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The Impact of Community Building on Student Achievement

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ABSTRACT

This thesis looks at the impact of community building on student achievement. The theoretical framework stems from Akerlof and Kranton's paper on how student identity impacts schooling outcomes. By combining economic and sociological theories, they argue that community building increases student identification with school and student achievement. Through a literature review, I categorize the ways that schools build community. I then test Akerlof and Kranton's theory that community building increases student identification and achievement through a review of the literature and my own quantitative analysis. I ultimately find that while community building increases student identification, it does not increase achievement.

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1

INTRODUCTION

Addressing the persistent inequality in schools has been a pressing issue in the realms of policy and research in the United States. Billions of dollars have been invested in schools and education reform, yet progress has been slow. For example, the "achievement gap", one prominent measure of inequality that describes the disparity in test scores between whites and blacks and whites and Hispanics, has changed little since 1990. The gap between whites and Hispanics remains at about 26 points for both math and reading (Achievement gaps, 2011). While the gap between whites and blacks narrowed in 2007, it was still about 26 points for both reading and math (Achievement gaps, 2009). The slow progress highlights that researchers still empirically know little about the best way to reform schools. The plethora of research rarely agrees on which inputs matter and how to best improve these inputs.

Despite the lack of research consensus, there have been several major policy reforms in the past couple of decades. The rise of the standardized testing regime has been at the forefront. Starting with

No Child Left Behind and continued with Race to the Top, the fates of schools and districts have been tied to their standardized test scores. This tie is meant to incentivize schools and districts to close the achievement gap and to hold them accountable for poor performance. As a result, many schools, especially those serving low-income students, have focused predominately on preparing their students for these tests. Opponents of standardized testing argue that "teaching to the test" is done at the expense of other important educational objectives, such as developing critical thinking skills and social consciousness, and that tying the fate of a school to its test scores does not actually improve the quality of education. There have been major push-backs against standardized testing, with a growing number of parents opting their children out of standardized tests. Throughout this period, there has also been a surge of charter schools. Because charter schools have more freedom than district schools and are seen as being less bogged down by bureaucracy, proponents argue that charter schools can more effectively bring quality education to low-income students. The success of a few prominent charter schools, such as the KIPP charter schools, has propelled this argument forward. However, research has shown that on an aggregate level, the variation in quality of charter schools is just as large as the variation in quality of district schools. The variable quality of charter schools and the drain of resources on district schools have resulted in an anti-charter school movement. Opponents of charter schools argue that

more attention should be dedicated to improving district schools, instead of diverting resources to charter schools, which only help a few.

Within this contentious landscape, a paper by Akerlof and Kranton (2002) provides potentially innovative insights. Much of the research within education has been siloed, with economists only thinking about how economic theories and approaches impact education and sociologists only thinking about how sociological theories and approaches impact education. This siloed thinking misses the opportunity for synergistic insights. The economics framework is frequently unable to explain why certain phenomenon occur, such as why resources do or do not affect the returns to schooling. On the other hand, while the sociological framework tends to focus on the question of "why?", this research rarely looks at how to most effectively and efficiently use resources. Akerlof and Kranton (2002) see the potential of an interdisciplinary approach. They combine economic and sociological theories to develop a model on how the relationship between student identity and school ideals impacts student achievement (which is measured through test scores, graduation rates, and/or college-going rates). Using this model, they argue that dedicating resources to community building, which they define as reducing the social differences between students and their schools, and increasing student identification with school will increase student achievement. This theory provides potential answers to why student achievement in many areas of the country continue to re-

main low. Creating a sense of community could be a key input into increasing student achievement.

Despite the important implications of such a model, many questions still remain, such as what this theory looks like in practice and whether its conclusions are supported by the empirical evidence. This thesis builds on Akerlof and Kranton's (2002) work by addressing some of these questions. I will specifically look to answer the following questions:

- What does community building actually look like in practice?
- Does community building lead to higher student identification with school?
- And does community building lead to higher achievement (through the mechanism of greater student identification)?

Answering these questions provides an important step forward in determining better ways to improve schools. If the impact of community building proves to be large, this finding can be used to improve programming for minority students and shift the focus of policymakers. Building community may in fact be a more efficient and effective use of resources than current forms of expenditure.

In order to answer the above questions, I first look to the current literature base. Through the literature, I explore and categorize the ways that schools are currently building community. I find the main forms of community building to be providing supportive/caring relationships between students and teachers; adopting culturally relevant

and democratic pedagogy and curricula; creating smaller communities through small schools and class sizes; and isolating students from outside "negative" influences. I also use the literature as a preliminary point for determining the causal relationship between community building and higher student achievement. The existing literature suggests that community building increases student identification with school but that community building does not increase student achievement. The empirical evidence on this relationship, however, is scarce, so I build upon this evidence by conducting a statistical analysis on caring and supportive teacher-student relationships and all-male schools for blacks and Latinos. Because caring teacher-student relationships are a popular form of community building and all-male schools for blacks and Latinos have strong community building programs, they provide a good way to test the causal relationship between community building and student achievement. I ultimately find that my results are consistent with the existing empirical literature.

This research also has particular personal importance to me, because of its interdisciplinary nature. As a special major in Economics and Education, I see the value of the perspectives of both disciplines and believe that oftentimes one discipline can fill in the gaps of the other. On the other hand, I have also seen the general dearth of interdisciplinary work at the intersection of economics and education. While it's true that sometimes economics and sociological theories work in opposition, there are also many times where they can com-

plement one another. I believe this research is one of those times. This work potentially provides an important example of the value of interdisciplinary research and how this work can lead to important conclusions that siloed research cannot. Overall, I believe this work provides important implications to education reform and policy but also to the research disciplines of economics and education.

The rest of this thesis will continue as follows: Chapter 2 will provide a brief summary of the methods I have used to conduct this research. Chapter 3 is the theoretical framework and provides a summary of Akerlof and Kranton's model and its implications. Chapter 4 grounds Akerlof and Kranton's model in practice through an analysis of the literature. My literature base stems from some work that Akerlof and Kranton discuss to support their model and some more recent work. I begin to answer my research questions through this literature review. Chapter 5 builds on this literature analysis through an empirical case study. I specifically test Akerlof and Kranton's model by conducting statistical analysis on data from the High School Longitudinal Study of 2009. Finally, I will conclude in Chapter 6 by reviewing my findings, reflecting on the limitations of my study, considering new questions that emerged during this study, and discussing possibilities for future research.

2

METHODS

The methods of this thesis are divided into two parts. The first part of this thesis is a literature review. The literature base I draw from stems from my coursework. The Akerlof and Kranton (2002) paper that I use as a framework for this thesis is from the economics of education course I took called Savage Inaccuracies. Using this framework, I analyze the literature from my Introduction to Education course and my Social and Cultural Perspectives on Education course in order to categorize the various forms of community building that schools implement in practice. This categorization of community building then provides a platform for understanding the existing (and small) literature base on the causal relationship between community building and student achievement.

The second part of this thesis is a quantitative analysis. I use data from the High School Longitudinal Study of 2009 in order to determine the causal relationship between community building and student achievement. I analyze the impact of community building on student identification with school; the impact of community building

on student achievement; and the impact of student identification on student achievement. My regression analysis looks at two forms of community building: caring and supportive teacher-student relationships and all-male schools for blacks and Latinos (existing literature shows that these types of schools have strong community building programs). I will provide a more in-depth discuss of my quantitative methods along with a discussion of my results in Chapter 5.

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A THEORETICAL FRAMEWORK: AKERLOF AND KRANTON

In their paper *Identity and Schooling: Some Lessons for the Economics of Education*, Akerlof and Kranton (2002) integrate sociological and economic concepts in order to create a model that explains the impact of student identity on schooling outcomes. The groundwork for this model stems not only from standard microeconomic theory but also from sociological ethnographies, such as Willis' (1977) *Learning to Labor*, Coleman's (1961) *Adolescent Society*, and Grant's (1988) *The World We Created at Hamilton High*. Using these works, the authors' argue that a student's primary motivation for schooling is her identity. They define identity as an exogenous variable that is interchangeable with the idea of self-image and is determined by the student's social characteristics (such as gender, class, and race) and the social category the student fits into at school. Furthermore, the idea that schools are institutions that impart more than just skills is imperative. In this model, schools (exogenously) construct a no-

tion of an ideal student that shapes the fit between school and student. When a student's background conflicts with the school's ideal, the school implicitly conveys that there is something wrong with the student's background, and by extension, something wrong with the student. This implicit message can take the form of a teacher disapproving of a student's clothing and manners. Within Akerlof and Kranton's (2002) framework, whether or not a student identifies with the ideal her school promotes plays a major role in determining her educational achievement and skill acquisition. Their model shows that schools that use resources to build community and increase the number of students that identify with the school will have higher student achievement than schools that do not. In this chapter, I will provide a brief summary of Akerlof and Kranton's (2002) model and its implications.

In this model, students seek to maximize their utility, which is comprised of two components: their future earnings and their present self-image. The maximization of future earnings falls under the standard economic framework of education. Under this economic framework, students attend school in order to gain skills for their future careers. On the other hand, the utility gained from a student's current social status stems from a sociological perspective. The sociological utility is determined by the student's identity and her identification (or lack thereof) with school. In the model, the variable p shows whether a student's utility is determined more by economic considerations or more by sociological considerations.

Another important aspect of this model is the categorization of students into two groups: those who identify with the school and those who do not (aka "Burnouts", a term drawn from Coleman's (1961) *Adolescent Society*). This categorization is determined by two exogenous variables: the school ideal, s, which dictates the attributes and behavior of an ideal student, and the student's characteristics, ϵ, such as race, class, and gender. How far a student's characteristics deviate from the characteristics of the school's ideal student determines whether or not she identifies with the school. If the student's characteristics deviate largely from those of the ideal student, she will gain more utility from not identifying with the school and choose to be a burnout. However, if the student's characteristics do not deviate substantially from those of the ideal student, she will gain more utility from identifying with the school. The following paragraphs quantify this idea with utility functions.

From the economic perspective of the utility function, a student's marketable skill acquisition is determined by her effort e_i and the school's ideal s, which impacts the marketable skills the student will be taught. The pecuniary cost of effort is $1/2e_i^2$. If a student identifies with the school and learns the marketable skills her school teaches, the standard economic utility a student gains from education is $s \cdot e_i - 1/2e_i^2$. However, if a student does not identify with the school, their disruption in school d_i will detract from their skill acquisition. The idea of disruption is exemplified by Willis' (1977) lads who oppose school and break school rules by drinking, smoking, and

disrupting class. The disruption variable falls between 0 and 1, thus the economic utility of a burnout is $s \cdot e_i(1 - d_i) - 1/2e_i^2$.

In the sociological component of the utility function, a student's utility is determined by three parts: the self-image the student gains from either identifying with the school or not identifying with the school; how far the student's characteristics deviate from the school's ideal; and how far the student's effort deviates from the ideal effort. A student that identifies with the school gains a self-image of I_S. A burnout gains a self-image of $d_i \cdot I_B$, which Akerlof and Kranton (2002) assume to be less than I_S. Students' characteristics ϵ_i, such as class, ethnicity, or other social attributes, are assumed to be uniformly distributed on $[m - \sigma/2, m + \sigma/2]$, where m is the mean and σ represents the diversity of the student population. The school's ideal s is also assumed to be uniformly distributed on $[m - \sigma/2, m + \sigma/2]$. Therefore, a student who identifies with the school category, S, gains I_S when her individual characteristics are above the school ideal, $\epsilon_i > s$. A student who identifies with the school but has characteristics that are below the school ideal gains $I_S - t(s - \epsilon_i)$, where t represents how difficult it is for a student to fit the school ideal. Finally, effort deviations from the ideal effort are given by $1/2(e_i - e(S))^2$ for students that identify with the school and $1/2(e_i - e(B))^2$ for students that do not identify with the school.

Taken all together, the utility functions are:

$$U_i(S) = p[s \cdot e_i - 1/2e_i^2] + (1 - p)[I_S - 1/2(e_i - e(S))^2] \; for \; \epsilon_i > s$$

$$U_i(S) = p[s \cdot e_i - 1/2e_i^2] + (1-p)[I_S - t(s-\epsilon_i) - 1/2(e_i - e(S))^2] \; for \; \epsilon_i < s$$

$$U_i(B) = p[s \cdot e_i(1-d_i) - 1/2e_i^2] + (1-p)[d_i \cdot I_B - 1/2(e_i - e(B))^2]$$

Given these utility functions, the students will choose to either identify with the school or become a burnout based on which option maximizes their utility. If a student's characteristics, ϵ_i, substantially deviate from those of an ideal student, s, and/or it is difficult for students to fit into the school ideal, t is large, then $t(s-\epsilon_i)$ will be large. At a certain point, the student will gain greater utility from rejecting the school than from continuing to identify with the school. As the above equations show, if the student's characteristics are below those of an ideal student, they will suffer a utility loss of $t(s-\epsilon_i)$. Although the student loses I_S by becoming a burnout, she no longer loses $t(s-\epsilon_i)$.

Under a purely sociological model, where $p = 0$, Akerlof and Kranton (2002) derive mean skill acquisition K as

$$K = s \cdot e(S) \cdot (1/2 - (s - m - I/t)/\sigma)$$

This equation demonstrates that when the school ideal s is sufficiently above the median student's characteristics m, K declines when s increases even though higher s contributes directly to skill acquisition. As s increases, more students reject the school, so total skill acquisition decreases. Furthermore, the greater t is, the greater the social differences between the students and the school. Therefore, for a

given s, as t increases, more students reject the school and total skill acquisition decreases.

Akerlof and Kranton (2002) then proceed by analyzing the trade-off between promoting one school ideal versus promoting multiple school ideals. The idea of multiple school ideals stems from what Powell et al. (1985) call "shopping mall" high schools, where students are treated as customers (Akerlof and Kranton, 2002, p. 1185). Schools take a laissez-faire attitude, making little or no attempt to change the values of the students. Formal tracking is eliminated, but students track themselves, with those interested in academics seeking out the best teachers and those not interested choosing the less challenging courses (Akerlof and Kranton, 2002, p. 1185). The Shopping Mall High School provides a sharp contrast to the single ideal school from Grant's (1988) Hamilton High. At this school, "the principal had few doubts that his job was to 'enforce middle-class standards of courtesy and respect, emphasize a college preparatory curriculum and put winning teams on the Hamilton field'" (Akerlof and Kranton, 2002, 1184). Akerlof and Kranton (2002) capture these differences in their model and show that when comparing the total skill acquisition of promoting one school ideal versus two school ideals (a simplified version of multiple ideals), the school achieves higher skills by providing two ideals when the social distinctions are large (t is large and/or σ is large). However, when the social distinctions are small, student are more likely to identify with the school. Therefore a school will maximize skill acquisition by promoting a single ideal.

The authors then discuss the implications of their model in the context of school reform and resource use. Within their framework, schools can use resources in two ways: directly devoting them to the teaching of marketable skills or devoting them to building community. In the model, building marketable skills is separate from building community. Building marketable skills takes the form of increasing s, whereas building community is defined as reducing t, the social differences between the students and the school. When t is not large, there is a trade-off to spending resources on community building. On the one hand, community building has the benefit of increasing the number of students who identify with the school. On the other hand, resources are being diverted from activities that directly teach skills, so reducing t results in a loss of skill. However, when t is initially high and students consider themselves to be quite different from the school, a small investment in reducing t can actually have a large impact on skills. Therefore when social distinctions between the students and the school are large using resources to decrease t through community building is the optimal allocation of resources. Additionally, with sufficient investment in decreasing t, it becomes optimal for the school to promote a single ideal.

Akerlof and Kranton (2002) provide an impressive mathematical model for understanding how student identification with school ideals can impact student achievement. The resource use and school reform implications of their model will serve as the framework for the rest of this thesis. The next chapter will take a closer look at the

qualitative and quantitative literature surrounding school community building and its effects on student achievement.

4

A LITERATURE REVIEW: AKERLOF AND KRANTON IN PRACTICE

Akerlof and Kranton's (2002) paper provides initial insights into what their model of student identification with school looks like in practice. They argue for the importance of community building as a form of school reform and provide qualitative and quantitative evidence through the successes of schools that have dedicated resources to community building. As a reminder, Akerlof and Kranton (2002) define community building as initiatives and programs that reduce the social differences between students and the school. In the model, this is done by reducing t. Large social differences create conflict when for example, schools promote cultural norms and behaviors that reject the students' backgrounds and identities. The authors show that if the t is initially large, then dedicating resources to building community and reducing t will increase student identification with the school and as a result, student skill acquisition. This chapter builds on Akerlof and Kranton's (2002) initial work by pro-

viding updated examples and categorizing the main forms of community building that schools undertake. Once I have determined the main forms of community building, I will look at evidence on if and how these types of community building lead to higher achievement.

4.1 WHAT DOES COMMUNITY BUILDING LOOK LIKE IN PRACTICE?

Drawing from both Akerlof and Kranton's (2002) literature review and an updated literature base, I categorize the main forms of community building that schools have undertaken: providing supportive/caring relationships between students and teachers; adopting culturally relevant and democratic pedagogy and curricula; creating smaller communities through small schools and class sizes; and isolating students from outside "negative" influences. There is some overlap between the categories, and they do not encompass all community-building initiatives. Rather the intent of these categories is to provide a preliminary framework for understanding how schools are approaching community building.

Supportive relationships

Building supportive and caring relationships between students and teachers is a form of school community building. The idea of caring and supportive relationships stems from Noddings' (1988) work,

which defines authentic caring as sustained reciprocal relationships between teachers and students. Caring and supportive teachers understand the reality of their students through an engrossment in their students' welfare and emotional displacement (Valenzuela, 1999, p. 61). In other words, students should not be perceived as simply "automatons in baggy pants" (Valenzuela, 1999, p. 61).

One way schools are building stronger teacher-student relationships is through understanding one another's perspectives. By working to understand a student's perspective, teachers can more effectively provide their students with the support that they need. For example, Akerlof and Kranton (2002) provide an anecdote from James Comer's work in reforming two New Haven schools:

> Rather than simply punishing the student who misbehaved, the teacher, who had been trained to look for causes of misbehavior, wormed out of the boy that he was upset because his father had been denied a pass from jail for Christmas. She helped him write a letter to his father, but, at the same time, she also made him understand he could not take out his feelings on other children. (p. 1190)

By understanding why the student is acting out, the teacher is able to more effectively find a solution to the misbehavior and prevent similar situations from occurring in the future.

Teachers will also demonstrate that they care about their students by holding high expectations and insisting that students per-

form to the best of their abilities. In *Schooling for Resilience*, Fergus et al. (2014) describe how caring relationships in all-male black and Latino schools are built through high expectations. A student describes how at his previous school, teachers did not care if students turned in their assignments but that at his current school, teachers really care. His teachers will hound students to turn in their assignments and will even sit with them during lunch to make sure they do their work, so they don't have any excuses (Fergus et al., 2014, p. 115).

Furthermore, teachers frequently become involved in many aspects of students' lives as a way to demonstrate that they care about their students as more than just students but as actual human beings. Within Catholic schools, because teachers are responsible for shaping student character, they are expected to be involved in many aspects of students' lives. A student's English teacher may serve as not only her teacher but as both her counselor and her soccer coach (Bryk et al., 1993, p. 141).

Finally, many charter schools have built supportive relationships between teachers and students by making teachers more accessible. At a school described in *Schooling for Resilience*, teachers were all given cell phones to ensure that students and parents could reach them at any time of the day (Fergus et al., 2014, p. 114). Similarly, at KIPP charter schools, teachers are available by phone at any time of the day. In *Word Hard. Be Nice.*, Matthews (2009) describes these teacher-student phone interactions:

> Homework was important to Levin and Feinberg. They wanted students to call them at home if they had any qusetions about their assignments. About forty of the families had telephones. Some students used pay phones on the street outside their apartments. They called often. Their questions were about everything. "I can't understand these instructions, Mr. Levin." "I can't read this, Mr. Feinberg." There was only one phone in the teachers' apartments, so they took turns answering, usually ten to twenty calls a night. (p. 102)

By being so accessible, these teachers clearly demonstrate that they care about the success of their students. Developing these caring relationships can strengthen the bond between the student and the school. If students believe their teachers care about them, they will likely be more invested in their learning and education.

Pedagogical and curricular approaches

Schools have adopted culturally relevant pedagogy as a form of community building. Culturally relevant teaching is defined by academic success, cultural competence, and sociopolitical consciousness (Ladson-Billings, 2014, p. 75). Academic success refers to the intellectual growth that students experience through this form of pedagogy; cultural competence refers to the ability to help students appreciate and celebrate their own cultures along with other cultures; and so-

ciopolitical consciousness refers to using school knowledge and skills to solve real-world problems (Ladson-Billings, 2014, p. 75). However, schools have focused predominately on the cultural competence aspect of culturally relevant teaching and have used culturally relevant pedagogy along with democratically determined curriculum to convince students that what they learn in school is relevant to their lives. This approach can increase the number of students who feel that their identities are being valued in school, because their identities are being reflected in what they are learning.

Fergus et al. (2014) describe how the all-male black and Latino schools they study seek to implement culturally relevant pedagogy and curriculum. The cultural sensitivity and competence of teachers plays an important role in conversations about pedagogical approaches. Administrators also stress the importance of professional development that helps teachers understand the socialization of young people of color (Fergus et al., 2014, p. 67-68). In these schools, culturally relevant curriculum focuses on materials that are specifically about Black or Latino people, history, and culture. Several of these schools have also created courses intended to capture students' interest by focusing on their racial/ethnic and gender identities (Fergus et al., 2014, p. 71-72).

Within culturally relevant pedagogy, there is the subcategory of ethnic studies courses, which schools and districts across the country have been exploring. A recent example is the introduction of ethnic studies classes to several San Francisco high schools. These courses

were designed as a way to engage students who had previously felt marginalized by the traditional curriculum. They focus on themes of social justice, discrimination, stereotypes, and social movements from US history and encourage students to explore their individual identities and family history (Dee and Penner, 2016, p. 10). Ethnic studies courses also fall into a broader notion of democratic and civic education by emphasizing conscious engagement with social and political issues (Dee and Penner, 2016, p. 2).

A related curricular approach is a democratically designed curriculum. For example, in Deborah Meier's Central Park East Elementary and Secondary Schools, the curriculum is generated by the ideas of the students themselves, because "we cannot treat any two human beings identically, but must take into account their special interests and styles even as we hold all to high and rigorous standards" (Meier, 1995, p. 48-49). This approach can effectively foster student identification with the school, because students have input into what and how they are learning and feel that what they are learning is relevant to their lives. Democratic notions of education also give students a voice in how their schools and surrounding communities function, which potentially allows them to feel more connected to their school.

Smaller communities

Another initiative that schools have undertaken in order to build community is creating smaller communities. This has taken the form of creating smaller schools and smaller class sizes. Smaller communi-

ties can create a more familiar environment, which can allow schools to more easily facilitate a sense of belonging among students and establish stronger teacher-student relationships and student-school relationships.

Small school reforms have been sweeping the nation, and New York City has been a particular proponent of smaller schools. In the 1990s, the teachers in New York City pushed for smaller schools. For example, Meier (1995) argues that smaller schools better maintain a climate of trust, and her belief is reflected in Central Park East Secondary School's enrollment of 450 students (p. 53). Starting in the early 2000s, the movement shifted when the push for small schools gained backing from foundations and private organizations. In 2002, former Mayor Bloomberg, with the support of the Gates Foundation, created over 200 new small schools (Huebner et al., 2006, p. 1). The target size of these new schools was 500 students, whereas many of the larger traditional high schools had over 3,000 students (Huebner et al., 2006, p. 11).

Similarly, there has been a major push for smaller class sizes. Much of this movement stems from the Tennessee Student/Teacher Achievement Ratio (STAR) experiment, in which students in grades K to 3 were randomly assigned to small classes. Researchers found initial gains for students assigned to small class sizes and sustained gains through the 4th grade. After the 4th grade when students returned to normal-sized classes, researchers disagree about the longer-term effects. Some studies show long-term gains through middle

school, whereas others show that the initial gains fade (Fletcher, 2009, p. 663). In particular, Krueger and Whitmore (2001) find that initial gains faded but that blacks who had been in the small classes were more likely to take college entrance exams. Akerlof and Kranton (2002) hypothesize that small class size as a form of community building explains Krueger and Whitmore's (2001) results:

> The familiar environment afforded by small class sizes trumped these students' tendency to view school as a place for others, rather than for them. Otherwise, it is hard to explain why almost a decade later they were more likely to see themselves as suitable candidates for college requiring entrance exams. (p. 1196)

A later section discusses the quantitative results of the researchers who test this hypothesis.

Isolation from outside influences

Finally, many schools that target under-served minorities use an isolation mindset in order to decrease social differences between students and the school. These schools view themselves as isolating their students from the "negative" influences that students face outside the walls of school. This isolation mindset can take several forms. For example, KIPP charter schools are known for having longer school days and shorter vacation periods. At KIPP, the school day starts at 7:30am and ends at 5:00pm, and students are expected to come to

school on Saturday for four hours and for a few weeks during the summer (Matthews, 2009, p. 85). Extending the school day and year has the potential benefit of increasing the amount of learning that occurs in schools, but it also keeps students off "the streets" for a longer period of time, decreasing the amount of exposure they have to "negative" outside influences. In addition to KIPP, an increasing number of charter schools and district schools are adopting this approach. In 2012, the National Center on Time and Learning found that over 1,000 schools have extended their school day or year (Edwards et al., 2012, p. 2)

On the other hand, the isolation mindset can also take the form of promoting peer to peer emotional support and building higher student self-esteem. Many educators have found that in order to counter negative community influences, they must work to counter the low self-esteem and self-destructive beliefs and behaviors that some students exhibit. At one of the schools described in *Schooling for Resilience*, the program director of the school created a course focused on identity development and self-esteem in order to counter the negative cultural influences of the "streets" (Fergus et al., 2014, p. 122). The administrator describes an exercise in which the boys held mirrors in front of themselves and described what they saw. During this exercise, he says that some of the boys "talked about being ugly, hating their lips and noses. There is a very deep level of discomfort with who they are and how they feel about themselves. If we can't counter these self-images and replace them with a more positive sense of self,

it will be very hard to move them in a different direction" (Fergus et al., 2014, p. 122-123).

Peer to peer support also offers a way to combat outside influences by providing students with the tools to cope with the negative challenges they face. For example, Fergus et al. (2014) describe an observation during a homeroom-type setting in which a boy explains how an argument with his family had been affecting his concentration all day (p. 123). In response to the boy's disclosure, the other students begin to chant "We are here to support you." Afterwards, the teacher asks each student to say the name of another student they will ask for emotional support (Fergus et al., 2014, p. 123).

Schools have found many ways to build community, but does community building actually lead to greater student identification with school and higher student achievement? The following section explores this question.

4.2 DO COMMUNITY BUILDING PROGRAMS LEAD TO HIGHER ACHIEVEMENT?

Akerlof and Kranton (2002) offer some initial empirical evidence on whether community building actually leads to higher achievement. Their evidence is Bryk et al.'s (1993) study on Catholic schools. Bryk et al. (1993) demonstrate that Catholic schools are more communal than public schools by constructing an aggregate index of school com-

munity from the *High School and Beyond* survey data. Akerlof and Kranton (2002) then argue that because Catholic schools have higher educational outcomes than public schools, this is evidence that community building leads to higher achievement. However, Bryk et al.'s study does not show if community building is actually the cause of higher student achievement. There may be variables other than community building that have actually had a larger influence on student achievement in Catholic schools. Also, selection bias of those who attend Catholic schools remains an issue. Akerlof and Kranton cite Altonji et al. (2000), who address issues of selection bias by using the bias in observables to correct for the bias in unobservables, but this econometric method may not sufficiently correct for the bias.

The empirical evidence on the causal link between community building and higher achievement since Akerlof and Kranton's (2002) paper is limited. However, this section will discuss two empirical studies that begin to address this link and the preliminary conclusions that can be drawn from these works.

Tennessee STAR

Fletcher (2009) sheds light on the causal link between community building and higher achievement by using the Tennessee Student/Teacher Achievement Ratio (STAR) experiment to test the impact of small class sizes on student identification with school and student achievement. In Project STAR, researchers have consistently found initial achievement gains in students who were randomly as-

signed to small class sizes in early elementary school. There is disagreement, however, over whether there were sustained gains once students returned to normal-size classes. Krueger and Whitmore (2001) found that initial gains faded, but when they revisited these students in high school, they found that students who had been assigned to small classes in elementary school were more likely to take the SAT/ACT and attend college (Fletcher, 2009, p. 662). This effect was particularly significant among minority students. Fletcher (2009) tries to determine the mechanism behind this result by testing two hypotheses: whether small class sizes increased student identification with school, which they measure through high school participation in extracurricular activities and a survey conducted in 8th grade that sought to measure identification with school; and whether increased identification with school had an effect on whether a student took the SAT or ACT (p. 662-663).

Fletcher (2009) ultimately finds that small class size does increase participation in some high school extracurriculars, including scholastic honors and sports, especially among minority students (p. 662). He also finds that small class size increases 8th grade identification with school scores, although not significantly more for minority students (Fletcher, 2009, p. 667). However, when controlling for high school participation in extracurricular activities, there is not a significant change in the relationship between small class size and college test-taking (Fletcher, 2009, p. 668). Therefore, an increase in high

school participation does not explain the increase in college-going among STAR students.

While it is possible that participation in high school extracurricular activities is a poor indicator of student identification with school, Fletcher's (2009) analysis provides preliminary evidence that although small class size increases identification with school, identification with school may not increase student achievement.

All-male schools for blacks and Latinos

In *Schooling for Resilience*, Fergus et al. (2014) show that all-male schools for blacks and Latinos have strong community-building programs. As the previous section on community building in practice demonstrated, the schools that Fergus et al. (2014) study work to create caring and supportive relationships between students and teachers, seek to implement culturally relevant curriculum and pedagogy, and isolate students from negative outside influences.

Through qualitative research, Fergus et al. (2014) find that students respond well to the community-building initiatives. Students generally reported that they felt cared for by the school staff and connected to their school (Fergus et al., 2014, p. 132). Furthermore, the researchers conducted several surveys and measured student perception of belonging to school. They find that 70% of students said they fit in with the students at their school. The majority of students think of other students and teachers as family and think that others care if they are not at school (Fergus et al., 2014, p. 173). Also, over 80% of

students felt that there is at least one adult at their school that they can always count on and that there is someone at school who makes them feel like a successful student (Fergus et al., 2014, p. 180). However, Fergus et al. do not compare these survey results to similar students who do not attend these schools, so it is difficult to say if high rates of school identification are a result of the community-building initiatives or if school identification would have been strong to begin with. Interviews with students, though, do suggest that they identify more with their current schools than their prior schools, which did not work to build community. Overall, it does seem that community building in all-male schools for blacks and Latinos increases identification with school.

On the other hand, various evidence suggests that these schools and their community-building programs have limited effects on student achievement. Akerlof and Kranton's (2002) model predicts that for students who initially think of themselves as quite different from their school, community building can have a large impact on skills. Fergus et al. (2014), however, find that on average there is practically no growth in academic performance, as measured by grades from year 1 to year 2 (p. 182). The lowest performing students continued to have GPAs of around 60% and the highest performing student continued to have GPAs of around 80%. (Instead of the common 4.0 GPA scale, the researchers measure GPA on an 100% scale.) It is possible, though, that if these students had not attended these schools their GPAs would have decreased. GPAs may also be an imperfect indi-

cator, because the teachers in year 2 could be grading more or less harshly than the teachers in year 1.

However, the qualitative research also provides evidence that these schools were not able to easily increase skill acquisition. Although teachers repeatedly told researchers that they hoped to provide their students with a rigorous and challenging education that would help them succeed in college, in reality, the schools prioritized teaching the basic skills that their students were lacking (Fergus et al., 2014, p. 58-59). Teachers expressed their belief that the only way to raise achievement was to raise their expectations and hold their students to higher academic standards, but in practice, the teachers' higher expectations were with regards to behavioral engagement. Teachers expected students to show up to school and class on time, come prepared, and turn in homework. They frequently reported that students needed to learn how "to do school" (Fergus et al., 2014, p. 77). They focused on helping students develop organizational skills and on adjusting their comportment, attitude, and presentation. The higher levels of cognitive engagement that the teachers considered important and hoped to provide were more of an aspiration than a reality (Fergus et al., 2014, p. 62). The potential to increase skill acquisition was stifled by the students' previous schooling experiences and lack of basic skills.

Conclusion

Although Akerlof and Kranton (2002) predict that community building will result in a large increase in skill acquisition, this does not always seem to be the case. Students' prior schooling experiences and skill acquisition present obstacles to increased skill acquisition, even when schools build strong communities. (Although there is insufficient evidence on whether or not skill acquisition is better than it would have been otherwise.) So while there is preliminary evidence that community building does increase student identification with school, there does not seem to be evidence that greater identification among minority students leads to higher achievement. The following chapter will present new empirical work that seeks to add to this literature and bolster these conclusions.

5

AN EMPIRICAL CASE STUDY: HIGH SCHOOL LONGITUDINAL STUDY OF 2009

In this chapter, I provide new empirical work that tests the relationships between community building, student identification, and student achievement. I look specifically at caring and supportive teacher-student relationships as a form of community building and all-male schools for blacks and Latinos as schools that exhibit strong community building programs. My results are consistent with the existing literature: I find that there is a strong relationship between community building and student identification but an insignificant relationship between community building and student achievement. For this chapter, I will begin with a brief description of the data I use and my statistical methods. I will then describe and discuss my results. I will discuss the limitations of my analysis and end with concluding remarks.

The data

For my analysis, I use data from the High School Longitudinal Study of 2009. This study surveys over 24,000 randomly selected students from over 900 schools as 9th graders, and then revisits the students in 2012, as 11th graders, and in 2013. The study focuses on math and science learning and is comprised of student, parent, and school administration questionnaires. The study also administers a mathematics assessment to all of the students in 2009 and in 2012. The resulting data provides over 5,000 variables for each student. The comprehensiveness of this data and the inclusion of variables that can be used to determine community building and student identification make this data set an attractive one for analysis.

Methods

Within this data set, I extract a few measures of community building. The first measure of community building is the student's perception of caring teacher-student relationships. Whether or not an individual student experiences caring teacher-student relationships is determined through a proxy caring variable that is a composite of 13 variables provided by the survey: 9th grader talked to teacher about personal problems (TLKPR); math teachers in school set high standards (M1LEARNING); math teachers in school believe all students can do well (M1BELIEVE); math teachers in school have given up on some students (M1GIVEUP); math teachers in school care only about smart students (M1CARE); math teachers in school expect very little from students (M1EXPECT); math teachers in school work hard

to make sure all students learn (M1WORKHARD); science teachers in school set high standards (N1LEARNING); science teachers in school believe all students can do well (N1BELIEVE); science teachers in school have given up on some students (N1GIVEUP); science teachers in school care only about smart students (N1CARE); science teachers in school expect very little from students (N1EXPECT); and science teachers in school work hard to make sure all students learn (N1WORKHARD). This student-level caring variable (STUDCARE) is created through principal component analysis. Principal component analysis transforms these 13 correlated variables into uncorrelated composite variables that are weighted averages of the original 13 variables. The student-level caring variable is the first (i.e. the one that captures the most amount of variation of the original 13 variables) of these composite variables. This composite variable is represented as such, where α represents the weights of each variable:

$$\begin{aligned} STUDCARE_i = {} & \alpha_1 * TLKPR_i + \alpha_2 * M1LEARNING_i \\ & + \alpha_3 * M1BELIEVE_i - \alpha_4 * M1GIVEUP_i - \alpha_5 * M1CARE_i \\ & - \alpha_6 * M1EXPECT_i + \alpha_7 * M1WORKHARD_i + \alpha_8 * N1LEARNING_i \\ & + \alpha_9 * N1BELIEVE_i - \alpha_{10} * N1GIVEUP_i - \alpha_{11} * N1CARE_i \\ & - \alpha_{12} * N1EXPECT_i + \alpha_{13} * N1WORKHARD_i \end{aligned} \quad (1)$$

Notice that variables that would contribute to greater amounts of care, if the student agrees with the statement, have a positive coefficient,

and variables that contribute to fewer amounts of care have a negative coefficient.

The second measure of community building is the school average of these individual student-level caring values. Each school is assigned a caring value based on the average caring value of each student that is surveyed who attends that school. These two variables account for both the student-level and school-level variations in caring relationships between teachers and students. One thing to note about these two variables is that smaller values correspond to greater amounts of caring. This is due to the way the study assigns numerical values to the questionnaire responses, where strongly agree corresponds to 1, agree to 2, disagree to 3, and strongly disagree to 4. For example, if a student strongly agrees with the statement that math teachers set high standards and strongly disagrees with the statement that math teachers only care about smart students, the resulting value is equal to -3 (ignoring the principal component weights), which corresponds to large amounts of caring. If, on the other hand, a student strongly disagrees with the statement that math teachers set high standards and strongly agrees with the statement that math teachers only care about smart students, the resulting value is 3, which corresponds to small amounts of caring.

The next measure of community building is created by determining whether or not the student attends an all-male school for blacks and Latinos. Students who are male, attend a single-sex school, and attend a school that has less than 20% students who identify as white

are considered to be attending an all-male school for blacks and Latinos. However, only 32 students out of the over 24,000 students surveyed attend such schools.

After creating these measures of community building, I run regression analysis on the impact of community building on student identification, the impact of community building on student achievement, and the impact of student identification on student achievement. I proxy student identification through the variable of school belonging, which is a principal component of the following variables: whether the student feels safe at school; whether the student feels proud to be a part of the school; whether the student has a teacher/adult in school they can talk to about problems; whether the student feels school is often a waste of time; and whether the student feels getting good grades is important. I measure student achievement through a value-added measure of the students' mathematics assessment scores (the difference between the 2009 assessment score and the 2012 assessment score).

Furthermore, because the data is not from a randomized-control experiment, I use the following control variables to address issues of omitted variable bias and selection bias: sex, race, the 2009 mathematics assessment score, parent education level, family income, poverty status, free or reduced price lunch status, special education status, English language learner status, which state the school is located in, and the school locale (i.e. whether the school is in an urban, suburban, or rural setting). Although value-added inherently controls for many of

the student's characteristics because value-added is essentially comparing the student to herself, I still use the above-mentioned control variables in all of my regressions to further eliminate any biases. Additionally, I eliminate any students who do not spend all four years at the same school, either because they transferred, switched to homeschooling, graduated early, or dropped out. The statistical package I use also eliminates any students from the regression that do not have values for any of the variables used.

Taken all together, the regression equations are as follows. For the relationship between community building and student identification, where SCHOOLBEL represents the student's sense of school belonging, MATHSCORE1 represents the 2009 math assessment score, PAREDU represents the parents' education level, AMSBL represents whether the student attends an all-male school for blacks and Latinos, STUDCARE represents the individual student's caring relationship value, SCHCARE represents the school's average caring value, i represents student-level data, and j represents school-level data:

$$\begin{aligned} SCHOOLBEL_i = {} & \beta_1 * RACE_i + \beta_2 * SEX_i + \beta_3 * MATHSCORE1_i \\ & + \beta_4 * PAREDU_i + \beta_5 * FAMINCOME_i + \beta_6 * POVERTY_i \\ & + \beta_7 * ELLSTATUS_i + \beta_8 * SPECIALED_i + \beta_9 * STATE_j \\ & + \beta_{10} * LOCALE_j + \beta_{11} * AMSBL_i + \beta_{12} * STUDCARE_i \\ & + \beta_{13} * SCHCARE_j \end{aligned} \quad (2)$$

The following equation tests the relationship between community building and student achievement, where MATHSCORE2 represents the 2012 math assessment score:

$$MATHSCORE2_i - MATHSCORE1_i = \beta_1 * RACE_i + \beta_2 * SEX_i + \beta_3 * MATHSCORE1_i + \beta_4 * PAREDU_i + \beta_5 * FAMINCOME_i + \beta_6 * POVERTY_i + \beta_7 * ELLSTATUS_i + \beta_8 * SPECIALED_i + \beta_9 * STATE_j + \beta_{10} * LOCALE_j + \beta_{11} * AMSBL_i + \beta_{12} * STUDCARE_i + \beta_{13} * SCHCARE_j \quad (3)$$

Finally, this last equation tests the relationship between student identification and student achievement:

$$MATHSCORE2_i - MATHSCORE1_i = \beta_1 * RACE_i + \beta_2 * SEX_i + \beta_3 * MATHSCORE1_i + \beta_4 * PAREDU_i + \beta_5 * FAMINCOME_i + \beta_6 * POVERTY_i + \beta_7 * ELLSTATUS_i + \beta_8 * SPECIALED_i + \beta_9 * STATE_j + \beta_{10} * LOCALE_j + \beta_{11} * AMSBL_i + \beta_{12} * STUDCARE_i + \beta_{13} * SCHCARE_j + \beta_{14} * SCHOOLBEL_j \quad (4)$$

Results

Table 1 shows the results for the above-mentioned regressions. The first column shows the relationship between community building and student identification. Keeping in mind that smaller values of STUDCARE and SCHCARE correspond to greater amounts of caring

between teachers and students, the results show a statistically significant relationship between caring (at the student level and the school level) and school belonging. Schools that have more caring teacher-student relationships also have students who feel a greater sense of belonging. On the other hand, the relationship between attending an all-male school for blacks and Latinos and school belonging is insignificant. However, this is likely due to the small number of observations, which is shown through the large standard error. Overall, these results suggest that community building corresponds to greater student identification with school.

Column 2 shows the relationship between community building and student achievement. There is no significant relationship between caring student-teacher relationships and increases in math assessment scores. This suggests that caring relationships as a form of community building does not result in higher math achievement. However, despite the lack of significant values, the coefficients on caring relationships are in the correct direction. This indicates that given more observations, a significant relationship between more caring relationships and increases in math scores may emerge. Once again, there is no significant relationship between attending an all-male school for blacks and Latinos, but this is most likely due to the small number of observations.

Another interesting (but somewhat unrelated) point to note is that several of the control variables have a significant relationship with the value-added test scores. While it is commonly known that

variables such as parent education and family income have significant impacts on baseline test scores, it is less obvious that these variables would impact changes in test scores. This regression analysis, however, shows a significant relationship between these variables and changes in test scores, where students with higher family incomes and more educated parents have higher increases in test scores. These results are evidence that variables such as parent education and family income are responsible for a widening of test score inequality.

Finally, column 3 shows the impact of student identification on student achievement. Because there is no significant relationship between caring relationships and math achievement, it is unlikely that caring relationships leads to greater school belonging which then leads to higher math achievement. However, it is possible that some other omitted form of community building leads to greater school belonging which then leads to higher math achievement. Regressing school belonging on math achievement would demonstrate the possibility of these other pathways. But the insignificant coefficient on SCHOOLBEL shows that greater student identification with school – regardless of what form of community building it may be due to – does not have a significant impact on math achievement.

Limitations

There are a couple of limitations due to the inherent nature of the study. Because the survey used to create the caring relationships variables and the school belonging variable was conducted in the fall of

Table 1: Coefficient estimates of regression analysis

	SCHOOLBEL	MATHSCORE2-MATHSCORE1	MATHSCORE2-MATHSCORE1
Intercept	0.95* (.096)	11.77* (0.89)	12.08* (1.23)
RACE	0.00011 (0.0043)	-0.090* (0.042)	-0.098 (0.054)
SEX	0.028 (0.018)	-0.28 (0.17)	-0.39 (0.23)
MATHSCORE1	0.00026 (0.001)	-0.29* (0.0097)	-0.28* (0.013)
PAREDU	0.0017 (0.0075)	0.55* (0.072)	0.51* (0.094)
FAMINCOME	0.007* (0.0033)	0.25* (0.034)	0.22* (0.042)
POVERTY	0.00055 (0.033)	-0.24 (0.29)	-0.75 (0.42)
ELLSTATUS	-0.039 (0.083)	0.29 (0.76)	-0.17 (1.044)
SPECIALED	-0.0054 (0.035)	1.32* (0.32)	0.99* (0.44)
STATE	-0.00042 (0.00060)	0.0068 (0.0056)	0.0049 (0.0075)
LOCALE	-0.024* (0.0081)	-0.19* (0.077)	-0.048 (0.10)
AMSBL	0.031 (0.29)	-0.62 (2.14)	1.19 (3.58)
STUDCARE	-0.021* (0.0052)	-0.037 (0.050)	-0.054 (0.066)
SCHCARE	-0.00011* (0.000048)	-0.00062 (0.00045)	-0.00090 (0.00060)
SCHOOLBEL	- (-)	- (-)	0.41 (0.23)

*significant at $\alpha = 0.05$

the students' freshman year (these survey questions were only asked in 2009), the student responses may not be reflective of the students' later experiences or the average student in each school's experience. Caring relationships take time to build and a sense of belonging does not occur immediately, so the variables I used may be poor indicators of the school's community building programs and the average student's identification with the school. This may explain why the relationships between community building and student achievement and student identification and student achievement are so weak. Furthermore, the study only provides math assessment measures, but it is possible that community building has an impact on the assessment of other subjects, such as English or Science.

Additionally, because this study is not a randomized-control experiment, omitted variable bias and selection bias are potential concerns. I try to mitigate the effects of these biases through my inclusion of the various control variables. However, in the future, I hope to explore more sophisticated econometric methods that may better address these biases.

Conclusion

Overall, these results are consistent with those of the existing literature: community building increases student identification, but community building does not seem to increase student achievement. This may suggest that community building is an important first step to increasing student achievement but that community building is not

sufficient by itself. Perhaps community building must be paired with a more rigorous curriculum or more rigorous teaching. All in all, this empirical evidence suggests that while community building may be important, it is not quite the magic bullet Akerlof and Kranton (2002) make it out to be.

6

CONCLUSION

Using Akerlof and Kranton's (2002) model on student identity and utility as a theoretical framework, this work has explored what community building looks like in practice. I used Akerlof and Kranton's (2002) definition of community building, initiatives and programs that reduce the social differences between the students and the school, to determine how schools are building community. A review of the literature found that schools are building community in four major ways: providing supportive/caring relationships between students and teachers; adopting culturally relevant and democratic pedagogy and curricula; creating smaller communities through small schools and class sizes; and isolating students from outside "negative" influences. Understanding the various forms of community building provided a platform for determining whether community building leads to greater student identification with school and higher student achievement, as the Akerlof and Kranton (2002) model predicts. The current empirical work on this topic

is sparse, but the existing literature suggests that while community building leads to greater student identification, it does not lead to higher student achievement. In order to build upon this work, I conducted statistical analysis on the impact of community building on student achievement by using the High School Longitudinal Study of 2009. I looked specifically at supportive and caring teacher-student relationships and all-male schools for blacks and Latinos, which exhibit a variety of community building programs and initiatives. My analysis found results that were consistent with the existing literature.

Although this work has made progress in understanding the impacts of community building in practice, it faces several limitations. The literature review and categorization of community building is far from comprehensive (as it is grounded primarily in my education coursework, which has not been a comprehensive overview of the entire discipline) and may be missing other forms of community building. My quantitative analysis also faces several limitations, which I addressed in the previous chapter.

These limitations suggest that more work needs to be done. More research is needed to understand how schools are building community and the impacts of community building on student achievement, as the results in this thesis are far from conclusive. This research also raises several other questions that should be explored through further research. Not only is understanding how schools are building community important, but understanding how schools are allocating

resources to such activities is also important: how much does community building cost and is this dedication of resources worth it? This cost-benefit analysis also leads to the question of what the most effective forms of community building are: within the scope of community building, what should schools be using their resources for? Furthermore, the relationship between community building and rigorous forms of learning, such as higher-order thinking skills, should be explored. Is community building a prerequisite for more rigorous forms of learning? Does community building have to be paired with a more rigorous curriculum in order to have a significant impact on student achievement? Finally, how does community building within schools impact the outside community? Does community building within schools change students' relationships with their communities outside of schools, especially if the in-school community building takes the form of an isolation mindset? What are the implications of this impact?

Further research on the impacts of community building can have potentially important policy implications. A better and more conclusive understanding of the impacts of community building could allow for more effective programing in schools for minority students and a shift away from the test-taking regime in the policy world. Community building could play a key role in eliminating the inequality in schools and closing the achievement gap.

7

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