15% of mentors reporting an age below 30 or above 65. Importantly, the demographic sample does not appear representative of Santa Fe's overall population, which includes more residents of Hispanic or Latino descent (50%), and a higher percentage of residents aged 65 and older. Mentors report holding art (24%) or education-related professions (24%), 13% work in health or veterinary professions, and the remaining 38% worked in various other fields.

Bridging social capital Interpersonal connections and subsidiary connections (with a mentor's co-workers or a protégé's family) might be difficult to create without the

mentorship institution. The institution bridges across different ethnic/racial groups: 65% of students are Hispanic, while, as mentioned, 12% of mentors are identified as Hispanic or Latino. Given that the mentorship is a close one-on-one relationship and given Marsden's (1987) finding that only 8% of Americans reported discussing "important matters" with a person of another race, the cross-racial pairs made via mentorships can be seen as noteworthy in creating bridging social capital. In our case, a number of protégés are paired with a member of a different race (typically Hispanic/Latino with a White mentor). Other studies of Hispanic / non-Hispanic pairs found that bilingual students had access to more social capital, possibly because of their ability to bridge ties over monolingual networks (Stanton-Salazar and Dornbusch, 1995).

In self-report, 54% of mentors identified varying degrees of socio-economic and/or cultural differences between themselves and their protégé(s) (Table B1), although many abstained from answering this question, or reported that they did not know (17%) (Table B1). Reflecting the creation of bridging social capital, one mentor reported that (s)he and his/her protégé "[came] from very different worlds."

Mentors commonly report that mentorships create a two-way bridge for information exchange and the creation of social and human capital. As one mentor writes, *"...I feel I would never have met them or their mother and grandmother if not for this opportunity."* Another reports that *"...[Mentoring] was a way to be in touch with the community and to offer an environment for the mentees to explore themselves and what it is to be in relationship."* Another writes, *"I always feel as though teachers can learn a lot from their students! I am glad to have strengthened the connections I have with young*

people in the community.”

Motivation Mentors identify a desire to “connect to community” which exemplifies the program’s potential to facilitate social capital. Mentors report participating in the program in order to share their experience with/support youth (35%) and give back to their community (25%) (Table B2). Mentors describe these motivations: *“Being in touch with community money can't buy. Offering new skills to those interested gives purpose to life;”*

I was inspired to offer more knowledge and opportunities to the younger people in the community.”; “At age 60, it's a wonderful program to touch ground with our youth. It's much too easy to stay away. It's much more fulfilling to be a part of their lives.”; and, “The opportunity was enlightening. To see how students’ personal lives affect their participation generated new ideas on how to provide students with resources that can support their personal live[s] as well as educational goals.”

We find that 17% of mentors reported participating because they were specifically asked to do so—an indication that MdS might be recruiting mentors that otherwise would not get involved with students in Santa Fe. Conversely, the MdS program is not the only source of youth-mentor interaction for 65% of mentors (such as teachers) who report involvement with youth outside of MdS through the mentor’s career (Table B3). The MdS relationship, however, is distinct from the bond formed at the professional level (Eby et al., 2007). That is especially important because adolescents in poor neighborhoods are often stunted in the job market later in life due to a limited ability

to accumulate early work experience (Holloway and Mulherin, 2004).

Reflection on growth Many mentors (36%) describe mentoring as a learning experience, yielding an increased sense of community and responsibility (15%) and the creation of a durable relationship (9%). Nearly 5% of mentors reported a negative effect (Table B4). The program purportedly increases both the human capital (in the forms of life satisfaction, knowledge, and skills) and social capital (in the forms of increased information about youth culture and community cohesiveness) of the mentor. In some cases, the social and human capital created within the program is re-invested into the program, as some former students are now mentors. One such participant describes his decision to be a mentor in terms of his own experience as a protégé: *“If it were not for mentors I would not have had the opportunities to grow that I have had.”*

Mentors report that their protégé improved by learning a new task (76%), and by developing increased self-esteem (65%), communication skills (61%), intellectual development (52%), conversation initiation (51%), and professional demeanor (49%) (Table B5). Results reflect how a youth’s human capital increases through the partnership.

Lasting effects Nearly 44% of mentor-protégé pairs continue their relationship after the completion of the mentorship. Eleven percent of protégés contact their mentor very rarely, and 12% of protégés see their mentors incidentally, through community events or mutual contacts. Thirty-three percent of protégés reported no contact with their mentors

post-mentorship (Table B6). Many mentors whose protégés have not maintained contact expressed remorse or irritation about their lack of contact. The most common forms of interaction reported are in-person (35%), employment (mentor employs protégé, 30%), and through email/Facebook (17%). One mentor writes, *“I have developed a real relationship with my student. She is someone with whom I hope to continue to work. I want to have a positive influence in her life and hopefully open her up to wonderful options. I feel committed to her beyond the mentorship program. The mentor-ship has affected my sense of belonging to the community in a larger way and having a sense of responsibility for the well-being of its youth.”* A Fisher’s exact test of association also shows that post-mentorship contact is more frequent with mentors who work with youth outside of MdS, following Gaddis (2012), who finds that increased time spent with mentor is a prime factor in match success.

4.2 Protégé Responses

The protégé survey response rate was over 98%. Most protégés (63%) reported not knowing another individual who could have provided a learning experience comparable to their mentorship, prior to meeting their mentor (see Table C1). Of the protégés who reported knowing someone who could have provided a similar experience, many that said they knew their mentor prior to the MdS pairing process (often this was as a family friend). Others observed that even though they knew someone who could have mentored them, the experience would not have been in the same field or the same type of interaction, reflecting the difference in formal and informal mentorships (as described by Feeney and Bozeman, 2008). One student replied, *“Yes. I did have people that I could*

work with. But through the mentorship program it is a different approach and feel working with someone you may not necessarily know. It's more direct!"

Mentors seemed to expose their protégés to a variety of opportunities, such as professional opportunities or insight (40%), an opportunity to play a live show for a music mentorship or to shadow a nurse on her rounds (Table C2). Others (30%) reported meeting new people through their mentorships. These connections expanded the protégés' networks and may lead to opportunities that the protégés would not have otherwise had, hence increasing social capital. Several protégés described this: "*[My mentorship] allowed me [the] opportunity to go to Japan and experience culture and meet people...[also] met girls from Palestine and Israel for a peace camp. Never would have met them before.*"; "*My mentors [names omitted] knew a lot of people. They knew people at [omitted] Mediahouse, people who work with [omitted] Channel, and they could help get me an internship with a mediahouse I'm interested in.*"; "*...Not only did [my mentor] teach me skills that were previously unknown to me, but he introduced me to other experienced musicians who had valuable information. These are all people I would not have met if there was no mentorship program.*"; "*Without my mentor I would not have met the new great people I did nor would I have tried the new things I now love.*"

An important part of feeling like a part of a community is feeling comfortable within the built environment. With regard to exposure to new geographies, 40% of protégés reported being familiar with the mentorship location area before their mentorship (Table C3). Others expressed mixed familiarity (18%) with the environment before the mentorship. For 22% of protégés, their mentorship exposed them to new areas.

One respondent wrote that *"They exposed me to a new part of the city, and now I'm comfortable with that area."* 20% did not answer this question clearly, perhaps due to the open-ended wording of the question (see Appendix C). In a larger city, we might expect more students to be exposed to new areas through such a program.

Most protégés (94%) identified that their mentorship had changed them: 47% reported developing a current or new passion or skill, 46% reported experiencing personal growth, such as increased responsibility, confidence, or broadened perspectives, while 22% wrote that they gained insight to a potential career, which may help them determine their future path (Table C4). Using Fisher's exact test, a protégé's reported increased exposure to opportunities or people correlated with how the mentorship changed the protégé.

4.3 Analysis of Neighborhoods

We compare the differences in a protégé's neighborhood characteristics (income, education, employment, and crime) to those of his or her mentor. Visually, pair-wise mentorship connections seem to connect many different parts of the city so that there is not a clear cluster of mentors and a clear cluster of protégés (Figure 1). Though spatial statistical methods (such as hot spot analysis) do not reveal significant spatial trends of mentor home location and protégé home location, upon visualizing the data, we notice that a number of mentors live in the downtown, which has denser commercial outlets, restaurants, and community facilities that have been shown to lead to more social capital (Curly, 2010). Protégés also tend to live in the rural south of Santa Fe, while mentors are

more likely to live near the downtown, indicating that mentors, as city dwellers, may have access to a wider variety of cultures and amenities that are often associated with central business districts.

Fig. 1 about here.

Using the Census data associated with each household from the GIS, we analyze the relationship between mentor-protégé links. We find that mentors hail from communities with 3% more people employed on average (Figure 2a) and 4% more residents with Bachelor's degrees (Figure 2b). A Student's paired t-test of protégés ($n = 112$) and mentors ($n = 63$) reveals that that education and employment variables appear significant at 5% level, assuming a Bonferroni correction for multiple comparisons (Dickhaus, 2014) (see Table 1). Regardless of census neighborhoods, 86% of mentors hold a 4-year college degree or higher and all mentors had completed high school, allowing them to serve as role models for students who have yet to complete their high school career.

None of the three income variables approach statistical significance, which implies that there is no mentors are not more likely to be drawn from wealthier communities than their protégés. Average per capita and household income levels do not differ between pair-wise mentor and protégé communities. Yet, when pairs are not considered, but only the independent distributions of variables (Figure 2c, 2d), a Kolmogorov–Smirnov test shows that education and employment distributions of protégé and mentor neighborhoods are significantly different (Table 1), and to a lesser extent,

neighborhood crime rate and per capita income differences (Table 1). However, the Kolmogorov–Smirnov test does not identify exactly how the distributions differ. The Census data do not reflect that the pairs are exhibiting socio-economic bridging social capital in these dimensions, although some cursory spatial patterns can be seen (Figure 3).

Table 1 about here. Fig. 2 and Fig 3. about here.

We also find no significant difference between levels of population density between the homes of the protégés and mentors. However, some of the most urban areas in Santa Fe have a low population density in U.S. Census data, as many of the nearby buildings are occupied by hotels and other commercial uses, and have few residences. Meanwhile, some rural areas include dense mobile home communities, which can reflect a cohesive neighborhood with many options for social and human interaction (and thus, capital attainment) within reach. This “density” can be deceiving, as the urban zone will still have more activity, information flow, professional specialization than the rural mobile home community. Thus, these statistics are not good indicators of bridging social capital. Still, we encourage interested researchers to adopt the method of mapping variable differences (e.g. differences in income) between dyadic pairs in a GIS environment.

5: CONCLUSION

We attempt to measure the extent to which a mentorship program is creating bridging social capital in an urban environment. We use a mixed methods approach to analyze the

ability of a mentorship program in Santa Fe to create bridging social capital. Based on student and mentor surveys, we find that the program exposes students to professional opportunities and mentors to youth in a way that was unlikely to occur by happenstance. This exposure appears likely to contribute to new professional interests in the protégés and fosters a new the relationship between the mentor and protégé. Bridging capital was evident at the qualitative, individual level (through self-report), but not at the quantitative, aggregate level using a GIS analysis of the Census neighborhoods of the participants.

There are a number of limitations to our study. First, we obtained a relatively low response rate from our mentors, which we ascribe in part to the e-mail method of delivery, as some e-mail addresses may be out of date. Still, our sample of respondents is biased by those who were interested in the program, perhaps through feelings of loyalty, or a strong desire to give feedback. These responses may not represent the typical mentor.

We also are limited by relying on Census data to describe individuals; especially when neighborhoods are mixed in income, race, etc., there is error in ascribing the traits of a neighborhood to its residents. We find a distinct difference between reported demographics from the first mentor survey (section 3.1) and MdS records. For instance, MdS records cite most students as Hispanic, while most mentors describe themselves as white. According to the U.S. Census (2010), 48.7% of Santa Fe's residents identify themselves as Hispanic and 46.2% as white only, indicating that our respective samples of protégés and mentors may not represent Santa Fe well. Still, the mentors replied often that there was little socio-economic difference between themselves and their student(s).

Also, the census neighborhoods may not be not sufficiently fine-grained to provide a good proxy of actual neighborhood communities (Gans, 2002), especially because Santa Fe does not have pronounced geographically-separate, stratified neighborhoods or ethnic enclaves. Nonetheless, we find that connections span the city geographically, indicating that mobility and exposure to other parts of the city might be increased, as confirmed by some student responses (section 4.2).

More conceptually, while we believe creating linkages is a goal of community leaders who champion diversity, as Sampson points out, “networks connect do-gooders just as they connect drug dealers” (2004, p. 159). The MdS program screens its professionals, so the chances of being connected to violence or illegality through this program is low. However, it is important to be specific about the social capital gained by new linkages, and through friends-of-friends that may be forged through the mentorship.

What can the Santa Fe community learn from these findings? In line with Darling et al. (2006), we find that cultural context is important. Our findings imply that in a city like Santa Fe, whose public school system faces challenges of teen pregnancy, drop-out rates and low test scores, it may be beneficial to tie youth with professionals in the community so they can learn practical skills, gain exposure to jobs held by members outside of their family, develop interpersonal skills and meet new members of the community. Additionally, we believe that Santa Fe could leverage its large skilled, retired community toward this goal. Although a bachelor’s degree is not a necessary credential for a good mentor, 44.0% of Santa Feans 25+ hold bachelor’s degree, compared with 25.8% (25+) in the state of New Mexico. Because of the success of this program, we

suggest that schools increase partnerships that develop human and social capital in their communities. Redesigning school curriculums and educational practices to increase these capital resources could lead to an untapped source of value for cross-generational ties. This is a way to bolster strong interpersonal relationships across different demographics that can be extended to other studies of dyads in the community, or community groups such as churches or social clubs (Putnam, 2001), to measure how institutions might be uniting people from very different parts of the city or those who have much to offer one another.

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Table 1 The first two columns show Student’s t-statistic and the corresponding p-value for mentor-protégé *pairs* for each variable listed. The fraction with Bachelor’s degrees and fraction employed have p-values less than 0.01, which suggests that mentors come from communities with more Bachelor’s degrees and higher employment rates. The second two columns show the Kolmogorov–Smirnov (KS) test statistic for differences in distribution and the corresponding p-value for each variable listed. The fraction with Bachelor’s degrees and fraction employed have p-values less than 0.01, which suggests that these distributions are different between mentor and protégé communities. Additionally, crime rate per capita has a p-value < 0.05 , which is suggestive of significance but does not pass a test for multiple comparisons at an experiment-wide significance level of 0.05.

Variable	t-statistic	p-value	KS-statistic	p-value
Median household income	-0.394	0.69	0.0965	0.66
Average household income	-0.898	0.37	0.1316	0.28
Per capita income	0.601	0.54	0.2193	<0.01
Crime rate per capita	-0.174	0.86	0.2105	0.01
Fraction over 25 w/ bachelor’s degree	2.765	0.01	0.2544	<0.01
Fraction employed (ages 16–64)	2.782	0.01	0.307	<0.001

List of Figure Captions

Figure 1. Mentorship relationships are shown as dotted lines that connect a mentor's approximate home location (black dot) with one or more protégés' home locations (orange square). From this visualization, we find that a number of protégés in the southwestern side of Santa Fe are connected with mentors who live closer to the denser city center (located in the northeast part of the urban area).

Figures 2a-2d. Histograms of mentor and protégé variables. Mentor variable bars (in light pink) are located in front of protégé bars (in purple) (i.e. bars are not stacked). The bars are partially transparent so that intersections of the mentor and protégé histogram bars are a pink-purple shade. There are more protégés (112) than mentors (63).

Figure 3. Protégés whose mentors live in higher income neighborhoods tend to be from the southwest of the city, and towards the spine of the main city roads. Protégés whose mentors live in lower income neighborhoods tend to live in the east (and southeast) part of the urban area boundary, although clustering statistics do not prove significant results.

Figure 2. Results of census variable comparisons.

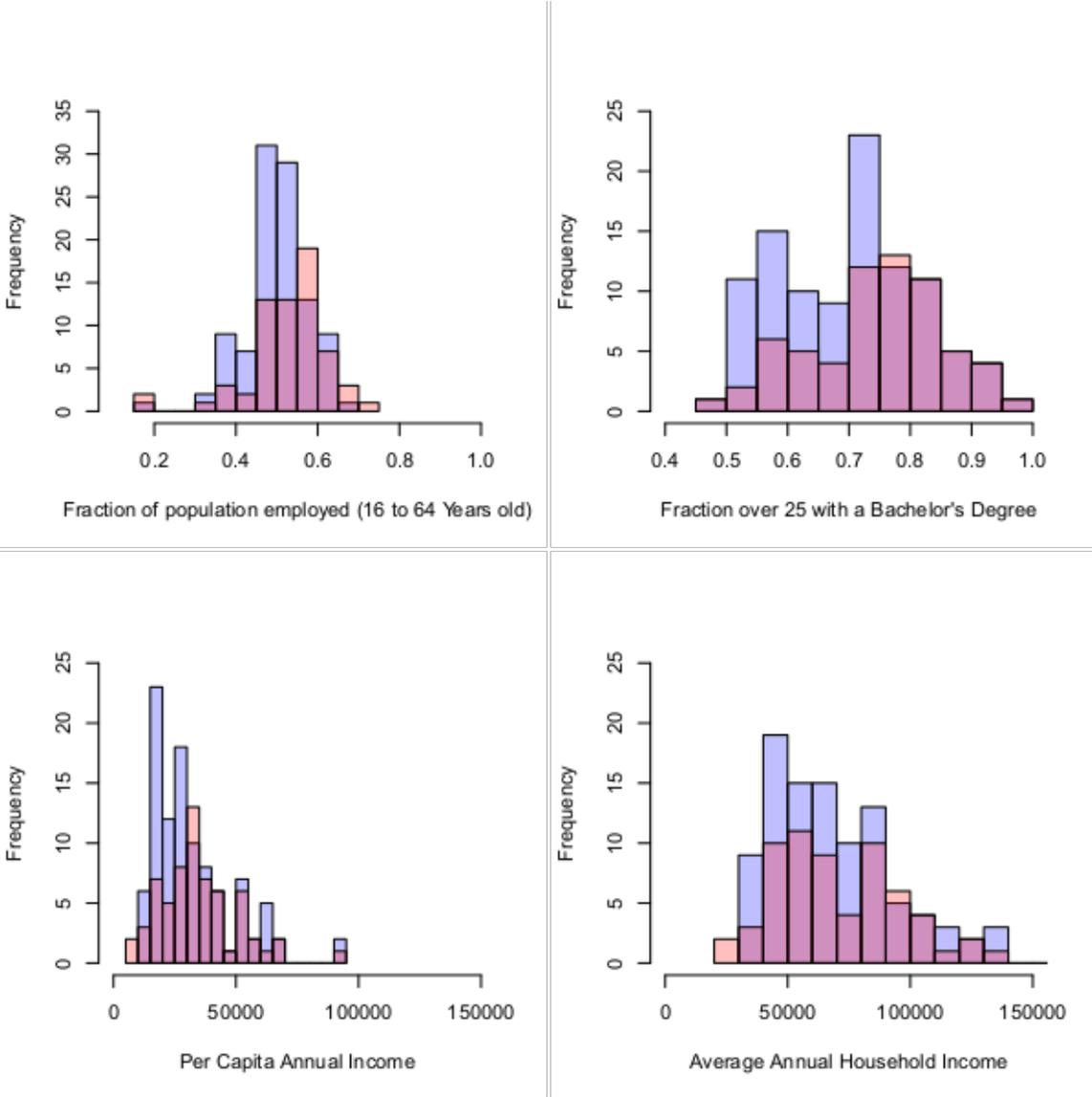
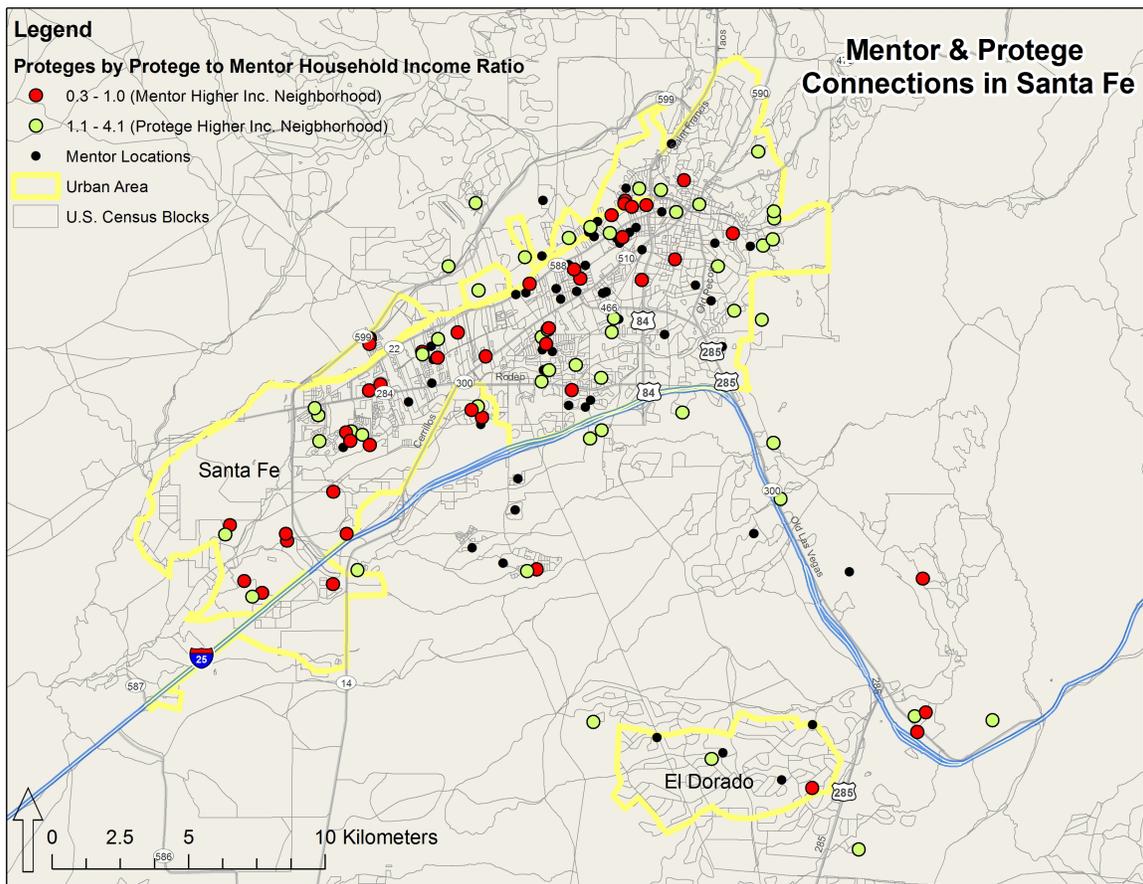


Figure 3. Spatialization of mentor/protégé household income ratios in Santa Fe.



Appendices

APPENDIX A: Demographic Survey Questions

Demographic Survey Questions. All questions are open-ended unless marked as multiple choice. This survey was administered using Google Forms via e-mail. Directions for survey-takers were as follows: “The mentorship program is trying to collect data about our mentors. Please fill out the following questions about yourself.”

1. Name (First, Last)
2. Home address (Please write your address at home.)
3. Highest level of education*
4. Your specific profession/title (ex. Veterinarian)
5. Spouse’s profession/title, Name, Age Range (if applicable)
6. Gender**
7. How do you describe yourself in terms of race/ethnicity? (Examples: African American, White (Caucasian), Hispanic/Latino, Asian, Middle Eastern, American Indian, Pacific Islander)

*(multiple choice: Less than High School, High School or GED, Associates or Professional Degree, College Education, Graduate Work (Masters), Doctorate (PhD, MD, JD, etc.) ** (multiple choice: Female, Male, Prefer not to Disclose).

APPENDIX B: Anonymous Survey Mentor Questions and Responses

Directions for survey-takers: “This survey asks private questions, separate from the demographic survey. Responses are logged randomly, not in order of reception. Please feel free to respond as openly as you can.” Questions are asked in the order described in section 3.2, and are ordered here as referenced in the text (results section).

Table B1. About your protégé: Do you think there are cultural and/or socioeconomic differences between yourself and your protégé?

Responses	Frequency	Percentage*
Yes	34	54%
Did not answer/Don't know	11	17%
No	18	29%

Table B2. About the mentor: Some mentors join this program to be in touch with the community, or to teach new skills. What were some of your motivations for being involved in this program? (Multiple responses possible.)

Responses	Frequency	Percentage*
Want to share experience/support	22	35%
Community involvement/service	16	25%
Enjoy working with youth	12	19%
Specifically asked	11	17%
Enjoy teaching	8	13%

Mentorship valuable	5	8%
Encourage youth to go into a specific field	5	8%
Giving back (had/has/was student in program)	4	6%
Want to connect with youth	3	5%
Personal gain (career-related)	3	5%
Encourage females to succeed	3	5%
Personal gain (emotional/life satisfaction)	3	5%
Run a separate mentorship program	2	3%
Did not answer/unclear	1	2%

Table B3. About the mentor: Are you involved in other interactions with students outside of the Monte del Sol program?

Responses	Frequency	Percentage	Percentage excluding those who did not answer
Did not answer/unclear	3	5%	
No	17	27%	28%
Rarely	4	6%	7%
Sometimes	3	5%	5%
Yes-educator	10	16%	17%
Yes-work with youth	18	29%	30%
Yes (indiscriminate)	7	11%	12%

Table B4. About the mentor: How did this mentorship affect you? (Multiple responses possible.)

Responses	Frequency	Percentage
Satisfying/rewarding/pride/positive	27	43%
Did not answer/not applicable	8	13%
Improved personal skills/knowledge	9	14%
Enlightening (learned about youth culture)	8	13%
Sense of responsibility/community	8	13%
Learned something new (technology)	5	8%
Lasting personal bond	5	8%
Frustrating	3	5%
Inspired	3	5%
Hope for the future	2	3%
Disappointing	1	2%
Supported student outside of regular mentor context	1	2%

Table B5. About your protégé: Did any of the following protégé attributes improve during the course of the Mentorship? (Multiple responses possible.)

Responses	Frequency	Percentage
Learning a new task	48	76%
Self-Esteem	41	65%
Communication skills	39	62%
Intellectual development	33	52%
Conversation initiation	32	51%
Professional demeanor	31	49%
Interpersonal skills	28	44%

Responsibility	27	43%
Time Management	22	35%
Organization	21	33%
Ability to be competitive on the job market	16	25%
Creativity	2	3%
No improvement	1	2%
Completion	1	2%
Pride	1	2%

Tables B6. About the partnership: Some protégés maintain contact with their mentors in the form of seeking advice, or sending updates. Has your protégé maintained contact with you post-mentorship, how frequently, and using which methods.

Responses	Frequency	Percentage*	Percentage excluding those who did not answer**
Did not answer/ unclear/current protégé	6	10%	-
No (indiscriminate)	19	30%	33%
Very Rarely	6	10%	11%
Only incidentally	7	11%	12%
Yes, occasionally	6	10%	11%
Yes, often	6	10%	11%
Yes (indiscriminate)	13	21%	23%

Responses	Frequency	Percentage	Percentage within those who specified type of contact
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In person	8	13%	35%
Employ protégé	7	11%	30%
Email/Facebook	4	6%	17%
Phone call	3	5%	13%
Text	3	5%	13%
Continued class/lessons/ workshop from mentor	3	5%	13%
Community events	1	2%	4%

Multiple responses per mentor were possible.

APPENDIX C: Student Survey Responses

Table C1. Please think about your mentor and mentorship. Before you met your mentor, was there anyone in your life (such as a relative, family friend, or friend’s parent) that could have provided you with a learning experience that was as helpful as your experience with your mentor? (Students allowed one response.)

Response	Frequency	Percentage
No, no one else	53	63%
Maybe	3	4%
Yes, someone could have	27	33%

Table C2. In what ways has your mentor exposed you to people or opportunities that you would not have otherwise had? (Multiple responses possible.)

Response	Frequency	Percentage
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Not exposed to people/opportunities	4	5%
No Answer/Unclear	13	16%
New/improved skills	22	27%
Met new people	25	30%
Professional opportunities/insight	34	41%

Table C3. Is your mentorship in a neighborhood or area of town that you are familiar with and/or visited often before you were matched, or did the mentorship expose you to a new location/part of town? (Students allowed one response.)

Response	Frequency	Percentage
No answer/Unclear	17	20%
No, familiar with area	33	40%
Somewhat	15	18%
Yes, new area	18	22%

Table C4. How did your mentorship experience change you? (Multiple responses possible.)

Response	Frequency	Percentage
Other/Unclear	6	7%
No change	5	6%
Learned about potential career	18	22%
Personal growth	38	46%
Developed/improved passion/skill	39	47%

