

Practice Makes Participants: How Communication Skills Acquired in School Affect Political Engagement

By

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For Darren
and my parents Ed and Bridgid
Thank you for always supporting me.

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Abstract

This dissertation is a study of the effect of education on political engagement. Though education is one of the strongest and most reliable predictors of political engagement, scholars know little about the mechanisms that connect them. I argue that to understand this relationship we must look beyond educational attainment and civics instruction. I demonstrate, with both observational and experimental studies, that the general communication skills adolescents practice and acquire across the school curriculum positively affect their political efficacy, their motivation to engage in political activity, and their civic engagement into adulthood. I then examine the distribution of opportunities to acquire these skills in American schools across time and social groups. Using nationally representative student and teacher survey data, I show how school policies, teacher decisions, and student characteristics structure skill practice opportunities. This dissertation thus brings to light one way in which education generates the patterns we observe in political participation and inequality.

Chapter 1

Voice Lessons: How Schools Shape Citizens

1.1 Introduction

“In directing the activities of the young, society determines its own future”
- John Dewey (Dewey, 1916, 49).

A seventh grade student begins her school day in math class where she works with a group to measure the area of various shapes and then presents their findings in front of the class. Next, in her English course, she drafts an essay about *Lord of the Flies* and defends her argument in a discussion with a peer. In her third period science class she looks through the weather section of the local newspaper to find articles for a report on her state's climate. At the end of the day, she has a social studies class in which she gives a speech to her classmates about the three branches of government. Where did the civics instruction happen? Was it only in her final course?

In the same state, another seventh grader attends a school with the same curriculum but a different instructional approach. Her teachers address identical content, driven by state standards, and she receives instruction on geometry, *Lord of the Flies*, the state's weather, and the branches of government. But, instead of writing and speaking about these topics, she sits quietly, listening to lectures and completing workbook pages. Both of these students will graduate from high school but go no further. When they reach adulthood, would we expect one student to participate more in political affairs than the other?

Teachers, policy makers, and researchers generally define civic education by its content, and would include only the final social studies period. In contrast, I will argue that the first student's civic education occurred all day long, and that if we are interested in her development as a citizen, we should be interested in the communication skills she learned as she spoke in front of a group, wrote her essay, defended her argument, or read the newspaper. Political participation research, with its attention to educational attainment, implies that the connection between education and engagement goes beyond civics content, but leading models of participation would predict that both of these high school graduates would be equally likely to participate as adults. In the chapters that follow, I will demonstrate that the first student is much more likely to engage in a variety of public and political activities because she was offered the opportunity to practice and develop communication skills in multiple subjects.

In this dissertation, I use both observational and experimental studies to demonstrate that the general communication skills adolescents practice and acquire across the school curriculum positively affect their political efficacy, their motivation to engage in political and civic activity, and their civic engagement as adults. I bring educational inequality more fully into the study of political engagement and show that opportunities to practice these skills are distributed unequally across and within American schools. This reframed approach to citizenship education helps to explain much of what has puzzled political scientists about the relationship between education and participation. Educational attainment is one of the most reliable predictors of political participation (Campbell et al. 1960; Wolfinger and Rosenstone 1980; Verba, Schlozman,

and Brady 1995). But this relationship does not appear to be driven by the formal civics curriculum, as those courses do not have a strong or persistent effect on political engagement (Langton and Jennings 1968; Greene 2000). If we move beyond content and consider how general skills can make participation less costly, this phenomenon is no longer as perplexing.

Even more central to the study of participation, as aggregate educational attainment has risen in the United States, political participation has not, putting the causal role of education into question. But unlike attainment, the skills American students acquire over the course of their schooling have stagnated over the last half-century.¹ If skills rather than attainment drive participation, aggregate trends are behaving exactly as we should expect. Researchers addressing the relationship between education and national economic growth have arrived at a similar conclusion, demonstrating that, contrary to long-standing opinion, “increasing the average number of years of schooling attained by the labor force boosts the economy only when increased levels of school attainment also boost cognitive skills. In other words, it is not enough simply to spend more time in school; something has to be learned there” (Hanushek et al. 2008, 62-3).

The same is true for political and civic participation, and it is not enough for political scientists to count the years a student spends in school or to look only at what occurs in civics class. If we want to understand the relationship between education and

¹ According to the most recent report on the National Assessment of Educational Progress (NAEP) Long-term Trend data, though the achievement of younger children has increased over the past 40 years, the skills of 17 year olds have remained the same (Rampey, Dion, and Donahue 2009).

engagement, we must attend to what the student does and learns across subjects. But the general skills that matter most for citizenship are not as broad ranging as those that drive economic growth. Communication skills in particular are essential to most political activity, and it is these reading, writing, and speaking skills on which I will focus.

Drawing from democratic theory, the literature on adult civic engagement, and psychological theories of the development of motivation, I will build a theory of the ways in which such skills and the opportunities students have to practice them matter for citizenship.

In the first part of the dissertation, I put this theory to the test, providing evidence that practicing communication skills in school has a powerful effect on civic engagement. Once it is clear that these opportunities to practice active communication have important political implications, the next step is to understand how the experiences are distributed within educational institutions. In the second part of the dissertation, I describe the distribution of opportunities to practice and develop politically useful communication skills in American schools across time and social groups. I then explain the process that determines that distribution, showing how education policies and the decisions of educators structure it. This dissertation thus brings to light one way in which schools, the institution in which Americans spend much of their formative years, generate the patterns we observe in political and civic participation.

1.2 Understanding the Universal Solvent

“[Education] is everywhere the universal solvent, and the relationship is always in the same direction. The higher the education, the greater the ‘good’ values of the variable.”

- Phillip Converse (Converse 1972, 32)

“Political science has only vague and fragmentary notions as to why the more educated citizen is more likely to exhibit characteristics of democratic citizenship.”

- Norman Nie, Jane Junn, and Kenneth Stehlik-Barry (Nie, Junn, and Stehlik-Barry 1996, 39)

Though the association between educational attainment and political engagement is nearly unchallenged, there is no consensus about why the relationship exists. As David Campbell recently wrote, “notwithstanding its longstanding ubiquity as a control variable in models of civic and political participation... the precise nature of the link between education and civic engagement remains largely in the proverbial black box” (2009, 771). Traditional explanations of the effect of education on civic engagement focus on human capital that individuals attain through schooling in the form of political knowledge (Delli Carpini and Keeter 1996), civic norms (Campbell 2006), or, less frequently, politically useful skills (Verba, Schlozman, and Brady 1995). This school theorizes that the human capital that individuals gain through education reduces the cost of participation (see also Wolfinger and Rosenstone 1980). Recently, some political scientists have challenged this conventional wisdom, arguing that correlational evidence for the human capital theory is attributable to selection effects, and that education is merely a proxy for unobserved pre-adult characteristics (Kam and Palmer, 2008; Tenn, 2007; Berinsky and Lenz 2011). Though these studies are countered by other quasi-experimental (Dee 2004; Milligan, Moretti, and Oreopoulos, 2003) and experimental research (Sondheimer and Green,

2009), how and whether education actually causes increased engagement is unknown.

Other critics of the human capital theory have argued that education affects civic engagement only by sorting individuals into advantaged social positions (Nie, Junn, and Stehlik-Barry, 1996). Thus, educated individuals are more likely to be mobilized by others and to feel social pressure to engage in collective acts. Attention to the sorting function of schooling is one crucial step toward understanding the way education structures political participation and inequality. However, the effect of sorting is more limited than Nie, Junn, and Stehlik-Barry originally thought, leaving much of the relationship between education and engagement unexplained (Campbell, 2009). In short, we still do not know how education affects political behavior or contributes to political inequality. Without this knowledge, the scholarly community is unable to inform education policy and practice to increase the quantity and equality of civic engagement.

This lack of progress is due in part to an unnecessarily narrow treatment of education. First, political scientists have largely ignored a basic distinction in the study of education: the difference between attainment and achievement. The years of schooling attained are often a weak instrument for the skills and knowledge acquired. Traditional studies of political participation have focused on attainment, the quantity of education, without examining what individuals have experienced and gained in school, the quality of education. This focus on schooling quantity has limited our understanding of education's role in producing citizens. Campbell issued a similar criticism to the field in his recent article on the sorting function of education: "...virtually every study that employs education, including this one, treats all types of schooling as equal, when there are

obviously wide disparities across high schools and colleges” (Campbell, 2009, 785).

When we use attainment as an instrument for human capital gained through education, we assume that every additional year of schooling, no matter the grade, school, or student, is equivalent. Derek Neal, an economist of education who specializes in measuring human capital acquired through schooling cautions researchers against this approach:

Years of schooling is an indirect measure of human capital. It provides an accounting of the time devoted to acquiring skills through formal schooling. However, schools differ in curricula, and some schools facilitate learning more effectively than others. Further, even within the same school, some children learn faster than others, and their differences reflect more than simple differences in individual aptitudes. Children differ greatly in the extent to which adults direct their activities outside school toward learning. Thus, for many reasons, persons who reach the same level of educational attainment may have significantly different skill sets” (Neal, 2006, 522).

Neal’s warning explains why, though attainment and achievement are correlated, they are also substantially independent. Additionally, a focus on attainment draws attention implicitly to the effect of post-secondary education, because in the United States today, much of the variation in education occurs there. This issue is particularly problematic if we are interested in the effect of basic communication skills, like reading, speaking, and writing, which are a primary focus in elementary and secondary school, but not as central to all types of more specialized and content-driven post-secondary education.

Some political scientists have paid attention to achievement and education quality (e.g. Niemi and Junn, 2005; Hillygus 2005; see Galston, 2001 for a review), but the preponderance of this research has been limited to formal civics instruction and

achievement, ignoring the politically useful skills students acquire across the curriculum. In the few cases when achievement beyond civics is considered, political scientists have measured it with short vocabulary tests administered in adulthood (e.g. Verba, Schlozman, and Brady, 1995; Nie, Junn, and Stehlik-Barry, 1996). Though these instruments have the benefit of being readily available in the same data sources as measures of adult civic engagement, they are far from an ideal measure of skills acquired in school, and have lead to an inadequate understanding of the importance of these skills.²

The recent experimental and quasi-experimental research that finds a causal effect of education on engagement should push scholars to move beyond the blunt instrument of attainment and “ask more refined questions about the causal pathways though which education influences participation” (Sondheimer and Green, 2009). As I have noted, there are many possible pathways from education to civic engagement. Social position, political knowledge, and civic values acquired through education have already garnered much scholarly attention, and it appears that each has some role to play in explaining education’s effect. But the empirical research on the communication or verbal skills acquired in school is much less developed, though there is good theoretical reason to expect that they play an important role.

² Two exceptions are Hillygus (2005) and Highton (2009). Hillygus includes standardized tests of achievement and grades in her model of participation, and Highton includes grades in his model of sophistication. However, both authors interpret these measures of achievement as indicators of ability rather than skills acquired in school. In Chapter Two of the dissertation, I give further attention to the appropriate measurement of skills acquired through schooling and strategies that can be used to distinguish them from general ability.

1.3 The Civic Importance of General Communication Skills

John Dewey said of democracy that it is “more than a form of government; it is primarily a mode of associated living, of conjoint communicated experience” (Dewey 1916, 101). He and other democratic theorists have long placed communication at the center of citizenship. Deliberative and participatory theories of democracy in particular give special attention to citizens’ capacity for communication. Participatory theories assert that all citizens must have the opportunities to develop the skills and psychological attributes necessary for participation, and both deliberative and participatory theories contend that the ability to communicate in politically useful ways is central to that participation. Take, for example, Benjamin Barber’s definition of “strong democratic talk.” Among the functions such communication is intended to serve are: the articulation of interests, bargaining and exchange, persuasion, exploring mutuality, witness and self-expression, and reformulation and reconceptualization (Barber 1984, 178). Such skills can be (and are) learned in school across a variety of subjects. A student can certainly practice and learn to articulate interests, persuade others, and achieve other interpersonal goals by communicating about non-political topics. And, political discussion can itself be seen as a form of political engagement that shares many features with discussion about non-political topics (Walsh, 2004).

Beyond democratic talk, many forms of political and civic activity can be thought about as communication intended to convey messages about public affairs. When it comes to speaking at public meetings, developing solutions to community problems,

writing to officials, and reading or listening to political news, the content, context, and purpose of the message make the communication political, but the verbal skills involved: reading, writing, and speaking, are quite general.

And though these productive, expressive verbal skills are given more attention in the political literature, receptive verbal skills, like listening and reading are crucial as well. Comprehending and interpreting information are especially important to acts like registering to vote and voting. A citizen who is able to acquire information about electoral procedures, issues, and candidates through discussion and reading will find it less costly to participate in electoral politics. Productive verbal skills like speaking and writing may also matter indirectly for turnout; the citizen who feels confident in an ability to develop and deliver arguments may also be more confident and comfortable as a voter.

These ideas – that communication skills are central to political engagement, and these skills can be acquired by practicing non-political communication – are hardly new (see for example Pateman, 1970; Verba, Schlozman, and Brady, 1995; Burns, Schlozman, and Verba, 2001). Verba, Schlozman, and Brady emphasize verbal communication skills in their Civic Voluntarism Model, arguing “the ability to communicate effectively is, obviously, critical for most forms of political action” (1995, 306). They find that, for adults, practicing speaking and writing in non-political institutions (church and the workplace) is positively associated with civic engagement. Verba, Schlozman, and Brady also hypothesize that formal education is one source of communication skills, that politically useful skills in general “are acquired throughout the life cycle beginning at home, and especially, in school....Education enhances

participation more or less directly by developing skills that are relevant to politics – the ability to speak and write” (305).

Nie, Junn, and Stehlik-Barry focus on verbal skills as their sole measure of the human capital gained in school. They defend the decision to focus on communication:

Verbal cognitive proficiency of citizens represents their capacity to understand political events and analyze their implications. As such, an appropriate measure of the cognitive effects of education is one that captures the capabilities that are important to the words and language of politics....Because politics is largely concerned with the utilization and manipulation of language, verbal cognitive proficiency, as opposed to mathematical or spatial ability, is the most relevant aspect of cognitive ability in relation to democratic citizenship” (1996, 40-41).

But when the authors turn to the results of their study, they argue that there is no evidence of an effect of verbal skills on civic engagement. They base this conclusion on the lack of association between adults’ performance on a vocabulary test and political engagement. I will argue the opposite based on experimental, quasi-experimental, and longitudinal analyses, in which I operationalize verbal communication skills acquired in school with grades, test scores, and classroom experiences measured in adolescence.

1.4 How Motivation Develops: Active Experiences and Efficacy

So how are these verbal skills acquired in school, and how do they contribute to the motivation to engage in civic actions? For adults, engagement in extra-political institutions like churches and the workplace provides opportunities to acquire politically useful skills. In these institutions, adults actively practice communication, and this practice makes some forms of political participation more likely (Verba, Schlozman, and Brady 1995). Other engagement scholars have argued that civic participation itself

produces political learning, efficacy, and motivation to participate in other public activities (Pateman 1970; Berry, Portney, and Thompson 1993; Scokpol 2003; Gastil et al. 2008). And participation in democratic politics, at least in the case of voting, is habitual (Plutzer 2002; Gerber, Green, and Shachar 2003). Actively practicing civically useful actions, for adults, increases their political skills, increases the likelihood that they will participate in the future, and alters their social psychological orientations toward politics. And the skills and attitudes developed through participation and active practice transfer to different contexts, increasing adults' willingness to engage in related, but not identical behaviors in the future. If such active, developmental opportunities matter for adults, it is reasonable to expect them to matter during the formative years of adolescence when they are purposefully provided in school.

But these insights are generally not extended to research on children and adolescents, who are often cast in a more passive role in the political literature. We often think of their later political engagement as the result of pre-adult exposure to particular norms, institutions, and environments (Almond and Verba 1963; Easton and Dennis 1963; Jennings and Niemi 1974, 1981; Niemi and Junn 1998; Campbell 2006). With few exceptions, before adulthood, individuals are viewed as more or less passive recipients of socialization. This approach and the scholarly focus on educational attainment stem from political scientists' implicit dependence on the social learning school in psychological development, which emphasizes the institutional "agent of socialization," such as the family or school. As an alternative, I rely on a developmental theory of human learning, which draws focus to the agency of the learner. The former theory leads us to examine

quantity of institutional exposure, while the latter encourages a focus on the individual's actions within the institution.

Social learning theory explains the acquisition of specific norms and information through modeling or emulating observed behavior (Bandura 1969). Political socialization research overwhelmingly adopts these social learning assumptions. In a traditional understanding of youth political socialization, a young person models her behavior after the political beliefs and behavior she sees in the institutions to which she is exposed, such as her family, school, and the media, and she repeats and stores whichever behaviors and knowledge lead to positive reinforcement from these environments. Therefore, traditional political socialization studies focus on the characteristics of the institutions, and the quantity of an individual's exposure to them.

Alternatively, under a developmental approach, the individual learns through carrying out actions (Piaget and Inhelder, 1969). Under this theory what is *observed by or told to* the learner is not as important as what is *done by* the learner. For example, in his work on the development of moral reasoning, Piaget recommended that schools take a cooperative learning approach in order to facilitate the development of other-perspective taking in children. He also encouraged adults to provide children with opportunities to come up with commonly agreed upon rules based on fairness (1932). This approach stands in contrast to one based on social learning, which might recommend that teachers model other-perspective taking and implement adult-generated rules based on fairness.

The developmental approach has been applied to socialization within the family; McIntosh, Hart, and Youniss (2007) contrast the effects of offspring experiences within

the family institution (political discussion), with characteristics of the institution (demographic and political characteristics of the parents). The authors find that differences in offspring engagement are determined by developmental actions rather than institutional characteristics. However, the same study finds that institutional characteristics in the form of parental political knowledge do affect offspring political *knowledge*. So, we see that both social learning and developmental variables affect important, but different political outcomes. This finding is consistent with psychological scholarship, which holds that developmental and social learning theories are best understood as complementary rather than competing (e.g. Gibbs and Schnell 1985). A developmental approach to political socialization focuses on the adolescent's capacity to act rather than recall or assert a particular belief or fact. Engagement and participation rather than factual knowledge or identities are the expected outcomes of active practice. When civic education researchers look at the active experiences students have within civics classrooms, they repeatedly find that discussion, more than any other variable, explains engagement (e.g. Niemi and Junn 1998; Torney-Purta 2002). But, so far, this insight has not been extended to the activities in which students engage outside of civics courses or explicitly tied to a developmental theory of learning.

The assumption that active skill practice may affect civic engagement underlies recent recommendations for civic instruction. It has been suggested that skill instruction be incorporated into service learning programs (Kirlin 2002). A recent collaborative report on civic education produced by the Carnegie Corporation and The Center for Information and Research on Civic Learning and Engagement recommends that schools

provide students with opportunities to practice civic skills through service, student government, and political simulations like mock elections (Battistoni et al. 2003). The American Political Science Association's Standing Committee on Civic Education also recommends political skill practice for adolescents through service activities and instruction about how to vote (Macedo et al. 2005). These recommendations imply that scholars and policy makers believe skill practice to be important in democratic education. But they all focus on exclusively political or civic skills (mock elections, voting instruction, community involvement), rather than on general communication skills that could reduce the cost of later participation.

So far, I have argued, based on developmental psychological theory, that we should look not only to the amount of institutional exposure children have experienced, but also to the relevant active experiences in which they have themselves engaged. This approach is consistent with motivational theory as well. Engagement in politics, in particular the ultimate decision to participate in the political process, can be viewed as a result of a motivational process (Miller 2008). The expectancy-value model of motivation (Eccles et al. 1983) is a leading model of motivation within the psychology literature (see also Eccles and Wigfield 2002). Under this model, behavior is a multiplicative function of how much an individual values the task and its outcome (value) and how likely the individual thinks it is that their engagement with the task will be successful (expectancy).

When the question at hand is about the *development* of motivation, we can look one step back to the development of task expectancy and value. Political scientists can

ask how individuals develop a sense of value for political engagement and expectancy that their political engagement behaviors will be successful.

Psychologists have developed and tested theory about the origins of expectancy and value (Eccles et al. 1983). Although the mediation process is somewhat complex, the key point for the purpose of this discussion is that these studies consistently find that the origins of expectancy and value lie in four factors: 1) the “cultural milieu” which includes family demographics and societal stereotypes, 2) the child’s own fixed characteristics (such as gender), 3) the characteristics of the institutional agent of socialization, and finally 4) the child’s own previous active experiences.

This research testing the expectancy-value model leads to the same conclusions about the shortcomings of traditional political socialization research as the developmental theory I discussed earlier in this section. If we are interested in the effects of formal schooling, and we treat, for the moment, culture, family demographics, and child characteristics as external and fixed, it is clear that traditional political socialization theory focuses on the third factor: the characteristics of the agents of socialization, effectively ignoring the fourth: the child’s relevant active experiences. Developmental psychology literature tells us that previous experiences affect both expectancy and task value. Therefore, we should expect them to have a strong influence on the development of political engagement.

Although active experiences affect later motivation and behavioral choices in a number of ways, in this dissertation I will give special attention to the individual’s sense of efficacy and expectation of successful participation. Eccles and her colleagues (1983)

argue that efficacy is an important part of the way a child sees herself, and this “self-schema” contributes particularly to her expectancy of success. Efficacy is developed, in part, through successful actions (Bandura 1986; Eccles et al. 1983), and then makes an individual more likely to choose to engage in similar behaviors in the future. This is a point on which the psychological and political science literatures coincide. Pateman contends that efficacy is the operationalization of the psychological attributes most necessary for political participation (1970, 45-6). And efficacy has long been central to explanations of political participation (Almond and Verba 1963; Campbell et al. 1960; Campbell et al. 1954; Finkel 1985, 1987; Rosenstone and Hansen 1993; Verba and Nie 1972; Verba, Schlozman, and Brady 1995). Efficacy can also motivate individuals to learn more about politics, indirectly affecting engagement through increased knowledge (Delli Carpini and Keeter 1996). And, there is evidence that efficacy acquired in childhood and adolescence affects adult civic engagement (Easton and Dennis 1967; Jennings and Niemi 1981).

Both the political and psychological literatures discuss multiple forms of efficacy, but do so differently. Political scientists tend to divide it into external efficacy, one's estimation of system responsiveness, and internal efficacy, one's estimation of personal ability to affect political outcomes (Lane 1959; Balch 1974). Social psychologists, who aim to explain a wider range of human behavior, divide it into general efficacy, and various forms of specific efficacy, which are particular to either actions, like writing a letter, or domains, like politics (e.g. Gecas 1989; Chen et al. 2001). Specific efficacy comes in large part from previous task or domain-specific performance and experience

(Bandura 1997), and the more specific the form of efficacy, and the closer the correspondence to a particular activity, the more predictive it will be of motivation and behavior (Bandura 1997; Bandura 2005). So, while communication skill practice in a science or English course in school should not directly generate political *domain-specific* efficacy (internal political efficacy), it should generate *task-specific* efficacy, and this attitude should affect the motivation to engage in related political behaviors. For example, if a student practices public speaking in various subjects in school, her public speaking efficacy should be enhanced, and she should therefore feel greater confidence about her ability to speak in public meetings about political issues, and more motivated to do so. Additionally, this skill practice may contribute indirectly to internal political efficacy, if the student is aware that the skill is politically useful. The central point is that the more closely related the in-school practice, measure of efficacy, and form of civic engagement, the more predictive each will be of the next.

1.5 Schools As Sites of Policy Feedback

The capacity to communicate is an essential component of civic competence - the motivation and ability to represent one's own interests and contribute to social goals. If, as I have argued, students develop these skills and the motivation to engage in later political activity in part through opportunities to actively practice communication in the classroom, these learning opportunities should be viewed as an important power resource distributed within schools. Much like other educational resources, these opportunities are distributed unequally by the American education system. Schools, the institutions in

which Americans spend an enormous portion of their early lives, are also affected strongly by public policy. Political scientists can no longer ignore the political implications of educational inequality and the policy decisions that affect it, especially when it comes to communication practice.

We understand this fundamental point when it comes to the institutions that adults confront. Verba, Schlozman, and Brady demonstrate that adult skill acquisition depends on the characteristics of the specific institution (workplace or church) and the individual's experiences within that institution. For example, they argue that Catholics have less opportunity to acquire skills in church than Protestants. But this insight is rarely extended to education. The way education is currently treated in the majority of civic engagement studies – with attention only to attainment – is akin to counting the years an individual has worked without noting her profession or responsibilities, or the years she has attended a church, ignoring denomination and religiosity. Verba, Schlozman, and Brady go on to note that the “institutional origins of skills have implications for American democracy because important institutional characteristics – and significant political conflicts – are linked to income, race, and ethnicity” (1995, 332). This is certainly true for education, but the authors and political scientists in general pay little attention to educational inequality, and the ways in which education either insulates politics from social stratification or produces greater political inequality.

Mettler and Soss provide an exception, and draw attention to one aspect this oversight:

Citizens who receive more education are, to state the matter simply, advantaged in the political arena. How do they come to be privileged in this manner? The answer lies, to a significant degree, in public policies that distribute educational opportunities to citizens and shape their quality of education. Yet studies of political behavior rarely mention government policy as an important factor influencing observed outcomes. And policy studies that focus on social and economic outcomes say almost nothing about how education policies affect the political process. In the overlooked space between these subfields, one finds the crucial question of how education policies create, sustain, and challenge political inequalities—and how such policies might better serve a polity that aims to govern itself in a democratic fashion" (2004, 56).

Indeed, numerous education policies, from the federal to the “street” level affect educational achievement. The second part of this dissertation is an attempt to understand the political consequences of these policies, and the ways in which they can be leveraged to increase the quantity and equality of civic engagement in the United States. I describe the uneven distribution of skill practice opportunities in American public schools and explain the process that generates it. The inequality I find is consistent with theories of educational inequality. Inequalities in resources and outcomes are pervasive in American education along race and class lines. But more specifically, skill practice opportunities fall under a larger category in educational theory often called “opportunities to learn:” tasks and materials that students confront in school (e.g. Oakes 2005). Such opportunities vary by student race and socio-economic status, between and within schools. The systematically unequal distribution of opportunities to learn is structured by school tracking policies (Heyns 1974; Oakes 2005; Gamoran and Mare 1989), exposure to materials (Applebee et al. 2003), and teacher decisions (Rivkin et al. 2005), all aspects of

“street level” education policy, designed and implemented by teachers and administrators as policy makers.

Hayward (2000) describes a process much like this in the two elementary schools she observes for her study on power. In both schools, existing policies and teacher decisions structure the opportunities students have and the degree to which their learning is active versus passive. And teachers make their decisions based on prevailing community norms and their views of what is appropriate and necessary for the social groups to which their students belong. Similarly Litt (1963) finds that civics textbooks in upper-middle and working class communities differ markedly in the degree to which they encouraged participation, and policy makers’ ideas about what was appropriate for the groups of students produced that difference in learning opportunities. Both of these studies, along with the education literature on opportunities to learn lead to the expectation that students who attend schools with relatively disadvantaged student bodies will experience fewer politically useful learning opportunities. In the second part of this dissertation, I demonstrate that this is indeed the case in American schools.

1.6 Hypotheses and Plan of the Dissertation

So how does education generate the patterns we observe in political participation? I have constructed a theoretical framework that places opportunities to practice general, politically useful communication skills at its center. In school, students have opportunities to practice and acquire reading, writing, and speaking skills, which make

them more confident about their ability to successfully engage in related forms of political action. This practice increases political efficacy about and motivation to engage in related civic activities; it also makes acquiring information about politics easier, lowering the cost of behaviors like voting. Students confront inequitable opportunities to practice these skills within school institutions, opportunities that are structured by existing policies and the ways in which social groups are viewed by decision makers.

Several hypotheses flow from this theoretical framework:

H1: Communication skills gained in school should positively affect civic engagement into adulthood, even holding educational attainment constant.

H2: Actively practicing politically useful communication skills should positively affect related forms of political efficacy and motivation to engage in related civic activities, even if the practice does not take place in a political or civic context.

H3: Aggregate patterns in American students' communication skill practice and verbal skills should correspond to aggregate patterns in civic engagement, across time and social groups.

H4: The distribution of opportunities to actively practice communication skills in school should be determined by existing education policies and school context.

I begin, in Chapters Two through Five, with the first two hypotheses, presenting evidence that general communication skills, and students' opportunities to practice them in school affect efficacy, motivation, and political behavior. In Chapter Two, I test the first hypothesis demonstrating the effect of communication skills gained in high school on post-high school political engagement using student achievement data from the National Longitudinal Education Study of 1988. In contrast to earlier research that used

vocabulary knowledge and cross-sectional data, I find a strong, positive effect for many forms of political engagement.

Skill practice should affect engagement in part by developing students' political efficacy. In Chapter Three, I present the first test of H2. I show that the effect of opportunities to practice politically useful communication skills like debate, speech-giving, and letter-writing in school on adolescent political engagement using data from the National Household Education Survey of 1999 and a multivariate matching model. I find that practicing communication skills in school, no matter the subject or course, increases multiple forms of political efficacy.

The analyses in the first two empirical chapters show that the association between communication skill practice in school and political engagement is substantively strong, and is detectable in the population of Americans at different points in time using different measures of engagement. In both observational studies I use quasi-experimental strategies to infer causality – statistical matching, longitudinal data analysis, and careful specification of regression models. But even with these approaches, there remains some doubt about whether the association in the population is truly causal; these strategies cannot ensure that students who get to practice communication skills in school and students who do not are alike in ways we do not observe. This selection problem is solved by experimental research because it allows the researcher to randomly assign subjects to receive the treatment (Rubin 1974).

Chapters Four and Five also address H2; in them I present the results from two field experiments. I conducted the first experiment in a Milwaukee, WI middle school

testing the effect of communication practice (writing correspondence) on adolescent political engagement. Writing practice increases students' feelings that they can successfully write to elected officials and their intent to write to officials as adults. In the second experiment, I test the effect of public speaking practice on college student political engagement and behavior using experimental data collected during the 2008 election season. The public speaking intervention increased both voter turnout of the subjects and students' self-reported confidence that they could get their point across to a fellow student in a discussion about politics. Additionally, the pre-treatment survey data collected in both experiments show that self-reported frequency of practicing politically useful communication skills in school is a good predictor of related forms of political efficacy and motivation.

In Chapters Six and Seven, I integrate the sizable literatures on educational and political inequality, and test the third and fourth hypotheses about the distribution of opportunities to practice communication skills in schools. In Chapter Six, I test H3; I describe the distribution of opportunities to practice politically useful communication skills across demographic and social groups using student and teacher survey data from the National Assessment of Educational Progress (NAEP). I find that students from marginalized groups are less likely to experience a range of politically important communication skill practice opportunities.

In Chapter Seven, I test H4, derived from the policy feedback literature, that the degree to which students get to actively practice communication skills in school is determined by school policies and context. I estimate a multilevel model with NAEP

survey data, accounting for multiple sources of variation in skill practice opportunities. I test the effect of various school policies and characteristics on these opportunities, and test whether students who attend school with higher proportions of peers in disadvantaged social groups experience fewer opportunities, holding other factors constant. I find an effect for school composition; students who attend schools with greater proportions of peers in marginalized groups are less likely to have the chance to write or speak in class, even holding their own characteristics constant. But when the school offers related professional development to teachers, student opportunity rises. Based on these results I recommend that policy focus short term on professional development to build teacher capacity to offer more communication learning opportunities in their classes, especially to disadvantaged students, and long term on addressing the democratic consequences of school segregation in light of the school composition effects I find.

In the eighth and concluding chapter of the dissertation, I summarize my findings and detail the lessons for theory, policy, and practice suggested by my research. I discuss how improving civic education and closing achievement gaps in core subjects like reading or language arts are often viewed as competing educational goals. My dissertation challenges this paradigm by bringing to light the political consequences of educational inequality across the curriculum. General communication skills, which can be practiced in any subject, have a role in determining whether students become active citizens. And, students in disadvantaged social groups, already underrepresented in the political process, get fewer opportunities to develop their voice in school by practicing these skills. As a result, these students are even less likely to participate as adults.

This dissertation moves the study of education and political engagement beyond degree attainment and formal civics instruction. Citizenship education does not and should not take place only in social studies classrooms. Instructional activities in any subject can prepare students to become participatory citizens, and there are serious inequalities in these learning opportunities. This more expansive view of citizenship education points out a need for policy, curriculum, and teacher professional development programs to ensure that students in disadvantaged social groups have the opportunity to practice the skills that they need to make their voices heard in American democracy.

Chapter 2

The Effect of Verbal Communication Skills Acquired in School on Political Participation

2.1 Introduction

Traditional human capital-based explanations hold that civic knowledge and skills acquired in school reduce the cost of political acts like voting (Delli Carpini and Keeter 1996; Verba, Schlozman and Brady 1995; Wolfinger and Rosenstone 1980). But this theory has come under considerable fire in recent years. Macro trends call the causal role of education into question; as aggregate educational attainment has risen in the United States, turnout has not (Brody, 1978). And scholars have not found evidence that formal civics instruction, though it boosts civic knowledge, explains the variation in turnout (Langton and Jennings 1968; Niemi and Junn 2005), or that if effects on engagement are present, they are only detectable when the student is in the civic class, and do not persist

beyond that (Greene 2000).³ Motivated in part by these inconsistencies, contemporary researchers have challenged the conventional human capital theory, arguing that the apparent relationship between education and turnout is attributable to selection effects, and that education is merely a proxy for unobserved pre-adult characteristics and ability (Kam and Palmer 2008; Tenn 2007). Other critics go to the edges of the traditional explanation: arguing that education affects civic engagement, but only by sorting individuals into advantaged social positions, rather than by providing politically useful knowledge or skills (Nie, Junn, and Stehlik-Barry 1996). It is especially troubling that the field has not come to a consensus about the effect of human capital, given the strong and frequently made theoretical argument that what is learned in school ought to reduce the cost of political engagement and participation, and given the vast inequalities in learning that characterize American schooling.

The aim of the first part of this dissertation is to determine whether the skills that people acquire in school make them more likely to participate in politics. Empirical evidence on this human capital question is mixed, largely due to doubts about causal inferences made from correlations in cross sectional and observational data, and to measurement issues. The randomized field experiments I will present in Chapters Four and Five are designed to yield valid causal results, but they have limited external validity and do not test whether effects persist past a very limited time span. So, I begin, in this

³ Similarly, Green et al. (2010) find experimental evidence that a civic education program increases students' knowledge about Constitutional rights, but does not cause changes in related attitudes about civil liberties. This experiment adds to the growing literature showing that the effects of traditional civic education are limited to knowledge.

chapter, by establishing that the relationship between general verbal skills acquired in school and political engagement is generalizable to the population of American students and persists beyond adolescence into early adulthood. I do so with nationally representative longitudinal data from the National Educational Longitudinal Study of 1988 (NELS). The design of the NELS offers many advantages; it allows me to establish generalizability, temporal ordering, and the persistence of effects. Additionally, the NELS contains rich descriptive information about the family of origin and educational achievement. I exploit this information to correct observable selection bias and make inferences about the effects of skills gained in childhood on political behavior into early adulthood.

In this chapter, I also give particular attention to the way political scientists ought to conceptualize and measure politically useful skills acquired through schooling. Education research has made clear that there is great variation in learning across and within schools, and the attention of education policy makers has shifted almost universally to school quality rather than quantity. Yet, most political engagement studies continue to operationalize the skills acquired in school with years of educational attainment. And though democratic theory and empirical work on adult engagement highlight the importance of general communication skills for political engagement, empirical studies that look beyond attainment focus almost universally on the politically-specific knowledge and skills acquired through civics instruction. Restricting our measurement to years of attainment or the quality of civics instruction distorts our understanding of the relationship between education and political engagement.

In Chapter One, I argued that we should pay careful attention to the general communication and verbal skills gained in school and their effect on political engagement. In this chapter, I identify the effect of these skills on individuals' later political participation. This study is not the first to examine the effect of verbal communication skills on political engagement. The current conventional wisdom is that there is no effect, based on the lack of association between vocabulary tests taken by adults and political engagement found by Nie and colleagues.

My approach to the measurement of these skills departs from this previous research. In this chapter, I use more theoretically and empirically valid measures of the verbal skills acquired in school: standardized verbal test scores and English course grades, collected in the nationally representative National Educational Longitudinal Study of 1988 (NELS). Though the use of achievement test scores and course grades are uncommon in studies of education and politics, these measures are widely used in the education, economics, policy, and sociology literatures to capture verbal skills and the human capital acquired through education. Both grades and verbal tests of achievement measure verbal skills beyond vocabulary that are more relevant to political and civic activity. It also bears mentioning that achievement test scores are very important to education policy makers; understanding their relationship to civic outcomes is a timely and relevant goal. I will explain these measurement choices in detail in the third section of this chapter.

I also exploit the longitudinal nature of the data, the pre-high school test scores and grades, and the rich set of available covariates in this study to correct selection bias and

make inferences about the effects of verbal skills gained in school on civic engagement in adulthood. I find a strong positive effect, net of family background, cognitive ability, non-cognitive traits, school characteristics, exposure to civic education, and eventual educational attainment.

2.2 Data

My data come from the National Longitudinal Study of 1988 (NELS), sponsored by the National Center for Education Statistics and collected by the National Opinion Research Center. The NELS consists of a base-year survey of a nationally representative sample of American 8th graders, collected in 1988, and follow-up surveys of a sample of those respondents. Data collection continued until 2000, when the respondents were eight years out of high school (and the vast majority had completed their education). This dataset is uniquely suited to testing theory about the education-engagement relationship: it includes a rich set of verbal achievement measures, pre-adult background characteristics, and indicators of adult civic engagement. The civic engagement outcomes available are voter turnout in the 1992 and 1996 general elections,⁴ and volunteering with political campaigns and civic organizations in 2000.⁵

⁴ The 1992 election occurred in the fall following most respondents' high school graduation, after the 1992 data collection. So, respondents were asked to report their turnout in the 1994 survey. There was no data collection in 1996, so turnout in the 1996 election was reported in the 2000 survey. Turnout in the 2000 election is unavailable. The NELS does include additional turnout measures, asking in some surveys whether respondents had voted at all during the last 24 months or 12 months. The timing and location of elections along with the rolling data collection for the NELS make these measures problematic – in effect, they do not measure the same thing for all respondents.

On one hand, these early-adult measures of engagement leave some questions about the persistence of human capital and verbal skill effects across the life course unanswered. However, there are also benefits to examining participation early in the life course. In the case of voting, initial entry into active politics is determined by a different process than subsequent participation (Highton and Wolfinger, 2001; Plutzer, 2002; Denny and Doyle, 2009). Though human capital acquired through education has not been explicitly included in analyses of early voting, we might expect it to be particularly important early on, relatively soon after the learning occurs and before much variation in other predictors (e.g. income) begins to matter more.

But I do not focus on early participation in this dissertation and this chapter merely to stack the deck in favor of finding results. Explaining early participation is crucial if our goal is to understand patterns in political engagement in general. Political behavior is characterized by inertia, or persistence, so that the individual who chooses to participate early is then more likely to participate throughout the life course (Green and Shachar, 2000; Plutzer, 2002; Gerber, Green, and Shachar, 2003; Denny and Doyle, 2009). This habitual quality makes understanding the causes of participation among young people particularly important.

That said, when similar models are estimated with these measures as outcomes, there is also a positive, detectable effect of verbal achievement.

⁵ Both volunteering measures are self-reports, collected in 2000, of whether the respondent engaged in these activities in the past 12 months.

2.3 How should political scientists measure verbal skills?

Scholars in other social sciences and education have devoted significant attention to understanding and collecting reliable, valid measures of skills acquired in school. But political scientists have rarely taken advantage of this interdisciplinary effort. Nearly all of the small number of studies that measure verbal skills gained in school do so with a short vocabulary test administered in adulthood, most commonly the ten-item Wordsum test in the General Social Survey (GSS) (Junn 1991; Nie, Junn, and Stehlik Barry 1996; Schlozman, Burns, and Verba 1994; Torney-Purta 1997; Verba, Schlozman, and Brady 1995). The clearest disadvantage of this strategy is the spurious relationship between vocabulary and age; the two are highly correlated (Wilson and Grove 1999a; 1999b), because people who have lived for longer have increased opportunity to confront and remember new words. Vocabulary continues to grow after formal schooling is completed, so some of the verbal ability measured by adult vocabulary tests may have been gained after, or even during civic activity. This concern is eliminated when the skills measure is collected prior to the outcomes of interest, as it is in my analysis.⁶

Additionally, vocabulary's correlation with politically useful speaking, writing, and argumentation skills is often overstated by political scientists. Psychologists have long known that vocabulary is a unique domain of verbal ability. For example, general

⁶ Wordsum also has more basic measurement problems. For example, Bowles et al. (2005) find that the word battery actually measures two latent dimensions: easy and hard words. For an overview of the measurement issues with the test, see Malhotra, Krosnick, and Haertel (2007).

verbal proficiency, as measured by listening, dictation, and cloze tests (where subjects fill in missing words in passages) is distinguishable from vocabulary knowledge (Boyle 1987), and in youth, vocabulary has a low correlation with successful social interaction and communication with others (Enright and Sutterfield 1980). When scholars of civic engagement operationalize verbal skills with a vocabulary score, they are only measuring a single dimension of verbal skill, and not the one that is most useful in civic engagement where individuals need to be able to comprehend what they read and hear, develop and articulate arguments, and express themselves through writing and speaking to others.

In the analysis that follows, I operationalize verbal skills with two separate measures, uncommon in studies of politics and education, but standard in many other areas of education research: a standardized verbal test score and the average grade in high school English courses, both collected in 1992 at the end of the senior year in high school.⁷ I estimate the models first with the test score, and then again, replacing the test score with the grades-based achievement measure. Both measures are collected prior to the participation outcomes, and both capture a wide range of skills beyond vocabulary. Each measure has advantages and disadvantages; testing the effect of verbal skills acquired in school on civic engagement with different measures shows the robustness of the result.

⁷ The measure of average English course grade in the NELS is a continuous variable ranging from 0 (F) to 12 (A+). Over-reporting, which occurs when respondents are asked to recall their achievement, is highly unlikely in this transcript-generated variable.

Studies in the economics of education and other disciplines commonly operationalize human capital acquired in school – verbal or otherwise – with standardized test scores. The verbal test score in the NELS is particularly valid as a measure of the verbal skills necessary for civic engagement. The verbal tests in the NELS measure “ability to understand the meaning of words in context, identify figures of speech, interpret the author’s perspective, and evaluate the passage as a whole” (Curtin et al. 2002, 21).⁸ So in addition to basic elements of verbal skill, this test measures whether or not the student can glean the main idea from a passage and infer the author’s intent, and make judgments about what she has read – all essential skills in basic political and civic activity.⁹

The NELS test is typical of standardized verbal achievement tests. And as I noted in the introductory section of this paper, these tests are critically important in education policy today. Since the passage of the No Child Left Behind Act in 2002, standardized verbal and math test scores have played a central role in education policy decisions. Achievement test results determine the distribution of resources and sanctions to states, school districts, schools, and individual students, and they drive debates about hot button issues like educational inequality and school choice. So understanding the democratic

⁸ I use the norm-referenced IRT theta score provided in the NELS. This is a measure of latent verbal ability estimated with a Bayesian Item Response Theory Model. The scores are standardized (mean 50, standard deviation 10) based on the scores of participants with data in all of the first three (in-school) waves. (For more information on the psychometric properties of the tests in the NELS, see Rock and Pollack 1995.)

⁹ The test requires students to read passages and respond to multiple-choice questions. Actual passages and questions from the tests are not made publically available.

importance of verbal skills, measured in this way, connects the theoretical debate about the effect of education on civic engagement directly to current education policymaking.

Alternatively, an English course grade reflects politically useful verbal skills that even standardized tests do not. Any standardized test “covers only a small, biased sample of intelligent behaviors” (Frederiksen 1994, 534). English course grades reflect performance on basic verbal skills as well as productive, expressive communication skills like speaking and writing and higher-order verbal skills such as generating and defending arguments (Kelly 2008).¹⁰ These skills, captured only by grades, are among those that we expect to be most useful in political and civic participation as individuals gather information and express preferences.

Grades can also be viewed as a more authentic measure of verbal communication skills than tests. Neither vocabulary nor standardized verbal tests capture “the ability to appropriately and effectively use language in social contexts,” what psychologists refer to as “pragmatic language competencies” (Russell and Grizzle 2008, 59), like speaking skills and the ability to stay on topic, which are essential to political communication. Pragmatic language competencies can differ markedly from words, definitions, and

¹⁰ The literature on course grades supports the assertion that they are good measures of skill and achievement. A detailed study of English course grading practices (Kelly 2008) shows that performance on a standardized verbal test (including essay and multiple choice items) is a stronger predictor of English grades than non-skill factors like participation and behavior. Additionally, the majority of teachers base grades on achievement, and the older the students, the more likely their teachers are to rely on achievement rather than effort, improvement, or compliant behavior.

grammatical conventions one can call to mind when not actively communicating.¹¹

English grades measure both skill sets; they are calculated based both on traditional assessments, like tests, and performance on authentic communication assignments and tasks like essays, speeches, debates, and participation in discussions (Kelly 2008).

Compared to standardized tests, grades also mean more to students, who try harder for them (Becker, Geer, and Hughes 1995). And adolescents base their own feelings about their verbal skills on classroom, rather than test performance (Dermitzaki and Efklides 2000). That finding is especially important because scholars have posited that one mechanism linking verbal skills to increased participation is a heightened sense of verbal competence, as Verba, Schlozman, and Brady (1995) contend and as I argued in Chapter One.¹² Perhaps as a result of this authenticity, grades are strong predictors of important outcomes such as educational aspirations (Rosenbaum 1980), attainment, and earnings (Rosenbaum 2001).

In short, test scores have high reliability and policy relevance, and grades have high validity as indicators of civically useful verbal skills acquired in school. But some interpretive issues remain. Although test scores and English grades primarily capture

¹¹ There is a growing psychological literature on pragmatic language competencies. They are unmeasured by traditional standardized tests, distinct from the conventional language skills that are measured by tests, and more relevant to social success and effective communication in real-world contexts (Russell and Grizzle 2008).

¹² Some political studies do include course grade measures, but interpret them as measures of ability or intelligence rather than skills or knowledge acquired in the courses (Highton 2009; Hillygus 2005). The research on course grades does not support their use as an indicator of ability or intelligence alone. Grades do in fact measure subject achievement.

verbal communication skills, they are undoubtedly correlated with other characteristics of the individual and the pre-adult environment. A number of these student, family, and school characteristics may also be correlated with civic engagement. If these confounders are left out of models of political engagement, the estimated effects will be biased.

2.4 Addressing Sources of Bias: Individual and Environmental

Achievement differences are evident as early as kindergarten, prior to schooling (Fryer and Levitt 2006), and clearly reflect individual and contextual advantages independent from formal education – advantages that are also correlated with civic engagement. The culture and context of a school can also influence both achievement and civic engagement (Campbell 2008). There are four factors that are potentially correlated both with my achievement measures and civic engagement: (1) ability – verbal skills developed prior to school and cognitive ability; (2) non-cognitive traits – personality traits, skills, and work habits; (3) family background characteristics; and (4) school characteristics.¹³ I will discuss each and explain how the rich data in the NELS can be exploited to correct them.

¹³ Measurement error could also bias the effect estimates. The standardized tests and transcript-reported grades in the NELS among the most sophisticated and well-studied measures of achievement available, but all measures of human capital are subject to measurement error, which produces a downward bias in the effect estimates. With that in mind, the estimates in this paper can be thought of as a lower bound. The direction of the bias induced by correlated but unmeasured factors is less certain and therefore more important to address.

First, any measure of achievement reflects skills gained in and outside of school as well as general cognitive ability. Verba, Schlozman, and Brady (1995) recognize this problem, but their primary purpose is not testing the effect of education on engagement, so they choose to sidestep it:

...for our purposes the exact relationship between vocabulary score and education is not important: that is, it does not really matter in our analysis whether schooling develops vocabulary, people with good vocabularies stay in school longer, or both. What is important is that vocabulary score allows us to control for verbal ability wherever or however it has been obtained.... We do not try to answer the difficult question of whether basic ability or schooling matters more (306-7).¹⁴

In fact, political scientists often employ the term “verbal ability” when discussing the vocabulary measure.¹⁵ The problem is that ability and skills acquired in school, while correlated, are not the same. And, cognitive ability is a relatively stable and heritable trait, has an independent effect on political engagement (Deary, Batty, and Gale 2008).

Non-cognitive traits may also be correlated with achievement and political engagement. There is some evidence that cooperative, “eager” students, or those who display high effort are rewarded with higher grades (Ames 1992; Stiggins and Conklin 1992). These students may also display higher effort in the political arena. This is less of

¹⁴ In contrast, Nie, Junn, and Stehlik-Barry (1996) do not confront the issue, and rely on the adult vocabulary score to support their rejection of the human capital theory. The authors also use English proficiency as a measure of verbal skills. This measure is even more problematic than the vocabulary score, correlating with its own set of political advantages they do not include in their models (e.g. length of tenure in the U.S., acculturation).

¹⁵ Scholars in other disciplines have more commonly used vocabulary tests like Wordsum to operationalize intelligence or general cognitive ability, even in studies concerning education and civic engagement (Hauser 2000; Hernstein and Murray 1994).

a concern when tests are used to measure verbal skills, but it is still possible that students with certain non-cognitive traits may exert more effort on standardized tests, for example working quickly to finish or skipping fewer difficult items.

To isolate skills gained in school from other traits that contribute to achievement, I focus my analysis on only the verbal communication skills acquired in high school. Though verbal skills acquired in elementary and post-secondary schooling may also affect civic engagement, examining skills acquired in one segment of schooling enables me to isolate skills acquired in school, controlling for individual ability and non-cognitive characteristics with lagged achievement measures collected prior to that segment of schooling, here high school. In all models I include an 8th grade verbal standardized test score to control for general cognitive ability, verbal ability, and any other non-cognitive characteristics that contribute to post-high school achievement as measured by test scores. In models where I operationalize high school verbal achievement with English grades, I also include a pre-high school measure of grade point average, collected at the end of 8th grade to further control for the other, non-cognitive traits and aspects of verbal ability that contribute to course grades¹⁶

In addition to individual traits, characteristics of a person's pre-adult environment, especially the family and the school, can contribute both to grades and later political engagement. Wolfinger and Rosenstone (1980) point out that unmeasured family

¹⁶ The 8th grade GPA measure is a composite of student reported grades in multiple subjects. Students reported whether they got "mostly As," "mostly Bs," etc. in middle school in major academic subjects. Their responses were averaged to generate the variable I use here. Transcript data is unavailable prior to high school.

background characteristics should make us skeptical about causal interpretations of an education effect: “years of schooling reflect family background more than any other demographic characteristic does. People who have gone to college are more likely to have educated and/or affluent parents. As a result they are more likely to come from homes where books, newspapers, and magazines were read, and where politics were discussed” (20). Like the attainment measure that Wolfinger and Rosenstone are writing about, vocabulary knowledge is highly correlated with parent education (Rowe et al. 1999), due in part to the fact that children in advantaged families hear many more words in the home from birth on (Hart and Risley 1995).

The NELS provides rich information about the panelists’ family of origin. The measure of 1988 family socio-economic status I use in these models is much more comprehensive than measures used in many political studies. The measure is a composite created by the NELS. It is a standardized variable composed of family income, mother’s educational attainment, father’s educational attainment, mother’s occupational prestige, and father’s occupational prestige.¹⁷ The inclusion of this control variable makes it unlikely that any effect of educational achievement could be attributed to unmeasured childhood socio-economic status. In addition, the NELS contains an indicator for whether or not the family of origin receives a newspaper regularly in 1988. This variable can be viewed as a proxy for the general engagement of the family in social and political affairs.

¹⁷ Occupational prestige is measured in the NELS using the Duncan socioeconomic index (SEI), a ranking of occupations based on occupational earnings and occupational education commonly used in sociology and education research (Duncan 1961).

Therefore, any effect of educational achievement should not be due to children in more engaged families learning more in high school *and* becoming more engaged young adults.

School characteristics are also a potential source of bias. Grades and test scores of individual students within schools are not independent. Some of this dependence is due to the fact that students in better schools learn more; however, some is due to other unmeasured school characteristics. Grades especially depend on schools in ways that go beyond the skills students acquire. Students do not all take identical English courses, and grades are often assigned relative to the school population, unlike standardized tests. The threat here is that students in more challenging courses or schools could be at a disadvantage in terms of grades. Empirical studies in the education literature show that this possibility is not as great of a concern as it may intuitively seem to be. Grades are generally higher for high achieving students, and grades in advanced classes are actually higher than those in remedial or general classes, even controlling for student test achievement (Farkas et al. 2005; Kelly 2008). However, the concern remains that unobserved characteristics of the school are correlated with both the grades measure and students' civic engagement.

The lagged grades measure I include in the models corrects for this threat to some degree, because middle schools and high schools in the same communities have similar grading norms. And estimating models with nationally normed test scores provides an additional check on this threat. Nonetheless, to fully account for the unobserved but correlated school characteristics, I also report the results of models that include fixed

effects for high schools. The NELS provides data for multiple students within the same school, offering a unique opportunity to conduct such an analysis. Learning varies greatly between and within schools; the fixed effects models allow me to identify the effect of verbal skills on engagement within high schools, for students who experience the same grading regime and school culture. Because the variation in achievement between schools is held constant, this is a rigorous test of the human capital theory.

Finally, all models include an indicator for whether or not the individual student took a civics course in high school to ensure that any effects are not due to within school variation in civic learning opportunities, and standard demographic variables: race, ethnicity, gender, age (birth year), and pre-adult geographic region.¹⁸

2.5 The Effect of Verbal Skills on Turnout

Table 2.1 displays the results from a series of logistic regression models in which the dependent variables are dichotomous measures of adult turnout.¹⁹ In models 1-2 verbal skills are measured with standardized test scores; in models 3-4, they are measured with English course grades. Measured either way, verbal skills acquired in high school

¹⁸ Descriptive statistics of all variables are available in Appendix A.

¹⁹ In 1988, 800 public schools and 200 private schools were drawn from the population of American junior high schools. Eighth grade students were then sampled within schools. Because of this design, estimates will be less variable than if they were based on a simple random sample. Therefore, use the appropriate probability weights provided by the NELS to account for the sampling design, panel attrition, and nonresponse and adjust the standard errors for the sampling design.

have a detectable, positive effect on turnout immediately following high school. This effect is still present four years later.

[Table 2.1 about here]

It is difficult to interpret the size of the effect from coefficients in logistic regressions, so in Figure 2.1 I plot the predicted probability of participating in each form of engagement, as the achievement measures move across their ranges, holding all other variables at their means. The results are striking. For an otherwise average individual, as the grade measure moves across its range, the predicted probability of voting in the election immediately following the senior year of high school increases 39 points from .30 to .69. The probability of voting in the next general election increases 31 points from .42 to .73.

[Figure 2.1 about here]

When achievement is measured with tests rather than grades, the effects are slightly smaller, unsurprising from a measure that captures fewer politically useful skills. Nonetheless, because test scores are a generally more reliable measure of achievement, there is reason to accept these more conservative estimates. As the standardized test score moves across its range, the probability of voting in the 1992 election increases 21 points from .39 to .60, and the probability of voting in the 1996 election increases 14 points, from .51 to .65. Keep in mind that these are the effects that exist after accounting for childhood socio-economic advantage, cognitive ability, non-cognitive factors that contribute to achievement, family engagement in public affairs, demographics, and civics course-taking. It is highly unlikely that any selection effect is driving the results. It

appears that acquiring greater human capital in high school, in the form of verbal skills, matters greatly for individuals' first turnout decisions.

Although we should be cautious about making causal inferences from coefficient estimates on the lagged achievement variables, it is interesting to note that the 8th grade verbal achievement test score does not have a strong, detectable effect on turnout. Net of 8th grade course grades, this measure captures general cognitive ability (though it also captures skills gained very early in life). This analysis thus provides some support the finding of Deary, Batty, and Gale (2008) that childhood intelligence predicts political involvement, but suggests that the effect is limited. It may be that children with higher cognitive ability participate more as adults *because* they learn more and acquire more skills in school relative to their peers. Or, it may be that a fuller accounting of family socio-economic circumstances, as has been done here, explains the connection between children who score better on early cognitive tests and become more engaged adults.²⁰

²⁰ One concern I do not address in more detail is that there may be effect heterogeneity – differential returns to skills gained for different racial or other social groups. Neal (2006) shows that there are no such differences for labor market outcomes. There is some evidence that this is the case for political engagement as well. In an unreported analysis, I did include interactions between social groups and English grade in the models, and none were statistically significant. However, interaction terms may not be an appropriate test with these data, because the data do not include skill measures for pre-twelfth grade dropouts, who are disproportionately non-white and poor.

2.6 The Robustness of the Turnout Result

The effect of verbal skills acquired in high school on voter turnout is not an artifact of individual or family characteristics, but readers may be concerned that other correlated variables could explain the result. Table 2.2 presents the coefficients and standard errors of the achievement variables from additional model specifications. First, I turn to the models with fixed effects for high school. Even within groups of people who attended the same high school, the effect of verbal achievement is detectable. This model, in effect, throws away much of the variation in achievement which exists between schools, and holds all unobserved school characteristics constant; it is a rigorous test of the human capital theory, but the test is passed. The effects reported in the previous section remain detectable, and are only slightly smaller.²¹

[Table 2.2 about here]

Another concern is that these effects may really be the result of educational attainment, perhaps even due to the social sorting mechanism. Students who learn more and do better in school are more likely to graduate, and the graduation credential and subsequent attainment could provide political and civic advantages that have nothing to do with human capital acquired in school. So it is useful to see whether or not the effect of achievement is still detectable if attainment is included in the models. Let me first

²¹ To estimate the models with fixed effects, I used the `xtlogit` command in Stata, which does not support the steps I take in the other analyses to account for the complex survey design in the NELs. The standard errors in Table 2.2, therefore, may be underestimated. However, even if the standard errors increased considerably, the coefficients would still achieve statistical significance by conventional standards.

point out that even if the effect of skills acquired in school is mediated by attainment, the indirect effect can still be attributed to human capital. Additionally, controlling for variables measured *after* the independent variable of interest can bias effect estimates (Rosenbaum 1984).²² For this reason, I am most confident about the estimates from the models including only the independent variable of interest (verbal skills acquired in high school) and potential confounds measured prior to high school, presented in Table 1. With those caveats in mind, I turn now to models of turnout that include attainment measures.²³ Though, as expected, the coefficients on the measures of verbal achievement are slightly smaller when attainment is included in the models, they are not washed away. Attainment too is a strong predictor of turnout net of achievement. Human capital does not account for all of education's effect on engagement, but contradictory to some previous research, neither does sorting. Education affects turnout by endowing young people with politically useful verbal skills, not simply by sorting them into relatively advantaged social positions.

Finally, I have argued that the lagged measures of achievement account adequately for student ability, but perhaps general cognitive ability, which has an independent effect

²² When interpreting these results, readers should note that the bias introduced into the models by “post-treatment” variables is not a concern if I make the assumptions that I am sufficiently controlling for confounders and the assignment process with covariates, and the effects of human capital are consistent across groups, (here, levels of attainment).

²³ The models of 1992 turnout include an indicator of high school graduation and an indicator for whether or not the respondent had entered college. The models of 1996 turnout include high school graduation and an indicator for whether any post secondary degree had been attained.

on political engagement, is not fully controlled by the verbal achievement test and grade point average. Therefore, as a final test of the robustness of the result, I estimate each model including additional measures of achievement in mathematics that should account for general cognitive ability, but not verbal ability.²⁴ Even controlling for these measures of math achievement, the effects of high school verbal achievement remain. In fact, these analyses provide further evidence that political engagement is affected, as hypothesized, by verbal skills rather than some other form of human capital. The coefficients on the math achievement variables are either indistinguishable from zero or slightly negative.²⁵ This result corresponds to previous evidence that verbal, but not math scores on the SAT predict political engagement for college graduates (Hillygus 2005), and provides strong support for my theory.²⁶

²⁴ The main measure used here to capture general cognitive ability is 8th grade performance on a mathematics standardized test. I also include the average grade in high school math courses to control for additional non-verbal skills beyond those measured in standardized tests.

²⁵ The result is the same even when the math measures are included but verbal measures are not.

²⁶ It has been suggested that any effect of skills gained through education on voting can be explained by more skilled individuals finding bureaucratic hurdles like registration easier to navigate (Wolfinger and Rosenstone 1980). The models of voter turnout reported in this manuscript do not include a control variable for registration, which is endogenous to turnout and could introduce bias. However, since only registered voters can vote, I also conducted both voting analyses including registration. The effects of verbal skills are only slightly attenuated, if at all. The effect of human capital acquired in school does not simply make it easier for people to register to vote.

2.7 The Effect of Verbal Skills on Volunteering

The effect on turnout has been the focus of most of the scholarly debate about education and civic engagement. Turnout also has a particularly puzzling relationship with education. Campbell (2009) demonstrates that the social network centrality produced by education affects only non-voting electoral activity, leaving the association between education and voting unexplained. That said, whether or not human capital acquired through schooling drives other forms of civic engagement is also an important question. Other measures of engagement are available in the NELS, but are limited. Unfortunately, there are no measures of expressive engagement, like speaking at public meetings or writing to public officials, where the greatest effect of verbal skills may be found. But in 2000, eight years after high school, respondents were asked whether they volunteered with political campaigns, and with civic organizations.

Verbal skills acquired in high school have a strong, positive effect on volunteering with a civic organization. As the grades measure moves across its range and all other variables are held at their means, the probability of volunteering with a civic organization increases 16 points, from .14 to .31. The results are presented in Table 1. As with turnout, when verbal skills are measured with course grades, the effect on volunteering with a civic organization is robust to the inclusion of fixed effects for high schools, attainment, and math achievement. Coefficient estimates and standard errors for these specifications are presented in Table 2.2.

The effect of achievement as measured by tests is less clear. Though the coefficient is positive in all model specifications, it only achieves statistical significance

by conventional standards in some specifications. This is not surprising given that the test scores are a less valid measure of the verbal skills that matter for civic engagement. This result indicates that volunteering may be driven even more by the pragmatic, expressive written and oral language competencies measured only by grades, and not by the more receptive language skills measured by tests. This contrast may also explain why test scores have a larger effect on turnout than volunteering. The receptive language skills measured by the test – gathering, comprehending and interpreting information – are intuitively necessary for voting, but may not be as important to volunteering.

By and large, verbal skills do not have a detectable effect on volunteering for a political campaign. Readers should note that this is a rare behavior. Fewer than five percent of respondents in the NELS report it, and it appears that this form of political involvement is driven by factors other than verbal skills.

2.8 Conclusion

Despite the turn to achievement in other social sciences, civic engagement studies have continued to operationalize the skills acquired in school with years of educational attainment. And though democratic theory and empirical work on adult engagement highlight the importance of general verbal skills for civic engagement, education studies that look beyond attainment focus almost universally on the politically specific knowledge and skills acquired through civics instruction. Restricting our measurement to years of attainment or the quality of civics instruction distorts our understanding of education's effects. A focus on the more general skills that matter for civic engagement

and current knowledge about the measurement of these skills leads to a more rigorous, but also more accurate test of the human capital theory. And, it provides strong evidence in support of that theory.

The association between education and civic engagement cannot be attributed only to selection effects and the sorting of individuals into social positions, as many critics have argued. Here, I have measured the verbal skills acquired in high school with more accurate and theoretically valid measures and have taken advantage of the longitudinal design and rich set of covariates in the NELS, including pre-high school measures of achievement and other indicators of pre-adult advantage, to rule out multiple hypothesized sources of bias. The results clearly show that the verbal skills individuals acquire in school affect engagement independently from ability, non-cognitive skills, family public engagement, family social class, civics instruction, and skills gained after the completion of schooling. This result is remarkably robust, remaining even when high school fixed effects, educational attainment, and math achievement are included in the models. The inclusion of educational attainment in the models makes clear that the effects cannot be attributed to social sorting. Any effects of education above and beyond verbal skills gained in high school, including social network centrality and other forms of social sorting, are accounted for by the attainment measures.

There is still much to learn about the relationship between education and political engagement. In this analysis, in order to isolate skills gained in school from those acquired before or after formal schooling, I consider only verbal skills gained in high school. This stands in contrast to much of the attainment-based literature on the subject

which focuses attention, intentionally or not, on the effect of post-secondary education, because in the United States today, much of the variation in attainment occurs there. I do not look at the verbal skills gained in elementary, middle, and postsecondary school. If the effect of learning is cumulative an analysis that included skills gained across all segments of formal schooling might uncover even more sizable effects. High school education, which occurs in the formative years of adolescence and in which much of the curricular focus is on advanced verbal skills that are useful in politics, is a good place to start. But future research should examine the effect of the unique skills acquired across each segment of an educational trajectory.

Furthermore, English courses are the most obvious place to look for communication skill acquisition, because their primary purpose is reading, writing, and speaking instruction. But students write, read, speak, and defend arguments across the curriculum. This analysis shows the importance of communication skills, but their educational sources may lie in more places than I have examined here. Indeed, in the chapters that follow, we will see that communication skill practice in any subject can affect political engagement.

Finally, though the NELS data have significant advantages over other datasets that are more commonly used in political science, in terms of pre-adult and educational measures, the measures of engagement are limited. The NELS does not include any measures of expressive engagement, like speaking to others about politics or writing to public officials, where we might expect to find the greatest effect of communication skills. The analyses in Chapters Three, Four, and Five focus on more expressive forms of

political behavior; the effects of verbal communication skills practiced and acquired in school are present there as well.

What is clear is that the human capital acquired through schooling, not just years of education, affects important civic outcomes, and that this effect is present for general verbal skills, rather than a limited set of political skills or civic knowledge. This relationship persists beyond the years of schooling in which the skills were acquired, and it is detectable in the population of American young people. This finding sheds light on the aspects of the education-engagement relationship that have long puzzled scholars of political behavior, like the lack of correspondence between attainment and turnout at the macro level and the weak relationship between formal civics education and engagement. But it also shows us where we might go from here: there are vast inequalities in students' opportunities to acquire politically important skills in American schools. Policy makers and education researchers have turned their focus to educational achievement in math and reading, largely because they have substantial effects on economic outcomes. But verbal achievement also has important effects on citizenship, and political scientists have a role to play in turning the policy discussion toward the ways in which this knowledge can be leveraged to improve democratic participation and foster political equality. In the next three chapters of the dissertation, I present further evidence for the causal claims I make in this chapter and dig more deeply into the relationship between verbal skills and political engagement. Then in Chapters Six and Seven, I turn to the question of political inequality, showing that there are vast inequalities in students' opportunities to acquire politically important skills in American schools.

Table 2.1: Effect of communication skills gained in high school on political engagement

	1992 Turnout		1996 Turnout		2000 Volunteer (Civic Org.)		2000 Volunteer (Campaign)	
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Eng. GPA (12)	.139* (.061)		.108* (.017)		.085* (.018)		-.010 (.043)	
Verbal Test (12)		.022* (.007)		.014* (.006)		.003 (.007)		-.022 (.013)
GPA (8)	.010 (.061)		.094 (.066)		.089 (.080)		.083 (.141)	
Verbal Test (8)	.014* (.005)	.011 (.006)	.006 (.004)	.008 (.006)	.008 (.006)	.020* (.007)	.012 (.007)	.013 (.010)
Family SES	.445* (.058)	.491* (.065)	.370* (.055)	.504* (.065)	.283* (.076)	.387* (.076)	.244 (.114)	.180 (.116)
Newspaper	.012 (.029)	.015 (.032)	.009 (.027)	.009 (.030)	.025 (.034)	.010 (.036)	.024 (.042)	.001 (.053)
Birth Year	-.184* (.065)	-.133 (.081)	-.011 (.069)	.035 (.073)	-.245* (.078)	-.194* (.082)	.170 (.145)	.265 (.161)
Male	.142* (.067)	.101 (.08)	-.041 (.069)	-.175* (.075)	-.111 (.071)	-.232* (.081)	.197 (.164)	.176 (.183)
Black	.004 (.155)	-.034 (.168)	.414* (.160)	0.31 (.170)	.171 (.159)	.138 (.161)	-.219 (.245)	-.144 (.558)
Hispanic	.171 (.119)	-.241* (.117)	0.089 (.109)	0.084 (.111)	.182 (.144)	.150 (.152)	.871* (.270)	.867* (.285)
Asian	-1.137* (.132)	-1.004* (.135)	-.915* (.141)	-.841* (.138)	-.077 (.145)	-.084 (.151)	-.032 (.299)	.031 (.310)
South	-.178* (.08)	-.163 (.089)	-.114 (.081)	-.117 (.085)	.297* (.085)	.220* (.093)	-.247 (.155)	-.183 (.170)
Civics	-.165 (.106)	-.191* (.109)	-.169* (.094)	-.128 (.108)	-.080 (.111)	-.146 (.128)	-.274 (.198)	-.284 (.225)
Constant	12.21 (4.76)	8.399 (5.955)	.119 (5.000)	-3.087 (5.312)	15.535* (5.754)	11.969* (6.059)	-16.534 (10.676)	-23.257 (11.854)
n	8691	8069	8504	7906	8570	7970	8570	7970

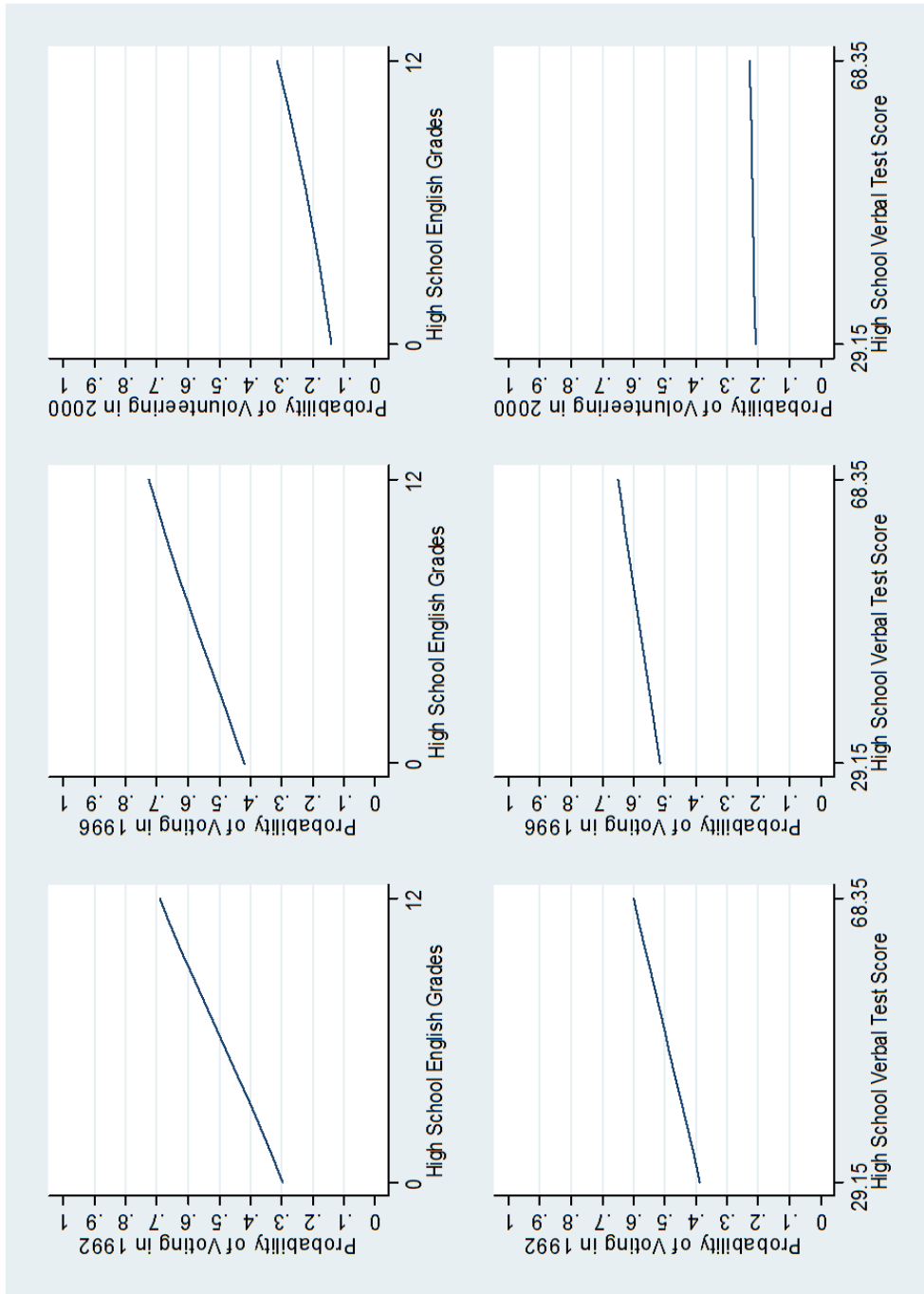
Table entries are logistic regression coefficients. Standard errors are in parentheses. Results of a two tailed test of significance are as follows: * $p < .05$.

Table 2.2: Robustness checks

Model Specification	1992 Turnout		1996 Turnout		2000 Volunteer (Civic Organization)		2000 Volunteer (Campaign)	
	Grades	Test Scores	Grades	Test Scores	Grades	Test Scores	Grades	Test Scores
Basic Models (from Table 1)	.139* (.061)	.022* (.007)	.108* (.017)	.014* (.006)	.085* (.018)	.003 (.007)	-.010 (.043)	-.022 (.013)
Including High school Fixed Effects	.106* (.014)	.023* (.004)	.092* (.014)	.021* (.004)	.061* (.107)	.015* (.005)	-.011 (.036)	.015 (.011)
Including High School Fixed Effects and Attainment	.070* (.016)	.020* (.004)	.052* (.016)	.017* (.004)	.039* (.018)	.010* (.005)	-.029 (.039)	.012 (.011)
Including High School Fixed Effects, Attainment, and Math Achievement	.076* (.019)	.018* (.005)	.09* (.019)	.016* (.005)	.063* (.022)	.007 (.005)	.035 (.047)	.022 (.012)

Table entries are logistic regression coefficients on the key independent variable (average high school English grade). Full models include all demographic, achievement, and family background measures reported in Table 1 models. Standard errors are in parentheses. Results of a two tailed test of significance are as follows: * p<.10 **p<.05 ***p<.001.

Figure 2.1. The effect of communication skills acquired in high school on engagement



Predicted probabilities are calculated based on the models in Table 1. All independent variables other than the verbal skills measures are held at their means.

Chapter 3

Practice Make Participants: The Effect of Communication Skill Practice on Political Efficacy

3.1 Introduction

In the previous chapter, I demonstrated that there is a strong relationship between verbal communication skills acquired in high school and later political behavior, net of possible confounds such as pre-existing ability, non-cognitive skills, family public engagement, family social class, and educational attainment. The relationship between verbal communication skills and political engagement is robust to alternative model specifications and across alternative measures of verbal skills. Human capital acquired in school across subjects – in the form of general verbal skills – matters for citizenship.

With that relationship established, in this chapter and the next two, I dig in and explain it. Why is verbal achievement associated with political engagement in early adulthood? Can politically important communication learning really take place in any context, even in subjects unrelated to civics? Finally, is the relationship truly causal, and can we therefore expect to alter

the political attitudes and behavior of young people by offering them opportunities to practice and acquire communication skills in their classrooms?

I turn now to these questions and to the dissertation's second hypothesis: *actively practicing politically useful communication skills should positively affect related forms of political efficacy and motivation to engage in related civic activities, even if the practice does not take place in a political or civic context*. I expect that the relationship between verbal learning in school and political engagement is mediated by efficacy, but not simply by general feelings of internal political efficacy. Following developmental psychology (e.g. Piaget and Inhelder 1969; Eccles et al. 1983; Bandura 1986), I propose that scholars interested in the development of political engagement should pay attention to adolescents' opportunities to build skill-specific forms of political efficacy. When an adolescent practices a politically useful skill, like speaking publicly, debating, or writing correspondence, her feelings of efficacy related to that skill increase. Her newly developed confidence about writing or speaking in general contexts translates into *skill-specific political efficacy*: confidence about her ability to effectively use that skill in a political context.

For example, I hypothesize that a student who practices writing formal correspondence in any subject in school will feel more confident in her ability to write a letter to a government official, and that a student who practices public speaking in any subject in school will feel more confident in her capacity to speak at a community meeting. Multiple opportunities to develop politically useful skills like speaking and writing accumulate, eventually making the student feel more confident about her capacity to exchange and comprehend political information and ideas, and to express herself in the political domain, in short, to participate – this is internal political

efficacy. In this chapter, I examine the effect of such learning opportunities on various forms of political efficacy for high school students.

Recent research in undergraduate political science courses shows that when college students have opportunities to actively practice and build politically useful skills, their internal political efficacy is enhanced. Skill practice has a more powerful effect on efficacy than other instructional practices in political science courses (Beumont 2011). Although the author of this study, Beaumont, does not interpret her results as such, showing active practice of skills to be the most effective instructional technique in political science courses is strong evidence in support of a developmental theory of political learning. Just as McIntosh, Hart, and Youniss (2007) show that children's active experiences *within* families are the key to understanding family socialization, Beaumont's work shows us that active experiences *within* political science courses are critical to understanding the development of efficacy. I hypothesize that such active skill learning does not have to occur in a political science or civics classroom to have the same effect.

Testing this hypothesis about non-civics learning has important implications for theory and practice. While it is valuable to know which instructional practices are most effective in civics and political science courses, the bulk of students' educational experience takes place outside of such environments – in math, reading, English, science, and other courses. Scholars have repeatedly found that civics instruction alone does not seem to explain the perennial relationship between education and engagement. In Chapter Two, I added to this scholarship, showing no effect for civics coursework on turnout, but a strong effect of communication skills, one that persists when civics coursework is controlled. The point here is that, though high-quality learning experiences in political science and civics can and do affect political efficacy and

engagement, these experiences make up such a small portion of the total educational experience of most young people, it should not be surprising that they do not explain the strong and sizable relationship between education and political outcomes.

If instead opportunities to practice and acquire politically useful skills across subjects enhance efficacy and engagement, then scholars must look more globally at the educational experience to solve puzzles about education's political importance. And if, in fact, non-civics learning affects citizenship, then policymakers can and should consider the democratic implications of education policies beyond those focused on civics.

Therefore, the theoretical goal of this chapter and the next two is to test the idea that communication learning opportunities outside of civics can affect political efficacy and engagement. The second goal is to rigorously test the claim that the relationship between communication learning in school and political engagement is causal.

In this chapter, I examine the effect of high school students' reports of the active communication learning opportunities they have had in the past school year on various forms of political efficacy. Of course, students are not randomly assigned to experience learning opportunities or activities in school. Students who report never practicing speaking or writing in the classroom may not be an appropriate comparison group for those who have. They may differ in ways that are correlated with political engagement. Causal claims that rest solely on regression analysis of cross-sectional data are vulnerable to biases from self-selection of subjects into the "treatment" condition. To address in this chapter I approximate an experiment using a multivariate matching technique.

This chapter proceeds as follows: first I describe the nationally representative data set and variables I use for the analysis. Then, I explain the analytic technique I use to identify effects on efficacy. Finally I present the results of the analysis, showing that practicing communication skills in school, no matter the subject or course, increases multiple forms of political efficacy.

3.2 Data and Variables

This analysis tests whether classroom opportunities to practice communication skills positively affect students' attitudes about their capacity to participate in politics. The data used to test these hypotheses are taken from the National Household Education Survey of 1999 (NHES), a phone survey of a national random sample of American adolescents and their parents collected by the U.S. Department of Education's National Center for Education Statistics. The NHES is collected annually, but the 1999 survey contained a unique battery of civics items, including those I use in this analysis.

Adolescents' opportunities to practice communication skills (the treatments) are operationalized as self-reports of experiences they have had in the last school year. Adolescent respondents report whether any course they have taken in the past school year has required them to write a letter, to give a speech, or to engage in debate. These learning opportunities are not confined to the students' social studies or civics courses. The theory advanced here suggests that an opportunity to develop a politically relevant skill *in any context* should matter for the way students feel about their capacity to exercise that skill in a political scenario.

Following the theoretical framework of the dissertation, I measure the effects of these opportunities on skill-specific forms of efficacy: measures of students' estimation of their

capacities to engage in specific political activities. The NHES provides data on two such attitudes. Students are asked about their confidence in their capacity to write a letter to a government official and make a comment or statement at a community meeting.²⁷

My analysis also takes advantage of rich demographic data about the adolescent, collected in the parent survey, including the adolescent's race, ethnicity, gender, age, grade in school, and whether or not he or she currently has a disability. The parent also reports his or her own level of educational attainment, family income, whether or not the family owns a home, and whether or not the family has received federal assistance (WIC or AFDC). Finally, the adolescent student reports the degree to which he or she enjoys school, feels that classroom discipline is maintained, and the degree to which students and teachers respect each other – indicators of school quality. These demographic and school quality data are used to model assignment to the treatment condition. I now turn to explaining that model and my identification strategy.²⁸

3.3 Identifying the Effect of Skill Practice with Observational Data

Of course, in real schools, student respondents are not randomly assigned to receive the treatment of communication skill practice. So, the students who report not having the treatment

²⁷ Though students in grades six through twelve are surveyed, the political efficacy items are asked only of high school students (those in grades nine through twelve), so my analytic sample is restricted to high school students. Additionally, the original sample includes small proportions of students who are home schooled or attend private school. I also remove them from the sample as I am chiefly interested in the distribution and effects of skill practice opportunities in public schools.

²⁸ All questionnaire items can be found in Appendix B.

may not be an appropriate counterfactual, or control group, for those who report having had the treatment. The students in these two groups may be different in other ways that may be correlated with the efficacy outcomes. To get an unbiased estimate of the causal effect of the treatment on efficacy, in this analysis I approximate an experiment using a multivariate matching technique. This section details my identification strategy.

The basis of this strategy is the Neyman-Rubin-Holland causal model (Rubin 2006, 1974; Holland 1986; Sekhon 2009), in which the causal effect of the treatment is the difference between the potential outcomes under treatment and control conditions. The potential outcome under the treatment condition for unit i is denoted Y_{i1} , and Y_{i0} under the control condition. For unit i the treatment effect is the difference between these potential outcomes:

$$\tau_i = Y_{i1} - Y_{i0} \quad (1)$$

The fundamental problem of causal inference (Holland 1986) is that we never observe both potential outcomes; individuals cannot be simultaneously assigned to the treatment and control conditions. With randomized experiments, we can compare the average observed outcomes for groups of individuals in the treatment and control conditions, to identify the average treatment effect (ATE).

$$\tau_{ATE} = E(Y_i | T_i = 1) - E(Y_i | T_i = 0) \quad (2)$$

Where $T_i = 1$ indicates treatment assignment and $T_i = 0$ indicates control assignment. Random

assignment ensures exchangeability, or that the individuals in the treatment and control conditions, on average, have the same potential outcomes, because assignment is independent from any individual characteristics.²⁹

In the real world, a host of individual characteristics are correlated with whether or not individuals receive the “treatment” of interest, violating this assumption of exchangeability. However, by strengthening the assumption, the same logic of comparing average outcomes can be applied, and the causal effect of the treatment can be identified with observational data. Rather than simply assuming that treatment assignment is independent from the outcome, we must assume that assignment is independent from the outcome, conditional on observable individual characteristics, strong ignorability (Rosenbaum and Rubin 1983; Morgan and Winship 2007). If this assumption is met, then the average treatment effect for individuals who are treated (ATT) can be estimated by comparing the average outcome for individuals who are treated to the average outcome for individuals who are not treated, but who have the same covariate profile (observable characteristics) as the treated individuals:

$$\tau_{\text{ATT}}(T_i = 1) = E[E(Y_i | X_i, T_i = 1) - E(Y_i | X_i, T_i = 0) | (T_i = 1)] \quad (3)$$

²⁹ Identifying the treatment effect requires that we assume exchangeability. A second assumption is also required: the stable unit treatment value assumption (SUTVA), which indicates that the potential outcome of an individual is not affected by the treatment status of any other individual. Violations of SUTVA are important, but are less of a concern than exchangeability violations in my research. An exchangeability violation would occur if the students who get opportunities to practice skills in school were different from students who do not get to practice those skills. Given educational inequality, this is very likely. A violation of SUTVA would occur if a student’s political efficacy were affected by whether or not other students have opportunities to practice skills. This is possible, but not as likely. Therefore, in this chapter and the two that follow, I focus my attention on protecting against violations of exchangeability.

In other words, rather than simply controlling for observed covariates, in this chapter I use them to match subjects who report receiving the treatment to similar subjects who report no treatment. Unlike traditional regression analysis, matching analysis requires no assumptions about functional form, allowing the causal effect to vary across subjects. This approach yields a counterfactual to the treated group that is as similar as possible.

When using matching techniques in general, the aim is to achieve balance conditional on the covariates X_i between the treated and control conditions. Once balance is achieved between the treatment and control conditions, any remaining differences in the group means in the outcome of interest are considered the causal effect of the treatment. I employ a specific matching technique: genetic matching, which uses an evolutionary search algorithm to determine the weight given to each covariate (Diamond and Sekhon N.d; Sekhon 2011).³⁰ This is the same matching method that has been applied in recent studies of education and political engagement (Mayer 2011; see also Kam and Palmer 2008, 2011; Henderson and Chatfield 2011).³¹

Though some matching analyses take a “kitchen sink” approach, matching on all

³⁰ This technique is a nonparametric generalization of the more common propensity score and Mahalanobis distance matching techniques, and often creates better balance between control and treatment groups. Control and treatment individuals are matched based on the Mahalanobis distance. (Individuals with similar characteristics will have small distances will be matched.) The program searches for weights for each covariate that maximize balance between matched individuals.

³¹ The authors of these studies hotly debate whether or not the relationship between college educational *attainment* and political engagement is causal. Their arguments rest on alternative specifications of matching models and identification strategies. But all appear to agree that conducting statistical matching in a way that maximizes balance, and the use of genetic matching for that purpose, is desirable.

available covariates, ideally, the matching model should be specified based on empirically tested theory about the process that generates the exposure to the treatment. I specify my model of receipt of the treatment (opportunity to practice a communication skill in school) on scholarly knowledge of the process that generates general educational inequality. At the most basic level, inequalities in resources and outcomes are pervasive in American education along race and class lines. But more specifically, skill practice opportunities like those I examine here fall under a larger category in educational theory often called opportunities to learn (Oakes 2005).

Opportunities to learn are experiences students have in the classroom to actively participate in a learning activity. Empirical research has shown that such opportunities vary by student race and socio-economic status, between and within schools. The systematically unequal distribution of opportunities to learn is also structured by school quality, including exposure to materials (Applebee et al. 2003), and teacher characteristics and decisions (Rivkin et al. 2005).

Opportunities to practice politically useful communication skills should follow similar distributional patterns to all other opportunities to learn, and so we can expect students in relatively advantaged demographic groups and in relatively superior educational environments to be more likely to experience them. Therefore, I specify the matching model based on student demographic characteristics: race, gender, grade in school, whether or not the student has a recognized disability, family income, parental educational attainment, family homeownership, and family federal assistance. The model also includes standard variables capturing school quality: whether or not the student enjoys learning at the school, feels the teachers respect him or her, and feels that discipline is well handled in the school.

Because the NHES data are collected at the household rather than the school level they do not include objective measures of school quality. The variables I use here are subjective reports of the quality of the educational environment, and thus capture unobserved student characteristics along with school characteristics. For example, a student with a higher IQ for whom learning comes easily may be more likely to report that they enjoy learning. Or a student who does not act out in class may be more likely to feel respected by teachers.

If these models were being mined for evidence of effects of *school quality* on skill practice opportunity, this subjectivity would be problematic. But in this analysis, subjective reports of quality actually offer an additional advantage. Since these variables are being used to generate a matched sample of students, including these unobserved characteristics is not a concern. Rather, it helps control for additional confounders, helping me to more accurately identify the effect of skill practice opportunities on otherwise similar students.

As I stated above, the key evaluative criteria for matching analyses is balance on observable covariates. Figures 3.1 – 3.3 display the balance on the predicted probabilities of receiving each treatment (speech giving, debate, and letter writing). These figures show that after matching, the predicted probability of receiving the treatments is similar, but not identical for treatment and control groups. The adolescents in the treatment groups are still slightly more likely to receive the treatment. I caution readers to keep these differences in mind when

interpreting the results.³² Tables 3.1, 3.2, and 3.3 present a full set of balance statistics for the sample before and after matching. Looking at each covariate provides a more nuanced picture.

Across treatments, balance is improved on many covariates, many of which matter most for treatment assignment, such as gender, indicators of family poverty (federal assistance and very low parent education), the adolescent's disability status, and Latino ethnicity. These are important factors in predicting who gets active communication practice in the classroom. But, even when balance is improved, detectable differences between treatment and control remain for many variables. And, on other variables (e.g. indicators for grade in school, higher income levels, and the student's subjective assessment of the school climate) balance actually worsens. Keep in mind that the genetic matching procedure maximizes balance overall, but certainly does not guarantee balance on each individual covariate. Additionally, the p-values reported in Tables 3.1, 3.2, and 3.3 can be unreliable when there is a lack of common support, or may be the result of large sample sizes rather than meaningful differences. With those caveats in mind, overall, the models estimating exposure to speech giving, debate, and letter writing opportunities produce well-balanced, though imperfect, control and treatment groups for comparison. Visual inspection reveals good balance for the mean of each covariate, and good agreement in propensity distribution between the two treatment levels. While several of the marginal t-statistics have low

³² The balance achieved here is imperfect, but it is superior to that in some other published work on the effect of education and political engagement that uses statistical matching (Kam and Palmer 2008).

p-values, this result seems to indicate a difference that is statistically, yet not substantively, important.³³

[Figures 3.1-3.3 about here]

[Tables 3.1-3.3 about here]

3.4 The Effect of Communication Practice on Political Efficacy

I now turn to the results of the matching analysis. A comparison of the adolescents in the matched treatment and control conditions shows that, as expected, all three learning opportunities – giving speeches, participating in debates, and writing formal letters – have positive, significant effects on related forms of political efficacy. Students who are given the opportunity to give a speech in any class in high school are nine points more likely to report that they would feel confident making a statement at a public meeting. Students who have the opportunity to participate in a debate are eight points more likely to report feeling confident about speaking at a public meeting. Students who have the opportunity to write a letter to someone they do not personally know are four points more likely to say they feel confident about their ability to write to a government official. These effects are present once students have been matched on the covariates discussed above, which, if omitted, could introduce bias into the effect estimates.

³³ As has been found in the literature on statistical matching, in this case the balance achieved after genetic matching is superior to that achieved after traditional propensity score matching. Though, it too produces positive, significant treatment effects for all three treatments.

These basic communication skills – speech giving, debating, and letter writing – are all clearly politically useful, but they can be taught and learned across content areas. The learning opportunities I analyze here take place in multiple subjects. It is likely that most of these learning experiences occur in subjects beyond civics, given the relatively limited opportunities in most high school for formal civics instruction (with students taking on average one semester of civics during four years of high school).

[Table 3.4 about here]

3.5 Conclusion

Practicing a communication skill matters for the related form of political efficacy. Young people who have opportunities to practice communication skills in school, in any subject, feel more confident that they can engage in political activities requiring the skill. Differences in these specific forms of political efficacy remain detectable after a rigorous statistical matching procedure, in which students who receive these learning opportunities in real high school classrooms are matched to students who do not have the opportunities, based on individual demographic characteristics, family socioeconomic status, and subjective measures of school quality.

It is not surprising, given what is known about practicing political skills in adulthood, that such practice is similarly important in adolescence, and this developmental approach to civic engagement has important implications for research and practice. First, scholars of political socialization, whether focusing on schooling or other contexts, should attend more closely to psychological theories of human growth and development (a challenge to the field issued by

Merelman in 1972). We should take care to explicitly address the assumptions we make about socialization and reach beyond the social learning perspective. Expanding our theoretical toolkit can lead to new insight about socialization processes, and as this analysis shows, about the processes in youth that structure participatory patterns.

The nationally representative data, analyzed in this chapter and the previous chapter, offer valuable insights about the effects of verbal achievement and learning opportunities on political engagement. They show that what is done and what is learned in school matters for citizenship. But these data also come with limitations. The NHES captures a cross section of students in one point in time. Students are asked to recall their experiences in the past school year only. And the survey questions on the NHES do not ask students about the quantity of practice in the past year. In Chapter Two, I showed that the effects of verbal achievement on engagement endure over time, but further inquiry is needed to gauge the cumulative effects of multiple opportunities and multiple years of practice.

Additionally, though I have taken steps in the analyses presented so far to make valid causal inferences with the observational data, there should still be some doubt that these relationships are truly causal. Scholars continue to debate the appropriate matching technology whether it is advisable to match “treated” and “control” subjects using a saturated model with all possible covariates, or whether that approach actually induces bias, and a more parsimonious model should be used instead and whether scholars should identify the average treatment effect on the treated or on control, in a sense which should be matched to which (See (Mayer 2011; Kam and Palmer 2008, 2011; Henderson and Chatfield 2011). The choices I make here: to use genetic matching, to match using a relatively parsimonious, theoretically guided set of

covariates, and to identify the treatment on the treated effect can only take us so far. As the balance statistics I present indicate, some bias from observable characteristics remains. More importantly, no matter the model and matching technology used, matching still only corrects for selection on observable characteristics, and only approximates an experiment. Just as with traditional regression analysis, the causal interpretation of the results can and should be met with skepticism. The importance of the bias that remains after matching is unknown.

Therefore, I believe these results must be read together with experimental results, and should be viewed primarily as a check of the generalizability of experimental findings. With that in mind, now I turn to two experimental studies of the same theory. In both, students who are randomly assigned to practice communication skills exhibit increased political efficacy and engagement. These experiments, which I present in Chapters Four and Five, cannot offer the external validity achieved with the nationally representative survey data I use in this chapter and Chapter Two, but they do allow me to identify causal effects of practicing politically useful communication skills without the concern that exchangeability has been violated and thus constitute the most rigorous, internally valid test of this dissertation's causal hypotheses.

Table 3.1 Balance before and after matching (treatment: speech giving)

	Before Matching			After Matching (Speech)		
	Treatment Mean	Control Mean	T Test P-value	Treatment Mean	Control Mean	T Test P-value
Male	.47	.52	.06	.50	.50	.56
Age	15.92	15.80	.00	15.89	15.89	.05
Hispanic	.15	.21	.00	.17	.16	.00
Disabled	.19	.23	.00	.18	.18	.97
Grade 9	.25	.32	.00	.26	.28	.00
Grade 10	.25	.25	.88	.25	.27	.04
Grade 11	.24	.24	.85	.23	.24	.04
Black	.17	.14	.03	.16	.15	.01
American Indian	.01	.01	.32	.01	.01	.03
Asian	.03	.03	.95	.03	.02	.01
Other Race	.03	.02	.10	.03	.03	.00
Latino	.09	.14	.00	.11	.11	.37
Family Owns Home	.74	.72	.17	.74	.74	.17
WIC Recipient	.04	.05	.22	.04	.04	1
AFDC Recipient	.04	.06	.02	.05	.05	.65
Parent Ed: Less than H.S.	.08	.12	.00	.09	.09	.17
Parent Ed: H.S. Diploma	.26	.28	.28	.27	.27	.18
Parent Ed: Some College	.31	.30	.84	.31	.31	.62
Parent Ed: College Degree	.16	.14	.18	.15	.15	.01
Income \$5,000 or less	.02	.03	.15	.02	.02	.08
Income \$5,001-10,000	.04	.05	.04	.04	.04	1
Income \$10,001-15,000	.05	.06	.03	.05	.05	.09
Income \$15,001-20,000	.05	.06	.49	.05	.05	.10
Income \$20,001-25,000	.08	.08	.37	.08	.08	.42
Income \$25,001-30,000	.07	.08	.39	.07	.08	.03
Income \$30,001-35,000	.07	.07	.73	.07	.06	.01
Income \$35,001-40,000	.08	.07	.13	.07	.07	.00
Income \$40,001-50,000	.11	.13	.15	.12	.12	.65
Income \$50,001-75,000	.21	.21	.68	.21	.21	.00
Enjoys School (Agree)	.67	.62	.01	.70	.71	.07
Enjoys School (Disagree)	.13	.18	.00	.13	.14	.09
Enjoys School (Strong. Dis.)	.03	.05	.01	.03	.02	.33
Good Discipline (Agree)	.61	.61	.87	.64	.68	.00
Good Discipline (Disagree)	.17	.18	.53	.16	.15	.00
Good Discipline (Strong. Dis.)	.03	.03	.33	.02	.02	.14
Feels Respected (Agree)	.53	.54	.34	.55	.59	.00
Feels Respected (Disagree)	.28	.27	.61	.28	.27	.03
Feels Respected (Strong. Dis.)	.06	.06	.88	.05	.04	.00

Table 3.2 Balance before and after matching (treatment: debate)

	Before Matching			After Matching (Debate)		
	Treatment Mean	Control Mean	T Test P-value	Treatment Mean	Control Mean	T Test P-value
Male	.49	.54	.00	.50	.51	.00
Age	15.87	15.93	.03	15.87	15.93	.03
Hispanic	.16	.22	.00	.17	.15	.00
Disabled	.19	.25	.00	.19	.18	.01
Grade 9	.26	.31	.01	.27	.28	.03
Grade 10	.26	.21	.01	.25	.24	.00
Grade 11	.24	.23	.72	.25	.23	.06
Black	.15	.20	.00	.15	.15	.01
American Indian	.01	.01	.77	.01	.01	1
Asian	.03	.03	.87	.03	.03	.00
Other Race	.03	.03	.44	.03	.03	1
Latino	.09	.15	.00	.11	.11	1
Family Owns Home	.75	.68	.00	.74	.76	.00
WIC Recipient	.04	.07	.00	.04	.03	.00
AFDC Recipient	.04	.08	.00	.04	.03	.18
Parent Ed: Less than H.S.	.08	.13	.00	.09	.09	.00
Parent Ed: H.S. Diploma	.25	.31	.00	.26	.27	.00
Parent Ed: Some College	.30	.32	.43	.31	.32	.00
Parent Ed: College Degree	.17	.11	.00	.15	.15	.00
Income \$5,000 or less	.02	.04	.03	.02	.02	.00
Income \$5,001-10,000	.04	.07	.00	.04	.04	.55
Income \$10,001-15,000	.04	.08	.00	.05	.05	.41
Income \$15,001-20,000	.05	.06	.17	.05	.05	.32
Income \$20,001-25,000	.07	.10	.05	.08	.08	.32
Income \$25,001-30,000	.07	.09	.22	.08	.07	.01
Income \$30,001-35,000	.07	.06	.44	.07	.05	.00
Income \$35,001-40,000	.08	.07	.32	.07	.07	.00
Income \$40,001-50,000	.12	.11	.46	.12	.11	.58
Income \$50,001-75,000	.21	.18	.05	.20	.22	.00
Enjoys School (Agree)	.66	.62	.03	.67	.73	.00
Enjoys School (Disagree)	.14	.18	.03	.14	.13	.01
Enjoys School (Strong.Dis.)	.03	.05	.01	.03	.02	.02
Good Discipline (Agree)	.61	.60	.52	.63	.70	.00
Good Discipline (Disagree)	.17	.17	.80	.16	.13	.00
Good Discipline (Strong. Dis.)	.03	.04	.13	.03	.02	.00
Feels Respected (Agree)	.53	.52	.32	.55	.59	.00
Feels Respected (Disagree)	.28	.29	1	.27	.27	1
Feels Respected (Strong. Dis.)	.06	.06	.88	.05	.04	.00

Table 3.3 Balance before and after matching (treatment: letter writing)

	Before Matching			After Matching (Letter)		
	Treatment Mean	Control Mean	T Test P-value	Treatment Mean	Control Mean	T Test P-value
Male	.46	.51	.00	.49	.50	.01
Age	15.78	15.92	.05	15.85	15.88	.01
Hispanic	.20	.16	.01	.15	.16	.03
Disabled	.20	.20	.01	.19	.19	.01
Grade 9	.32	.25	.00	.28	.27	.01
Grade 10	.24	.25	.35	.25	.25	.64
Grade 11	.23	.24	.36	.24	.24	.00
Black	.16	.16	.67	.15	.15	.53
American Indian	.01	.01	.34	.01	.01	1
Asian	.03	.03	.74	.03	.03	.08
Other Race	.02	.03	.38	.03	.03	.31
Latino	.12	.10	.04	.10	.11	.01
Family Owns Home	.71	.75	.01	.75	.74	.11
WIC Recipient	.06	.04	.01	.04	.04	.13
AFDC Recipient	.05	.05	.82	.04	.05	.00
Parent Ed: Less than H.S.	.11	.09	.06	.08	.08	.33
Parent Ed: H.S. Diploma	.28	.26	.16	.27	.26	.71
Parent Ed: Some College	.30	.31	.80	.31	.30	.55
Parent Ed: College Degree	.14	.16	.16	.15	.15	.41
Income \$5,000 or less	.02	.02	.56	.02	.02	.32
Income \$5,001-10,000	.05	.04	.41	.04	.04	.02
Income \$10,001-15,000	.05	.05	.50	.05	.05	.01
Income \$15,001-20,000	.07	.05	.02	.05	.05	.16
Income \$20,001-25,000	.08	.08	.63	.08	.08	.32
Income \$25,001-30,000	.09	.07	.03	.07	.08	.02
Income \$30,001-35,000	.06	.07	.23	.67	.67	1
Income \$35,001-40,000	.08	.07	.81	.07	.07	.04
Income \$40,001-50,000	.12	.12	.76	.12	.12	.16
Income \$50,001-75,000	.19	.22	.08	.20	.21	.01
Enjoys School (Agree)	.65	.56	.79	.69	.67	.03
Enjoys School (Disagree)	.13	.16	.02	.14	.15	.31
Enjoys School (Strong.Dis.)	.03	.04	.03	.02	.03	.00
Good Discipline (Agree)	.61	.61	.79	.69	.63	.00
Good Discipline (Disagree)	.15	.18	.05	.14	.17	.00
Good Discipline (Strong. Dis.)	.03	.03	.82	.02	.02	.02
Feels Respected (Agree)	.53	.53	.65	.57	.55	.01
Feels Respected (Disagree)	.28	.28	.82	.30	.29	.32
Feels Respected (Strong. Dis.)	.06	.06	.64	.03	.05	.00

Table 3.4 Genetic matching estimates of the treatment effect

	Effect of Speech on Meeting Efficacy	Effect of Debate on Meeting Efficacy	Effect of Letter on Letter Writing Efficacy
Estimate	.09*	.08*	.04*
Abadie-Imbens Standard Error	(.02)	(.02)	(.01)

Table entries are differences in mean outcomes between matched treatment and control groups. Results of two tailed tests of significance are indicated as follows: $p < .05^*$.

Figure 3.1 Predicted probability of giving a speech for matched treatment and control groups

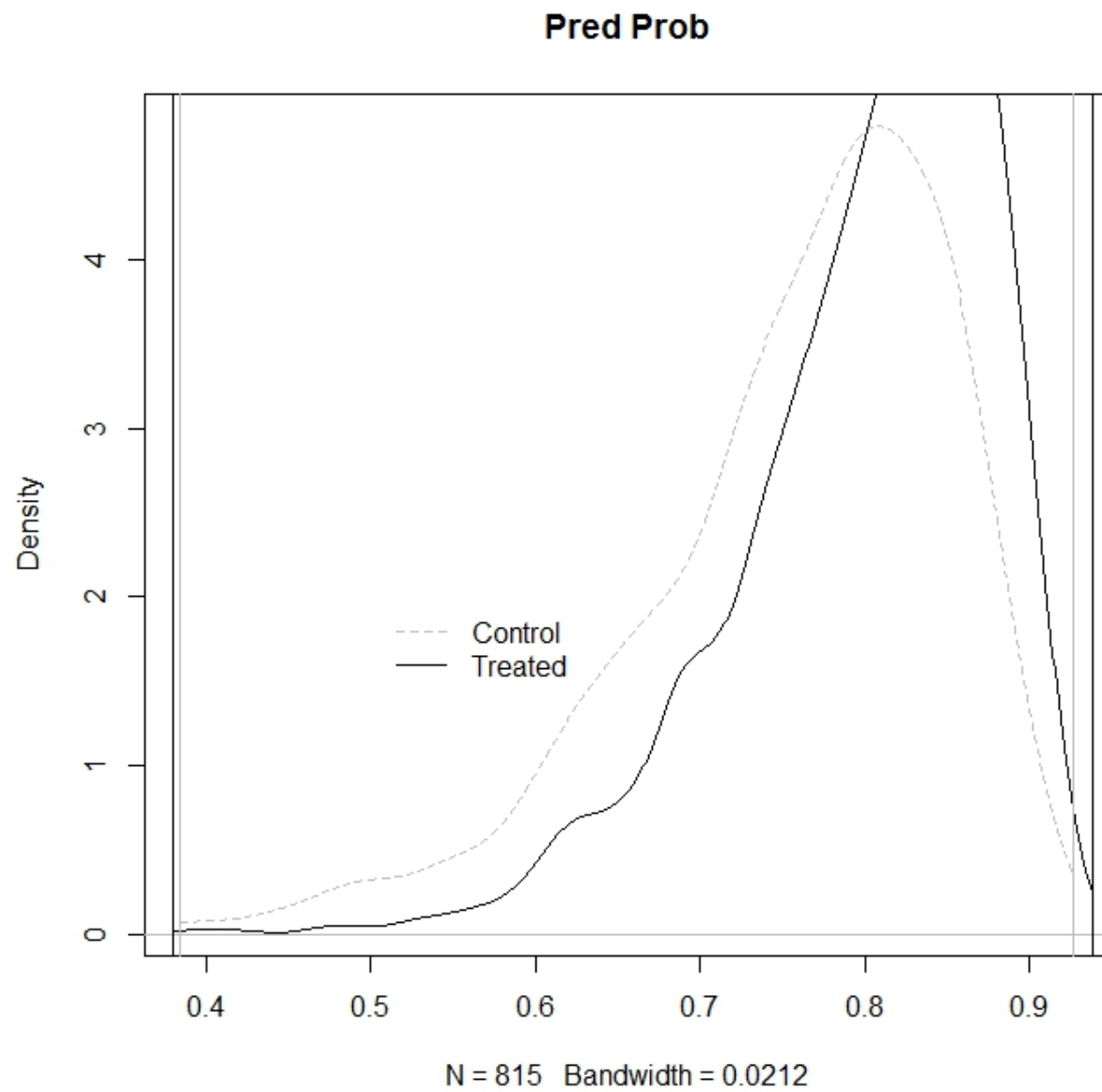


Figure 3.2 Predicted probability of participating in debate for matched treatment and control groups

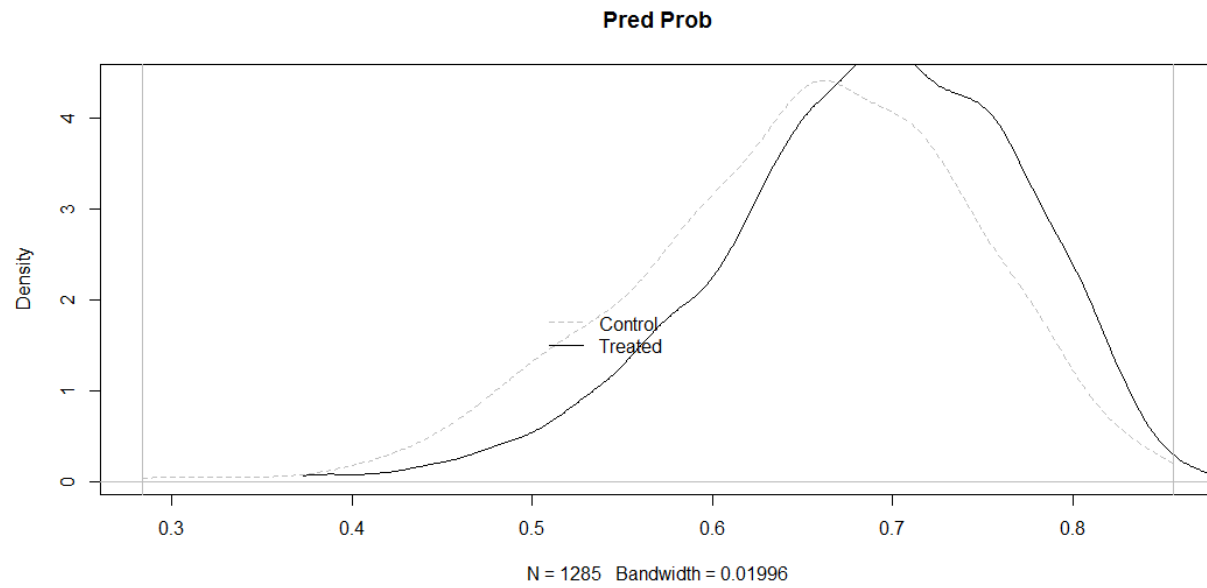
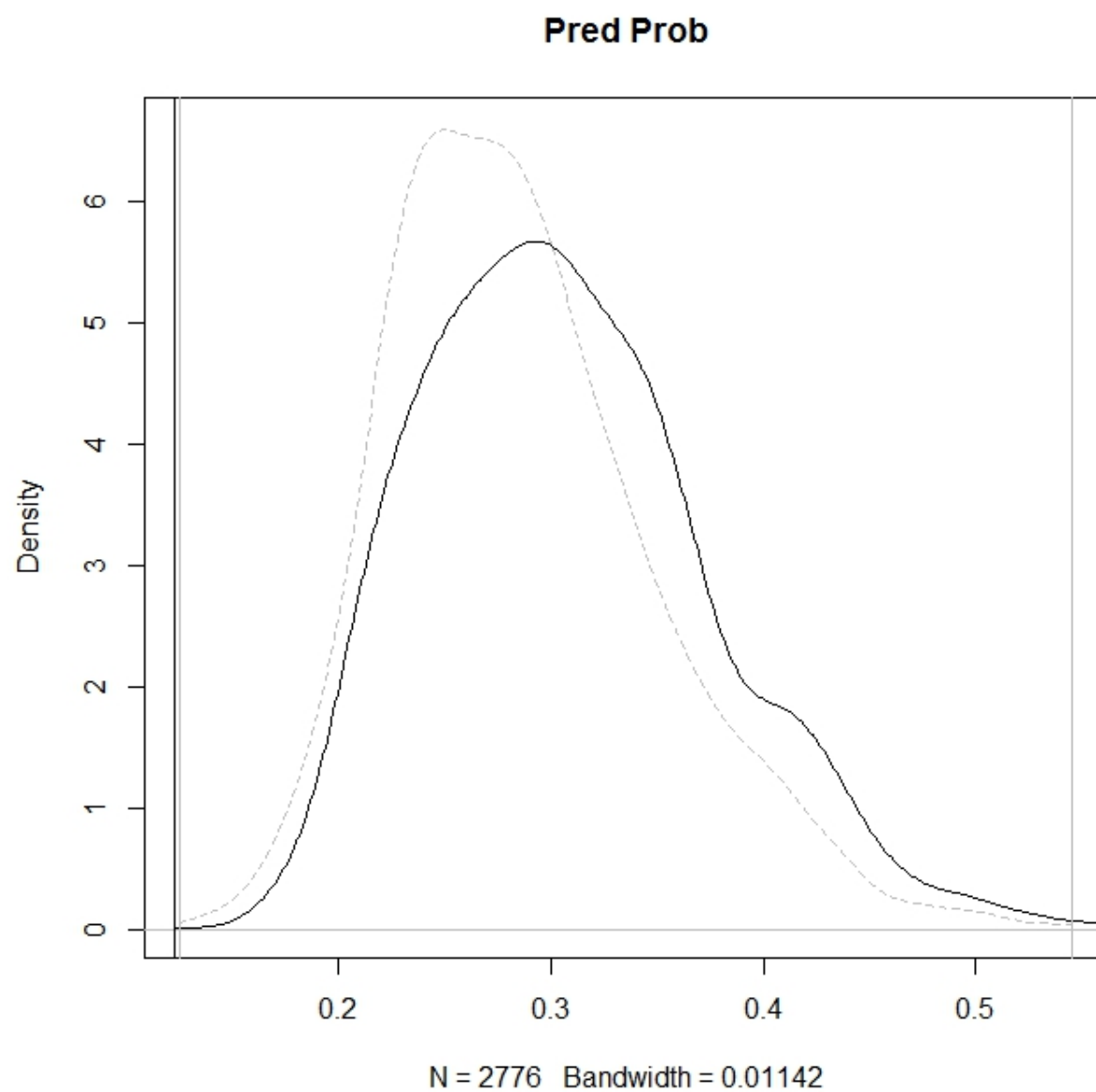


Figure 3.3 Predicted probability of writing a letter for matched treatment and control groups



Chapter 4

The Effect of Writing Practice on Engagement: A Field Experiment with Low-Income Middle School Students

4.1 Introduction

In the previous two chapters, I presented evidence from analyses of two nationally representative survey databases that the practice and acquisition of communication skills in school positively affect many forms of political efficacy and adult political engagement behaviors. In Chapter Two I showed that general communication skills acquired in school, outside of civics and social studies, are strongly associated with later political engagement. In Chapter Three I presented quasi-experimental evidence that opportunities to practice politically useful communication skills like debate, speech giving, and correspondence writing affect skill-specific forms of political efficacy.

The results presented so far show that the association between communication skill practice in school and political engagement is substantively strong, and is detectable in the population of Americans at different points in time using different measures of engagement. In both observational studies I use quasi-experimental strategies to infer causality – statistical matching, longitudinal data analysis, and careful specification of regression models. But even

with these approaches, there should be doubt about whether the association in the population is truly causal. As I discussed in Chapter Three, the identification strategies using observational I have employed require strong ignorability – that we assume that the individuals in the treatment and control conditions are assigned independently from the outcome, conditional on observable covariates. But the possibility remains that this assumption is violated, and these strategies cannot ensure that students who get to practice communication skills in school and students who do not are alike in ways we do not observe. This selection problem is solved by experimental research because it allows the researcher to randomly assign subjects to receive the treatment, ensuring that assignment is independent from the potential outcomes (Rubin 2006, 1974; Holland 1986; King, Keohane, and Verba 1994; Shadish, Cook, and Campbell 2002; Sekhon 2009).

In this chapter and the next I focus on making valid causal inferences about the effects of school-based communication skill practice with randomized trials. I present the results from two small-scale field experiments, one with middle school students (this chapter) and one with college students (Chapter Five). In both experiments, I randomly assign adolescent subjects to conditions in which they practice a politically relevant communication skill or to a control condition. In both studies, I find that practicing the communication skill, even once, positively affects subjects' political efficacy and engagement.

4.2 Hypotheses

Overall, the theory tested in this section of the dissertation is that practicing politically useful communication skills in school positively affects political engagement, and that this effect exists whether or not the practice occurs in civics or social studies courses. However, the effects should be strongest when the practice is most closely related to the political behavior of interest. Recall from the theoretical model that practicing a particular skill should affect related skill-specific forms of efficacy, which in turn should affect motivation and behavioral choices.

These effects, of practice on efficacy, motivation, and behavior, should be increasingly strong when the practice, efficacy, and behavior are more similar or specifically related to the

same action. The specificity of practice and attitudes determines how predictive they are of behavior (Bandura 1997, 2005; Ajzen and Fishbein 1980). We should observe this phenomenon as the domain of the action grows more similar – for example practicing writing a letter to a pen pal or an employer (not in the political domain) should affect efficacy writing to elected officials (in the political domain), and subsequently motivation to write to officials voluntarily, because the skill of writing correspondence is similar. But, practicing actually writing to officials about politics should have a stronger effect.

To put the causal assertions of the theoretical model to an empirical test, I focus in this chapter on one politically useful communication skill: writing correspondence. This skill is clearly politically useful; writing to public officials is an important, though relatively rare form of political engagement. And, there is a clear, intuitive connection between the common instructional practice of having students practice correspondence writing and this political activity. And, we have already seen empirical evidence that this skill operates as the theoretical model predicts it should; the observational data analyzed in Chapter Three show an association between practice writing correspondence and students' increased feelings of related political efficacy: their judgment of capability to write letters to elected officials. In this chapter, I put the dissertation's second hypothesis to the test:

H2: Actively practicing politically useful communication skills should positively affect related forms of political efficacy and motivation to engage in related civic activities, even if the practice does not take place in a political or civic context.

More specifically, because I manipulate students' opportunities to practice writing correspondence, I test three related research hypotheses in this chapter:

H2.1: Practicing a politically useful communication skill (writing correspondence) will increase adolescents' skill-specific political efficacy: their estimate of their ability to write effective correspondence to elected officials.

H2.2: Practicing a politically useful communication skill (writing correspondence) will increase adolescent students' motivation to engage in related political activities (intent to write to elected officials as adults and choice to write to the Governor immediately following the intervention).

H2.3: The effect of skill practice on political efficacy and political motivation will be detectable whether or not the practice itself is political in nature, but the effect will be larger for political skill practice than non-political skill practice.

4.3 Experimental Design

To test the above hypotheses, I conducted an experiment with adolescents in a private, urban school in Milwaukee, Wisconsin. The middle school students in the school were individually randomly assigned to one of three experimental conditions:

- Political Practice Condition: students read arguments for and against changing the Wisconsin legal driving age to 18 and then wrote an email to Governor Jim Doyle about their opinion on the issue.
- Non-political Practice Condition: students read a description of the research of a University of Wisconsin professor of pediatrics about the safety of teen driving and wrote an email to the professor about their opinion of her research.
- Control Condition: students read a fact sheet about the country Turkey and completed an activity in which they ranked the facts from most to least interesting.

All students completed brief pre-treatment and post-treatment questionnaires. (Questionnaire items are listed in Appendix C.) Questionnaires and interventions were delivered

to the students through a computer-based protocol. The trial was designed to feel like an authentic classroom activity to the students: they worked in a familiar instructional setting, with their teacher present. Students worked at their own pace on the study at individual computer terminals in the school library. Teachers and the researcher circulated throughout the library to ensure students were on task and working independently. Also, to maximize the external validity of the interventions for the adolescent subjects, the students in the treatment conditions wrote emails rather than traditional letters.

4.4 Setting and Sample

The study was conducted in a large, urban, Catholic school in Milwaukee, Wisconsin that serves students in kindergarten through ninth grade. A sizable majority of the students are Latino and pay the school's tuition with public vouchers provided by the state to Milwaukee residents who meet income requirements. All students in the school's middle school reading courses were included in the study, which took place during the students' reading period.³⁴

This school was selected for the experimental study for a number of reasons. First, its large size made it possible to conduct the entire trial in one school, thus controlling school-specific factors that might affect the intervention or influence outcomes of interest. Second, the school's instructional strategy and demographic composition maximize the chance of detecting an effect of a single instance of communication skill practice. Such practice occurs in normal daily instruction across subjects and grades, but not all students have equal exposure to it. For the purposes of this experimental study, I wanted to select a sample of students who had had limited exposure to politically useful communication skill practice in their regular instruction.

³⁴ The school sorts students into reading classes by reading ability rather than grade level, so though most of the subjects were in grades six, seven, or eight, some fifth graders with advanced reading skills were included.

Otherwise, the effects of a single experience in an experiment would be more difficult to detect.³⁵

In general, students from lower socio-economic groups experience fewer opportunities to practice these skills; the school in which the experiment was conducted serves a low-income population of students. Second, the school utilizes a “direct instruction” pedagogical approach and the “Core Knowledge” curriculum. In this form of instruction, teachers deliver a highly scripted, structured curriculum that focuses on basic skills. During instruction students respond to direct teacher questions and work independently on teacher prescribed activities. Language arts and reading instruction focus on phonics, grammar, comprehension, and classic literature rather than self-expression or creative communication, and reading and math skills are given much more attention than other priorities such as civics. The middle school students at this school do not even have a full social studies instructional period; instead history and geography are integrated into reading and math instruction. With this instructional approach and strict discipline, this school consistently produces students with strong basic academic skills, but it is rare that the students engage in extended, self-directed verbal or written communication – the forms of communication most useful to political engagement – or are exposed to civics instruction. Teachers commented in informal conversations that the students had few opportunities to express political opinions or practice many politically useful communication skills in class (beyond basic literacy and writing).

Students’ responses to the pre-treatment questionnaire items about classroom skill practice confirmed these observations. Students were asked how often they had done the following in any class in school in the last year: given a speech, written a letter or email, participated in a debate or discussion of a controversial issue, and been asked to pay attention to

³⁵ I am not arguing here that skill practice interacts with student characteristics. It may be that a single instance of practice is equally effective with disadvantaged and advantaged students or even that advantaged children are better equipped to gain from the intervention. However, within a group of students who receive regular “doses” of this treatment in their daily instruction, I do think it would be more difficult to detect differences between those randomly assigned to a single additional dose and those who are not.

the news. The average response for all activities except paying attention to news was once or twice in the last year. The activity with the highest reported frequency was being asked to pay attention to news or current events, which students reported experiencing once or twice a month. Between 30 and 45 percent of students reported never engaging in each practice activity in the past school year.

The sample of participating middle school students was generally representative of the school. Table 4.1 presents summary statistics of participant background characteristics. Ninety-five percent of the participants identified as Hispanic of Latino, and 95 percent reported that a language other than English was spoken in their home at least some of the time (75 percent indicating that another language was spoken at home all or most of the time). The students' parents generally had low educational attainment, with only 60 percent of students reporting that at least one parent had a high school diploma. Participants also reported their parents' voter turnout in the 2008 presidential election; 48 percent said that at least one parent had voted.³⁶

Randomization effectively achieved balance between conditions on observable variables. Table 4.1 also provides descriptive statistics for each of the three conditions. There is no relationship between covariates and condition assignment.

[Table 4.1 about here]

³⁶ Clearly, neither the subjects nor the school is representative of the national population. The school is private and Catholic; its student body is almost completely Latino and low-income; and, most of its families are in the small minority of Milwaukee residents (approximately 20,000) who take advantage of a public voucher program. The results of this experiment alone cannot be generalized to the population. This experiment is part of a broader dissertation project, which includes analyses of nationally representative student survey data to establish that the association between communication skill practice in school and political efficacy and engagement is detectable in the population of American adolescents. The study presented in this paper and a second experiment with college students constitute evidence that this association is truly causal. Together, these studies offer strong evidence in favor of the dissertation's theoretical framework.

4.5 Data

Pre-treatment survey items measured various forms of political efficacy, motivation to engage in political activity, and prior classroom opportunities to practice politically relevant communication skills. Additionally, to gauge the effectiveness of the random assignment and the balance between conditions, I collected the measures of known pre-adult predictors of political engagement discussed above. Following the intervention or control activity, students again answered questions about political efficacy and motivation to engage in political activity. After completing the post-treatment questionnaire, students were given an opportunity to engage in political communication related to the skill practiced: emailing the Governor of Wisconsin.

To test Hypotheses One and Three, I collected two measures of political efficacy: one specific to the skill practiced (correspondence writing) and one of general internal political efficacy. Student subjects in the two treatment conditions practiced writing correspondence, so I measure skill-specific political efficacy with an item that asks students whether they feel they could contact an official about a political issue they care a lot about.

The measure of internal political efficacy I use is a factor score, a composite of four questionnaire items: (1) *I think I am well qualified to participate in politics*; (2) *I feel that I have a pretty good understanding of the important political issues facing our country*; (3) *When I grow up, I think I could do as good a job in a public office as most other people*; and (4) *I think I know as much about politics and government as most people my age*. These items are slight modifications (for reading level and age appropriateness) of the four items that perform best as measures of political efficacy for adults according to Craig, Niemi, and Silver (1990) and Morrell (2003).³⁷

³⁷ Previous measurement analyses have shown these items to be superior to more traditional measurement models for adults (specifically the measure commonly included in the American National Election Study: *I feel politics is so complicated that I don't understand what is going on*). I replicated the adult factor analytic measurement studies with data from this sample of adolescents and found that the slightly modified version of the Craig et al. battery is indeed the best measure for adolescents as well. The measure of internal political efficacy I use in this paper is a factor score obtained by conducting a principal components factor analysis on the

To test Hypothesis Two, I collected one attitudinal and one behavioral measure of motivation to engage in political activity. First, I ask in the post-treatment questionnaire whether or not students plan to write letters or emails to elected officials when they are adults. Second, immediately following the intervention activity and post-treatment questionnaire, students in all conditions read a short overview of the arguments for and against outlawing texting on a cell phone while driving. Students were told that some people want to make this illegal in Wisconsin. Students were given the choice to email the Governor about their opinion on the issue or complete an alternative social studies activity. Their choice was recorded as a behavioral measure of motivation to engage in political activity related to correspondence writing. Post-treatment levels of each outcome measure are reported, by condition, in Table 4.2. Appendix C includes question wording, and Appendix D includes the intervention and free choice material students saw.

[Table 4.2 about here]

4.6 Experimental Results

I turn first to the effects on skill-specific efficacy, here measured as students' estimates of their ability to write correspondence to elected officials. As expected, both the political practice and non-political practice treatments have positive, detectable effects on students' specific efficacy. Sixty-seven percent of students who practiced writing to the Governor and 70 percent of the students who practiced writing to the University professor responded positively when asked afterward whether they felt they could correspond with an elected official, while only 55 percent of students in the control condition answered positively. In the first model presented in

questionnaire items listed above. I find only one factor with an eigenvalue greater than 1 (1.79), and all four of these questions load relatively well onto this factor (loadings of .71, .72, .57, .66). The ANES measure does not load well onto the same factor as the four items from the Craig et al. battery.

Table 4.3, I regress the four-category measure of skill-specific efficacy on indicator variables for both treatment conditions; the control condition is omitted. The effects of both treatments are positive and statistically significant.

Figure 4.1 displays the predicted probabilities, computed from this model, of a student falling into each of the four possible response categories (I definitely couldn't, I probably couldn't, I probably could, and I definitely could) as condition assignment varies. For students in both treatment conditions, the probability of answering in both affirmative categories increases relative to the control condition, and the probability of responding in both negative categories declines, but effects are larger for the political treatment. Thus, this analysis provides evidence in favor of Hypothesis 1: that practicing a communication skill increases feelings of political efficacy related to that skill, and also for Hypothesis 3: *the effect of skill practice on political efficacy and political motivation will be detectable whether or not the practice itself is political in nature, but the effect will be larger for political skill practice than non-political skill practice*. The non-political writing practice does positively affect skill-specific political efficacy, though the effect is slightly larger for the political treatment.³⁸ Practicing a skill increases students' feelings that they are capable of applying that skill in the political domain. This effect is strongest when the practice is political, but it is also present when the practice is non-political.

[Figure 4.1 about here]

What about an effect on the global measure of internal political efficacy? It is not clear that a single instance of practicing one skill should affect a global or general sense of political efficacy. If an effect does exist, we should expect it to be very small, and the relatively small

³⁸To give a simple illustration of the size of the treatment effects, in this paragraph, I note the percent of students in each condition answering positively to the skill-specific efficacy question, combining two positive response categories. This dichotomization makes the effect of the non-political treatment appear larger than the effect of the political treatment, but when all of the information (four categories) from the outcome measure is used, and either mean scores or regression coefficients are examined, we see that the effect of the political treatment is slightly larger than the effect of the non-political treatment.

sample size in this experiment most likely does not provide enough power to detect it. Unsurprisingly, I do not find an effect on internal political efficacy. The second model in Table 4.3 shows that while the coefficients on both treatment condition indicators are positive, neither is detectably different from zero. However, just because the study presented here is unable to detect an effect, we should not roundly conclude that no effect exists. Indeed, Table 4.2, which presents the post-treatment levels of each outcome by condition does show that levels of internal political efficacy are slightly greater in the political treatment condition than in both the control and non-political treatment conditions. These modest differences may simply be due to random error, but they may also be the result of a small treatment effect. A more highly powered study, with a larger sample would be needed to determine whether or not an effect on internal political efficacy exists.³⁹

I also expect an effect of practice on students' motivation to engage in related political activities (Hypothesis Two). I conduct the first test of this hypothesis by looking at post-treatment levels of students' intent to engage in related political activity as adults. The post-treatment average level of students' responses is very similar across conditions (Table 4.2), and in fact is highest in the control condition. In the most constrained specification of the regression model (not presented here), which includes only the condition indicator variables, neither treatment has a statistically significant effect on this measure of motivation. However, in the third model in Table 4.3, when pre-treatment levels of the outcome are included in the model to reduce random disturbance, I do detect a positive effect of the political treatment, indicating that students' motivation to engage in political activities related to the skill they practiced is increased by the practice experience. The coefficient on the non-political treatment indicator is positive, but not statistically significant, again in accordance with H3. Figure 4.2 depicts the predicted probabilities of answering the question about adult intent to write to officials in each response category following the intervention, for a student who enters the experiment with average (mean) intent to write to elected officials, again as treatment assignment varies. The political treatment

³⁹ No alternative specification of the model, including for example pre-treatment levels of internal political efficacy to reduce disturbance, resulted in a detectable effect.

increases the probability that such a student will answer in both positive response categories (agree, strongly agree) and decreases the probability of both negative responses (disagree, strongly disagree).

[Figure 4.2 about here]

The behavioral measure of motivation, whether or not the students chose to write to the Governor voluntarily following their treatment or control activity, is unmoved by the interventions in this experiment. Conservatively, I interpret this result to mean that a single instance of practicing a politically useful communication skill is not enough to produce detectable changes in political behavior. This does not mean that multiple instances of communication practice, which accumulate across years of formal education, do not affect behavior. And it is also possible though that an effect exists, and factors in the design of this experiment inhibit my ability to see it. Just as with the global measure of internal political efficacy, if there is an effect on behavior, I expect it to be small, and the sample size in this study simply may not be large enough to detect it. Second, this trial was conducted in a single instructional period. So, students were given the choice to write to the Governor immediately following a nearly identical activity for those in the treatment conditions. Students in the treatment conditions may simply have viewed completing the activity a second time as boring, and chosen the alternative for novelty's sake. It could be that if given the same choice with a longer lag period following the interventions, the results would be different. Of course, advances in theory from experimental research are often the result of much replication for just such reasons, and future replications of this study could answer the questions I have raised here by varying the sample size, dosage of the treatment (multiple instances of skill practice instead of one), and lag time between treatment and behavioral choice.

[Table 4.3 about here]

4.7 Non-experimental Results

Although this study does not randomly vary the dosage of skill practiced or allow a long lag time between the skill practice and the measurement of efficacy and motivation, we can gain some insight into how a higher dosage of communication skill practice over a longer time period might affect political efficacy and motivation. As I mentioned previously, students were asked on the pre-treatment questionnaire about the frequency with which they practiced politically useful communication skills in any class in school. Recall also that this school site does not offer separate social studies or civics instruction, so all of the practice the students received occurred in a reading, math, science, or religion class. Therefore, I am able to test, non-experimentally, whether the frequency of practicing different communication skills outside of civics instruction is associated with higher levels of the outcomes of interest.

Table 4.4 presents the results of four models in which I regress (pre-treatment) measures of efficacy and motivation measures on students' reports of the frequency with which they practiced various skills in the classroom over the last school year: giving a speech, participating in debate or discussion of a controversial issue, writing a letter or email, and paying attention to the news. Control variables include: student demographic characteristics (age, grade, gender, ethnicity), parent political engagement (parent voter turnout), and family socio-economic status (parent educational attainment and whether or not the family owns a home). First, I find more evidence in favor of H1 with these observational data; students' political correspondence efficacy is positively affected, as hypothesized, by their experiences writing correspondence in class. Practicing debate or discussion of controversial issues also affects this form of efficacy. Previous studies (Niemi and Junn 1998; Torney-Purta 2002; Campbell 2005) have also shown classroom discussion of controversial issues to be a particularly powerful educational activity. Holding all other variables in the model at their means, a student who has had monthly⁴⁰

⁴⁰ Students had the opportunity to report up to daily practice of each communication skill, but responses above monthly were relatively rare.

opportunities to participate in debate/discussion and letter writing has a predicted probability of .72 of answering the question about skill-specific political efficacy positively, versus .60 for a student who reports doing neither in the past school year. Furthermore, the second model in Table 4.4 shows that students' global sense of internal political efficacy is positively affected by their experiences debating or engaging in discussion of controversial issues in class – reinforcing the finding that it is an important form of communication skill practice, and can affect students' feelings about politics even when it occurs outside of a civics or social studies course.

We can also test Hypothesis Two with these data. Students' motivation to engage in the related political behavior (measured by their intent to write letters to officials as adults) is strongly and positively affected by their experiences writing correspondence and attending to the news in the classroom. These two communication skills are the two on which people rely when writing correspondence to an elected official about a public issue. Holding all other variables at their means, a student who has monthly opportunities to practice these skills has a predicted probability of .58 of answering the question positively, versus .33 for a student who never has these opportunities. But as with the experimental data, there are no effects here on the behavioral measure of motivation – students' choice to write a letter to the Governor immediately following the intervention or control activity. Notably, the only measured variable with an effect on this behavior is the students' report of parent voting behavior. Political scientists have long known that political engagement in the family of origin has strong effects on offspring political engagement. Previous research (Plutzer 2002) has shown that the effects of parental factors on offspring political engagement decline, and offspring characteristics take their place, as people transition into adulthood. Here, we see that parental engagement is indeed the only measured factor powerful enough to explain these young adolescents' decisions to engage in correspondence with an elected official.

[Table 4.4 about here]

4.8 Conclusion

The predictions generated from the theoretical model are generally confirmed by the analysis in this chapter. Practicing a communication skill, even once, does have a positive causal effect on adolescent students' skill-specific political efficacy – their estimation that they will be able to effectively engage in related political activities. Additionally, this study provides some evidence of increased motivation to engage in those related political activities. Though there are no detectable effects of practice on the behavioral measure of motivation, students in the political practice condition are more likely to report that they intend to write letters to public officials as adults.

The experimental findings are reinforced by the analysis of the observational data collected from the experiment participants prior to the treatment. As we have seen in the previous chapters, these students' experiences practicing politically useful communication skills in their classes correlate strongly with related forms of political efficacy and motivation.

This chapter's findings suggest that variation in the quality of education – the opportunities students have and the skills they acquire in school – affects political engagement, and that the elements of educational quality that matter for politics are not confined to civics content and instruction. Counter to the argument of Nie, Junn, and Stehlik-Barry (1996), it appears that human capital gained in school, in the form of communication skills, can cause increases in attitudes closely related to political behavior.

The experiment presented in this chapter also introduces a simple, classroom-based intervention with a demonstrated effect on political engagement attitudes. Similar lessons, in which students read short summaries of controversies and craft correspondence to decision makers or experts in the field, could be offered in multiple subjects and grade levels. Students could write to academics or elected officials, as they do in this experiment, or to media personalities, business leaders, or prominent artists.

Still, questions remain. Does practicing other communication skills produce similar effects? Would such interventions work with older adolescents? Might slightly different interventions produce behavioral effects on political engagement? In the next chapter, I present

the results from a second experiment; the design follows a similar logic to the one presented here, but participants are older adolescents enrolled in college, and the skill investigated is public speaking.

Table 4.1 Descriptive statistics, whole sample and by condition

	Sample	Political Treatment	Non- political Treatment	Control
	(%)	(%)	(%)	(%)
Male	115 (45.4)	34 (39.5)	42 (51.2)	38 (45.2)
Hispanic	241 (94.5)	82 (93.1)	76 (92.6)	82 (97.6)
Age (Average)	12.42	12.35	12.63	12.27
Non-English	77 (94.8)	21 (91.9)	26 (97.6)	29 (95.1)
Parent Graduate	146 (60.6)	46 (54.7)	49 (64.4)	50 (63.2)
Parent Voted 2008	122 (48.4)	41 (47.6)	35 (42.6)	45 (54.2)

There were no statistically significant pretreatment differences between conditions on any of the variables in the table. Non-English indicates some language other than English is spoken in the home at least some of the time. Parent Graduate indicates that at least one parent graduated from high school. Parent Voted 2008 indicates that at least one parent voted in the 2008 general election.

Table 4.2. Post-treatment levels of efficacy and motivation indicators

Condition	Political Correspondence Efficacy	Internal Political Efficacy	Adult Intent to Write to Officials	Immediate Choice to Write to Official
Political Treatment	2.91	0.03	2.34	0.53
Non- Political Treatment	2.8	-0.02	2.43	0.53
Control	2.57	-0.02	2.51	0.56

Table 4.3. The Effect of treatment on efficacy and motivation

	Political Correspondence Efficacy	Internal Political Efficacy	Adult Intent to Write to Officials	Immediate Choice to Write to Official
Political Treatment	.77*** (0.29)	0.05 (0.14)	.54* (0.3)	-0.1 (0.31)
Non- Political Treatment	.49* (0.29)	0 (0.14)	0.09 (0.3)	-0.12 (0.31)
Pre- treatment Measure Included?	no	no	yes	no
Cut 1	-.2.06 (0.27)	---	1.75 (0.49)	---
Cut 2	-0.19 (0.21)	---	4.54 (0.53)	---
Cut 3	1.877 (0.24)	---	7.14 (0.66)	---
Constant	---	-0.02 (0.1)	---	.24 (.22)
Pseudo R squared	0.01	0	0.17	0
F	---	0.1	---	---
Log Likelihood	-302.53	-614.72	-253.99	-174.41
N	248	253	247	253

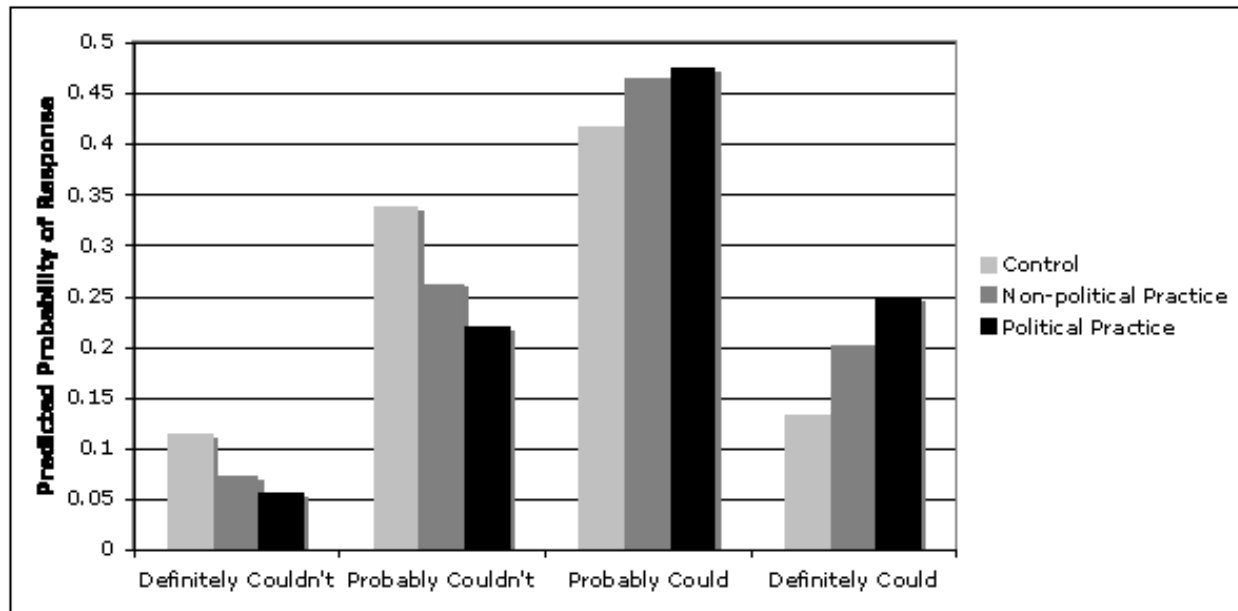
Table entries are regression coefficients (Political Correspondence Efficacy and Adult Intent models: ordered logistic regressions; Internal Political Efficacy: OLS; Immediate Choice: binary logistic regression. Numbers in parentheses are standard errors. For the OLS model, I report the R Squared statistic rather than a pseudo R squared statistic. Results of two tailed tests of significance are indicated as follows: $p < .01$ ***, $p < .05$ **, $p < .10$ *.

Table 4.4. Non-experimental effects of skill practice on efficacy and motivation

	Political Correspondence Efficacy	Internal Political Efficacy	Adult Intent to Write to Officials	Immediate Choice to Write to Official
Speech	-0.02	0.02	0.15	0.07
	-0.14	-0.05	-0.14	-0.15
Debate	.23**	.14***	0.09	-0.03
	-0.1	-0.04	-0.11	-0.12
Letter	.35**	0.07	.3**	-0.1
	-0.14	-0.06	-0.13	-0.14
News	0.01	0.05	.23**	0.07
	-0.09	-0.04	-0.1	-0.1
Age	-0.08	-0.07	0.04	0.11
	-0.15	-0.09	-0.21	-0.23
Grade	-0.11	-0.05	-.58**	-0.28
	-0.23	-0.1	-0.25	-0.26
Parents Vote	-0.08	0.02	-0.16	.41**
	-0.15	-0.06	-0.15	-0.17
Hispanic	-0.22	0.18	0.56	0.95
	-0.64	-0.25	-0.56	-0.67
Male	-0.32	0.05	-.21	-0.14
	-0.26	-0.11	-0.27	-0.29
Parent Edu.	.20**	0.05	0.1	0.08
	-0.08	-0.03	-0.08	-0.09
Home Owner	0	0.15	0.16	0.12
	-0.27	-0.11	-0.27	-0.29
Constant	---	0.08	---	-1.21
		-0.65		-1.74
Cut 1	-3.13	---	-3.98	---
	-1.54		-1.61	
Cut 2	-1.65	---	-1	---
	-1.53		-1.58	
Cut 3	0.04	---	0.98	---
	-1.53		-1.58	
Pseudo Rsquared	0.05	0.15	0.08	0.04
F	---	3.22	---	---
Log Likelihood	-266.28	---	-241.3	-144.66
N	221	215	221	220

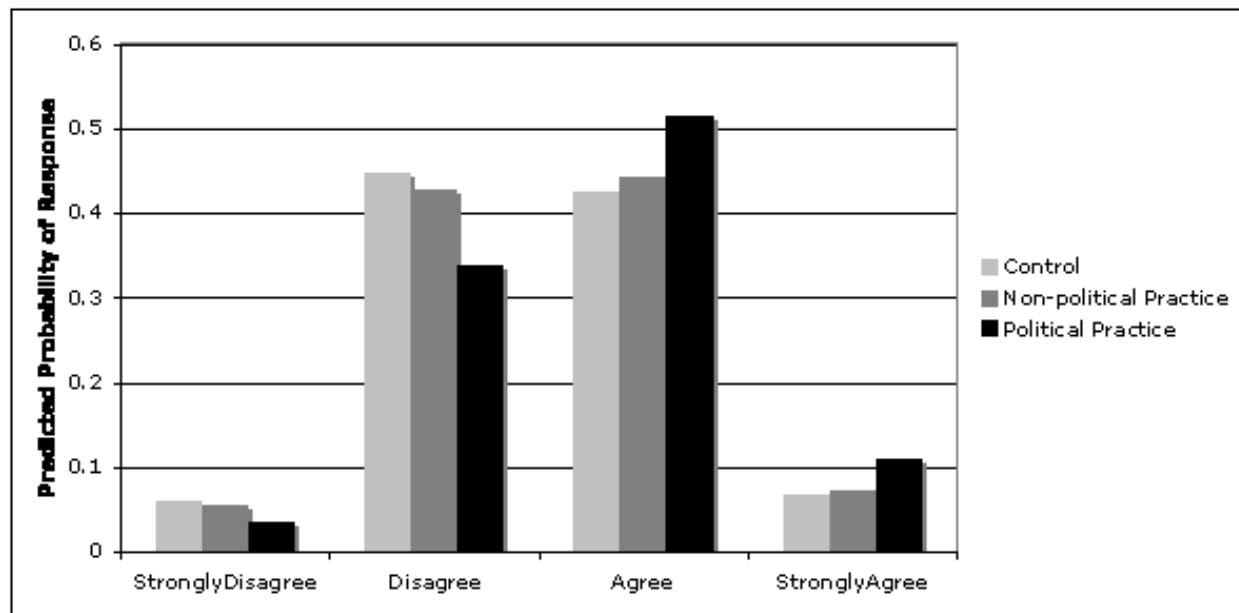
Table entries are regression coefficients (Political Correspondence Efficacy and Adult Intent models: ordered logistic regressions; Internal Political Efficacy: OLS; Immediate Choice: binary logistic regression. Numbers in parentheses are standard errors. For the OLS model, I report the R Squared statistic rather than a pseudo R squared statistic. Results of two tailed tests of significance are indicated as follows: $p < .01$ ***, $p < .05$ **, $p < .10$ *.

Figure 4.1. Predicted probabilities of political correspondence efficacy responses



Predicted probabilities are computed based on the ordered logistic regression model presented in Table 3.

Figure 4.2. Predicted probabilities of intent to write to elected officials as an adult



Predicted probabilities are computed based on the ordered logistic regression model presented in Table 3.

Chapter 5

The Effect of Speaking Practice on Engagement: A Field Experiment During the 2008 General Election

5.1 Introduction

The relationship between practicing communication and political engagement appears to be causal in nature, but questions remain. Does the same relationship exist for other communication skills beyond writing correspondence, or for adolescents who are more advantaged than the largely low SES, Latino subject in the last experiment? And do these effects extend beyond the attitudinal measures collected from the middle school students to actual political behavior? This chapter presents a second field experiment, conducted during the 2008 general election season with undergraduate students, designed to provide leverage on these questions.

Like the experiment with middle school students, this experiment tests the effect of practicing a politically useful communication skill on political efficacy and motivation to engage in political activity. Here, I test the effect of speaking publicly on political efficacy and

engagement.⁴¹ Working with older adolescent subjects during an election makes it possible to observe effects on real-world political participation. And undergraduates are more than a convenient subject pool in this case. I am interested in the effect of education on adolescent and young adult political engagement; testing my hypotheses with a relatively young, disadvantaged group of adolescents (last chapter) and older, more advantaged adolescents (this chapter) provides evidence for the external validity of the results.

In this chapter, I show that practicing speaking publicly increases the related form of task-specific efficacy (here, the student's feeling about his or her capacity to express political opinions in a conversation with peers). Students randomly assigned to practice speaking are also more likely to vote in the election after the study. It does not appear to matter if the students practiced speaking about political issues or non-political issues during the experiment.

5.2 Hypotheses

This chapter focuses on the effect of speaking practice, specifically on verbally expressing opinions in an unfamiliar group context. This skill is clearly politically useful; citizens use it when they speak informally to one another about politics, and informally when they speak at community meetings or in other forums. Like Chapters Three and Four, here I test the dissertation's second hypothesis:

H2: Actively practicing politically useful communication skills should positively affect related forms of political efficacy and motivation to engage in related civic activities, even if the practice does not take place in a political or civic context.

⁴¹ The observational survey data indicated that forms of speaking activities like speech giving and debate are the most powerful forms of communication practice in school. The logistics of quickly and efficiently conducting a field experiment in a working middle school made it necessary to work with a writing-based intervention there, but the relative logistical ease of working with undergraduates made it possible to have them practice speaking.

In Chapter Three, I presented empirical evidence that there is an association between practice with public speaking and students' increased feelings of related political efficacy. In this chapter, I test the same research hypotheses I tested in the previous chapter, extending them to a different skill, different stage of adolescence, and different socio-economic population of young people:

H2.4: Practicing a politically useful communication skill (public verbal expression of an opinion) will increase adolescents' skill-specific political efficacy, in this case their estimation of their ability to express political opinions in conversations with peers.

H2.5: Practicing a politically useful communication skill (public verbal expression of an opinion) will increase adolescent students' motivation to engage in related political activities (speaking publicly about political opinions).

H2.6: The effect of skill practice on political efficacy and political motivation will be detectable whether or not the practice itself is political in nature, but the effect will be larger for political skill practice than non-political skill practice.

I test an additional hypothesis in this chapter. In Chapter 2, I presented evidence that communication skills built in school during adolescence affect turnout in elections in early adulthood. In this chapter, I test whether that relationship holds true for a single experience with communication practice, and if the relationship is causal. The fourth research hypothesis here is:

H2.7: Practicing a politically useful communication skill (public verbal expression of an opinion) will increase turnout.

5.3 Experimental Design

To test the above hypotheses, I conducted a two-factorial experiment with undergraduate college students. The two treatments were speaking practice (skill) and exposure to political information (content) during the intervention. This design allows me to test for the main effect of speaking practice as well as its interaction with political information (content).⁴² Volunteer undergraduate subjects⁴³ were individually randomly assigned to one of four experimental conditions: (1) political content and public speaking; (2) political content and no speaking; (3) non-political content and public speaking; (4) non-political content and no speaking.

- *Content:* Students in political content conditions read brief overviews of two key campaign issues: the Iraq war and healthcare reform, including presidential candidates' positions. Students in the non-political content conditions read two brief news articles, about the effect of energy drinks on young adults and the increase in stay-at-home dads in the United States. The readings were the same length and reading level.
- *Speaking Practice:* Following their reading, students in the speaking practice conditions instructed to stand and deliver a short response to one of two prompts: (1) which of the topics in your information packet do you think is most important or interesting to young

⁴² The experiment with middle school students, in which students were assigned to one of three conditions can also be thought of as a restricted two-factorial design in which one condition (political information but no communication practice) was omitted. I restricted the conditions in the middle school experiment to maximize statistical power.

⁴³ All students who agreed to participate were randomly assigned to conditions *prior to the study, at the same time*. They were not assigned to conditions as they arrived. When students arrived at the study, they signed in and were given a predetermined study identification number, which appeared on all of their study materials. Student email addresses were retained while data collection was in progress but not afterward. Seventy-eight percent of students who agreed to participate showed up for the study. No-show students were distributed evenly across conditions; there were no detectable differences.

people right now and why? (2) In general, do you think the information in your packet was presented in a way that is directed toward someone like you? Why or why not? Students in the political and non-political content conditions were thus asked to complete identical public speaking tasks. Students in the non-speaking groups were given no further instructions after reading the material.

Students were told they were participating in a study about young people, political engagement, and current events. They knew that data on their participation were being collected, but thought that researchers were interested in the content rather than the frequency of their participation. They did not know that the speaking in the smaller groups was an intervention, rather, they were led to believe we wanted to hear their opinions about the questions.

Prior to the intervention, students received instructions and completed a brief pretreatment questionnaire in a large lecture hall, in which they reported demographic information, detail about their educational experiences, and pre-treatment levels of political efficacy. They then broke into the classroom-sized groups in nearby classrooms with individual researchers for the interventions. After 20 minutes in these small groups all students came back into the lecture hall. A researcher led a large-group discussion forum about the election, and data on student participation was collected. The entire study session lasted one hour. Two weeks after the intervention, students were sent a link to an online post-treatment survey in which they reported efficacy and turnout. Ninety-three percent of the students responded to the post-treatment online survey.⁴⁴

5.4 Setting and Sample

The experiment was conducted during the 2008 presidential election season. The intervention and pre-treatment survey were delivered a week prior to the election, and the post-

⁴⁴ Non-responders were sent daily reminder emails about completing the post-treatment survey.

treatment survey was collected a week after the election. The study was conducted in the evening in a campus building with many classrooms.

The sample for this experiment consists of 157 undergraduate students at a large, public, Midwestern university. Students were recruited to the study through large introductory lectures in multiple departments, including, but not limited to political science, as well as through flyers posted on campus. They received a \$10 incentive. Interested students contacted the study via email and were then emailed details (time, location) and attendance reminders. Table 5.1 displays the descriptive statistics for the sample.

[Table 5.1 about here]

Though students self-selected into the experimental sample, recruiting across contexts within the university generated a sample with demographic characteristics similar to the undergraduate population at the university. University-wide, 87 percent of students are white, and 52 percent are female. The sample was 82 percent white and 64 percent female. As we might expect for a sample of university students, participants came from relatively advantaged families (the average mother was a college graduate), and had high levels of political efficacy prior to the intervention.

The students in the sample were disproportionately likely to be political science majors. Political science is the second most popular major on the campus, but only three percent of undergraduates are declared political science majors. Thirty percent of the sample listed political science as their major, but the sample also included students with majors in other social sciences, the humanities, the natural sciences, engineering, nursing, and education.

Table 5.1 also displays summary statistics split by condition. Randomization effectively achieved balance on these observable characteristics. There were no statistically significant differences between the four conditions. That said, with four conditions and a relatively small sample, the conditions were definitely not identical, and differences in unobserved characteristics may still exist. Therefore, I caution readers to interpret the results of this experiment conservatively. I discuss this and other concerns in the final section of the chapter.

5.5 Data

To test Hypotheses 1 and 3, that practicing speaking will increase the related skill-specific form of political efficacy, I collected two indicators of students' efficacy about political speaking. The first is a measure of efficacy communicating political opinions to peers; the second is a measure of efficacy about speaking at a community or public meeting about a public issue. I measured both of these forms of skill-specific political efficacy pre- and post-treatment. All forms of skill-specific efficacy were measured on a four-point scale, following the NHES data, and measured pre- and post-treatment. (See Appendix E for all questionnaire items.) I also collected a measure of general internal political efficacy for comparison purposes, using the indicator from the American National Election Study: *I feel politics is so complicated that I don't understand what is going on*. Responses to this question, following ANES, were on a five-point scale.

To test Hypothesis 2 and 3, I collected a behavioral measure of motivation to engage in spoken communication about politics. Immediately following the intervention, as I discussed above, students were given the opportunity to speak in a large-group forum of their peers in a researcher-led discussion of the presidential campaign, and their participation was recorded. To test Hypothesis 4, I collected a student report of turnout in the 2008 presidential election in the post-treatment survey.

5.6 Results

I turn first to *H1: Practicing a politically useful communication skill (public verbal expression of an opinion) will increase adolescents' skill-specific political efficacy*. Most students in the sample responded positively to all pretreatment efficacy questions (as shown in Table 5.1). Table 5.2 displays the raw post-treatment means for each efficacy question. (Though the theory does not suggest that the single experience in the intervention should have an effect on

more general internal political efficacy, it is reported for comparison purposes.) No effects are detectable from examining the raw mean scores.

[Table 5.2 about here]

A more appropriate analysis in this case is to estimate ordered logistic regressions for each form of efficacy, regressing the ordinal efficacy variables on the speaking treatment, the political content treatment, and their interaction along with the pre-treatment measure of the same form of efficacy to reduce disturbance and increase the precision of the effect estimates. I report these models in Table 5.3. In these models, a story emerges. While there are no detectable effects on general internal political efficacy (as expected) or on efficacy about speaking in a public meeting, the speaking treatment does affect students' efficacy about their capacity to express political opinions in a conversation with another student. This is the form of political efficacy most closely related to students' experiences during the intervention. As I have discussed previously, psychological researchers have shown that, in many domains of human behavior, practicing a behavior or skill will have the strongest effects on related forms of efficacy when the practice and attitude are closely aligned. The results from the analysis of efficacy in this study underscore that point.

[Table 5.3 about here]

Predicted probabilities of responding in each of the four possible categories make the size and nature of the effect clearer: students in the speaking practice conditions were less likely to respond that they "probably could" express a political opinion in a conversation with a peer and more likely to respond that they "definitely could" than students in the non-speaking conditions. This sample of older, relatively advantaged adolescents already viewed their capacity to express themselves positively; the experience in the speaking sessions, in which students had to spend a minute or so speaking, rather formally, about their opinions to a small group of peers who they

did not know, made these students more *certain* about their ability to express themselves in political conversations. Figure 5.1 illustrates these predicted probabilities.

[Figure 5.1 about here]

Students experienced the same effect whether they practiced speaking about politics or about non-political content. The coefficient on the interaction between the political content and speaking treatments is not significant, indicating that the effect of the speaking treatment does not differ depending on the content condition. Thus, for the efficacy outcomes, we have some evidence for the first part of H3, that the effect is present whether or not the communication practice is political in nature, but not for the second part of H3, that the effect will be stronger when the content is political.

The political content on its own has no effect on any form of efficacy. This null finding is especially noteworthy because it shows that the civic education component did not affect their feelings about their ability to participate. The students did learn more about election-related issues through these treatments. As a manipulation check, in the post-treatment survey students were asked factual questions about the issues in the political content treatment (the Iraq War and healthcare reform). Students in the knowledge conditions were more likely to give correct response to the health care question than were students who read non-political information, suggesting that they did learn during the intervention, but that knowing more about politics did not increase their confidence about their ability to express political opinions. Rather, they base that form of political efficacy on their experiences expressing opinions (political or not) to their peers. Responses to the Iraq war question were nearly 100 percent correct across all conditions, suggesting that students in general entered the study with a high level of knowledge about the politics surrounding the war and did not learn new information about that topic during the intervention.

To test H2: *practicing a politically useful communication skill (public verbal expression of an opinion) will increase adolescent students' motivation to engage in related political activities (speaking publicly about political opinions)*, I held a large-group town hall style forum

following the intervention and invited students to comment on election-related questions. Forty-nine percent of students volunteered comments and spoke publicly about their political opinions. It should be noted that the first questions in the forum were purposely non-partisan to encourage any student to respond, for example: *What public issue do you think is most important to young people right now and why?* The proportion of students who spoke up did not differ by condition (Table 5.2). And a multivariate test for the treatment effect (Model 4 in Table 5.3) shows no detectable treatment effects.⁴⁵

Readers should note though that students' pre-treatment report of their efficacy about speaking in a public meeting (a form of efficacy that was not affected by the treatment) is a strong predictor of participation in the forum. This result provides non-experimental evidence for one of the dissertation's broader theoretical expectations – that specific forms of political efficacy do translate into motivation to engage in related political behavior. Perhaps an intervention that more closely mirrored participation in a town-hall type meeting (rather than discussion with a small group of peers) would increase the related form of efficacy and subsequent participation.

One interesting (though non-experimental) result is the difference between pre- and post-treatment efficacy about speaking in a public meeting. In each condition, the average response to this item *declined* slightly by the end of the study. All students in all conditions were given the opportunity to participate in a large, authentic public meeting following the intervention. Fewer than half participated by speaking out and offering an opinion. The purpose of this segment of the study was to collect a post-treatment behavioral measure of political engagement, but it did occur prior to the final post-treatment survey. It is possible that the students chose their responses to the pre-treatment version of the meeting efficacy lacking any actual experience on which to

⁴⁵ The outcome variable presented in Table 5.2 is a dichotomous indicator for whether the student spoke at all during the forum. I did look at forum participation in alternative ways as well. I estimated the models with indicators for whether students were among the first ten students to speak and, because a few students spoke more than once, with a count of their participation. The treatments had no detectable effects on forum participation, no matter how participation was measured.

base their answers. Then some students, after failing to participate in an actual meeting, revised their responses downward. While this finding is non-experimental and inconclusive, it does suggest that merely offering skill building opportunities to students, but not requiring active participation, may be harmful. The political efficacy of students who abstain may be negatively affected as they observe themselves failing to engage. This is an important point for schools and educators, who may offer speaking and civic enrichment activities (e.g. student government, debate, speech/ forensics, student newspaper, volunteer work, etc.) as extra curricular or extra credit options.

Finally, I test *H4: Practicing a politically useful communication skill (public verbal expression of an opinion) will increase turnout*. Turnout for study participants was very high, as was to be expected. Eighty-seven percent of the students reported voting. It was especially high in the non-political content, speaking condition (97.6 percent), but nearly identical in the other three conditions. A multivariate analysis of the treatment effects, controlling for pre-treatment internal political efficacy shows a significant effect of the speaking treatment and a marginally significant, negative interaction with political content.

We could interpret this as evidence that public speaking practice has a positive effect on turnout, but only when the speaking practice is not about politics. However, I caution readers that there is very little theoretical reason to expect the negative interaction. One possibility is that students experience greater effects on efficacy and motivation when the speaking practice is more interesting or more memorable to them. Perhaps the content of the non-political readings were more interesting to students, or more memorable because they were surprising in the context of a political science study. While these results may indicate such a true effect, it is also possible that they are the result of an unobserved underlying difference between the students in the conditions. Only replication of this experiment can answer that question.

5.7 Conclusion

In general, the results of this experimental study are consistent with my theory and with the other results in the dissertation. However, I present them with caution. This study was small

for a fully crossed two factorial design, and while there were no statistically detectable pre-treatment differences between conditions by conventional standards, clearly the conditions were not identical. That said, where differences in covariates did exist, they generally advantaged the non-speaking conditions, biasing the result against finding effects.

More importantly, the results of this experiment are mixed, and positive effects are all only marginally significant. Finally, the 2008 presidential election was distinctive in its salience to young people on college campuses, and the students in this study entered with already high levels of political engagement. Replication is absolutely necessary in this case, particularly in lower salience elections and with less advantaged youth in late adolescence.

That said, in concert with the results in other chapters, this study can be viewed as further evidence that when adolescent students practice politically useful communication skills in a classroom setting, their political engagement is indeed positively affected, and this effect does not appear to depend on whether or not the communication practice is political in nature.

This study provides more detail about the results in Chapter Two (in which we saw that students who acquired more communication skills in high school were more likely to vote as young adults). Late adolescents do talk to each other about politics, and other scholars have demonstrated that such talk does mobilize young people to vote (Klofstad 2007). The results here indicate that students who have been given opportunities to practice expressing opinions in a classroom setting feel more confident about their ability to express themselves in such real-world conversations with peers, and therefore may be more likely to engage in such talk, or may engage in higher quality discussions, in which more information is shared and taken in, or civic duty norms are more forcefully communicated. Future experiments can shed light on these questions, and make clear the precise links between communication practice in school, communication in the real world, and political behavior.

What is clear, from the first four empirical studies in this dissertation, is that that pathway between education, communication skills, efficacy, and behavior shows up consistently, in observational and experimental studies, across different populations of adolescents, and for different communication skills. The question then for scholars, policymakers, and educators interested in the quality of American democracy is: which students are getting the opportunity to

practice and develop politically useful communication skills in school? In the following chapter, I provide evidence that the distribution of in-school opportunities to build these reading, writing, and speaking skills is dramatically inequitable. It is no headline that, in the United States, the experience of school children in socially and economically disadvantaged groups differs dramatically from that of their more advantaged peers. In the chapter that follows, I document one precise way in which educational inequality translates into political inequality.

Table 5.1 Pre-treatment descriptive statistics, whole sample and by condition

	Sample	No Speaking, Non- Political Content	No Speaking, Political Content	Speaking, Non- Political Content	Speaking, Political Content
	(%)	(%)	(%)	(%)	(%)
Female	64 (40.8)	19 (52.8)	15 (41.7)	16 (37.2)	14 (33.3)
White	130 (82.8)	30 (83.3)	29 (80.6)	38 (88.4)	33 (82.8)
Political Science Major	44 (29.5)	9 (25.7)	12 (34.3)	11 (26.8)	12 (31.6)
Democrat	88 (59)	18 (51.4)	18 (51.4)	28 (68.3)	24 (63.1)
Pre-treatment Internal Political Efficacy (Average)	3.6	3.7	3.7	3.7	3.5
Pre-treatment Specific Efficacy: Speaking at a Public Meeting (Average)	3.1	3.2	3.3	3.2	3.1
Pre-treatment Specific Efficacy: Speaking to a Peer (Average)	3.9	3.9	3.9	3.9	3.8
Age (Average)	19.4	19.4	19.3	19.3	19.6
Mother's Education (Average)	4.5	4.4	4.8	4.4	4.6

Efficacy scores are scaled from 1 to 4. Mother's Education is scaled from 1 (no high school diploma) to 7 (doctorate). A score of 4 represents a bachelor's degree.

There were no statistically significant pretreatment differences between conditions on any variable in the table.

Table 5.2 Post-treatment levels of efficacy and turnout

	No Speaking, Non- Political Content	No Speaking, Political Content	Speaking, Non- Political Content	Speaking, Political Content
Internal Political Efficacy	3.5	3.6	3.4	3.6
Speaking Efficacy (Peer)	3.7	3.5	3.8	3.8
Speaking Efficacy (Meeting)	2.9	2.9	2.7	2.7
Forum Participation (percent)	41.7	57.1	50	46.3
Turnout (percent)	82.9	85.3	97.6	81.6

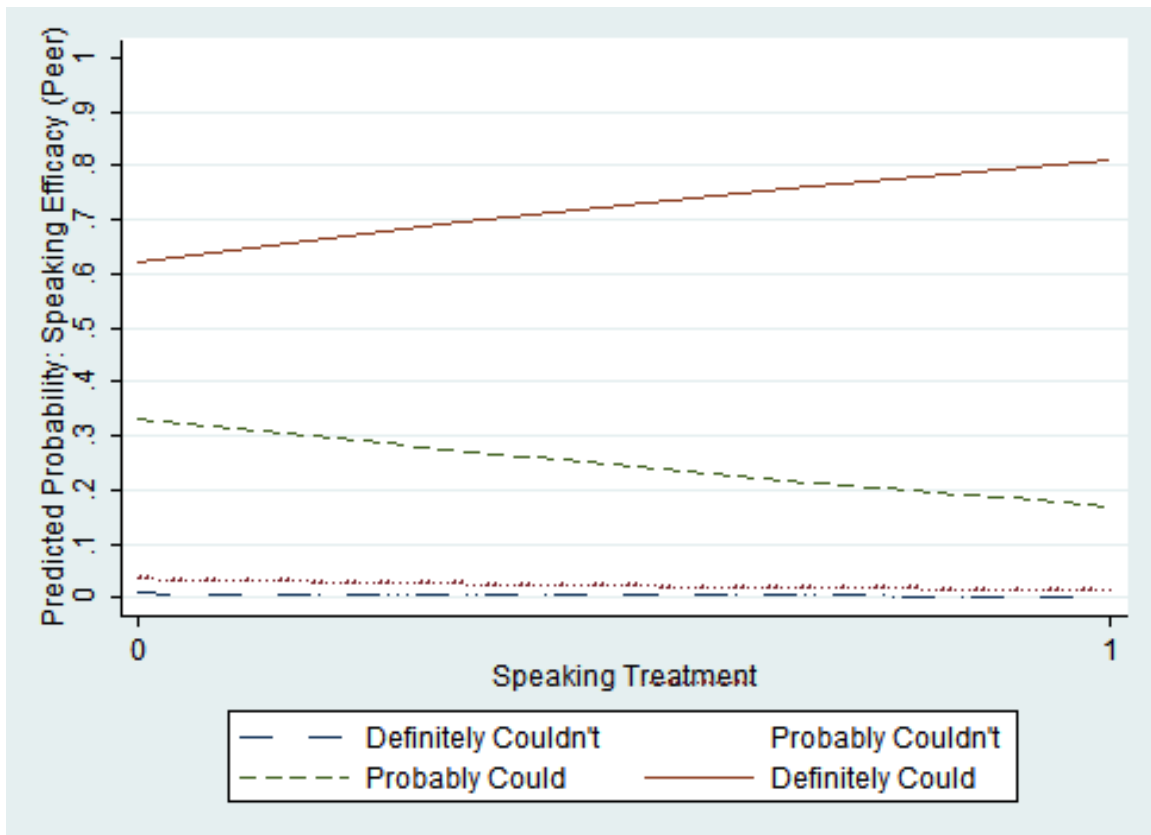
Efficacy scores are scaled from 1 to 4. Forum participation and turnout are dichotomous.

Table 5.3 Treatment effects on efficacy, forum participation, and turnout

	Speaking Efficacy (Peer)	Speaking Efficacy (Meeting)	Forum Participation	Turnout 2008
Speaking Treatment	0.96*	-0.28	0.16	2.20**
	-0.57	-0.44	-0.48	-1.12
Political Content Treatment	-0.4	-0.2	0.31	0.25
	-0.52	-0.48	-0.5	-0.68
Interaction, Speaking, Political Content	0.21	0.21	-0.2	-2.42*
	-0.78	-0.64	-0.68	-1.29
Pre- treatment Efficacy Measure	1.56***	1.06***	.95***	-.61**
	-0.52	-0.24	-0.25	-0.3
Cut 1	1.14	-0.03	---	---
Cut 2	2.81	2.43	---	---
Cut 3	5.38	4.99	---	---
Constant	---	---	-3.34***	3.03**
			-0.91	-0.9
Pseudo R squared	0.08	0.06	0.08	0.1
Log Likelihood	-96.04	-155.99	-100.23	-50.76
N	145	145	157	147

Table entries are regression coefficients (Political Correspondence Efficacy and Adult Intent models: ordered logistic regressions: Speaking Efficacy (Peer) and Speaking Efficacy (Meeting); binary logistic regression: Forum Participation and Turnout.) Numbers in parentheses are standard errors. Results of two tailed tests of significance are indicated as follows: $p < .01$ ***, $p < .05$ **, $p < .10$.*

Figure 5.1 Predicted probabilities of speaking efficacy (peer)



Predicted probabilities are computed based on the ordered logistic regression model presented in Table 5.3.

Chapter 6

The Democracy Gap: Politically Important Verbal Skills and Opportunities to Develop Them In American Education

6.1 Introduction: a tale of two inequalities

In education today, policy and media attention are dominated by inequalities in math and verbal skills. Large “achievement gaps” exist between students in socioeconomic and racial group, and have changed very little over recent decades. The social consequences of this inequality are usually viewed from an economic perspective, because it is clear that children who acquire fewer skills in school have less economic success in adulthood, and because national economic growth is driven, in part, by those same basic skills. Much less attention is paid to the democratic consequences of educational inequality. But Americans care deeply about political inequality, and are actually less tolerant of it than economic inequality (Schlozman et al. 2005). In the first five chapters of this dissertation, I argued and showed that the basic skills and learning opportunities adolescents get in school – the markers of the achievement gap – have democratic importance too. Young people who acquire greater verbal skills and have

opportunities to actively practice and learn communication skills in school are not just advantaged workers; they are advantaged citizens.

In this chapter, I integrate the sizable literatures on educational and political inequality, and test the third hypothesis about the distribution of opportunities to practice communication skills in schools:

H3: Aggregate patterns in American students' communication skill practice and verbal skills should correspond to aggregate patterns in civic engagement, across time and social groups.

This chapter proceeds as follows: first, I discuss political and educational inequality and argue for the importance of understanding the relationship between them. Second, I present this chapter's data source: the National Assessment of Educational Progress, and explain the indicators of verbal skill, communication learning opportunities, and social group. Third, I examine group differences in those skills and opportunities, by socioeconomic status, race, and gender. In the early chapters of the dissertation, I showed that a form of human capital – verbal skills – matters for citizenship, and that opportunities to actively practice communication and build these verbal skills in the classroom increase engagement and participation. There are great inequalities in both skills and learning opportunities, with the offspring of less educated parents, members of racial minority groups, and boys at a disadvantage. These gaps have narrowed very little, if at all, over time and correspond directly to aggregate patterns in political participation.

In the sections that follow, I describe these two inequalities and the ways in which they parallel one another. In their article detailing inequality between White and Hispanic

elementary students, Reardon and Galindo begin with the following statement:

Although a full accounting of the causes of the observed patterns is certainly necessary, we do not aim in this article to explain the causes of these gaps nor to suggest or evaluate the remedies. Just as in medicine, where epidemiological documentation may stimulate the discovery of a cure, so too in education research, a detailed description of the development of achievement gaps may lead to a better understanding of their causes and solutions” (2009, 853).

In that same “epidemiological” spirit, I offer this chapter. Neither the educational nor political patterns I describe are novel, but connecting them is. It is worth revisiting the much publicized trends in skills and learning opportunities in light of their newly apparent connection to political engagement. Overall, the descriptive analyses that follow show a strong correspondence between educational and political inequalities, with social class disparities the starkest, followed by racial and gender differences. In the seventh and final empirical chapter of the dissertation, I delve deeper into the patterns of inequality in an attempt to offer the beginning of a remedy.

6.2 Data

To examine inequality in verbal skills and communication learning opportunities, I examine data from the National Assessment of Educational Progress (NAEP). NAEP, commonly referred to in the media as “the nation’s report card,” includes assessments in core subjects along with student, teacher, and school survey instruments, given to a

nationally representative sample of American adolescents.⁴⁶ In this chapter I present testing data from the last thirty years⁴⁷ and student reported learning opportunities from 2007. I examine these data for 13 and 17-year-olds (generally eighth graders and high school seniors). Students are sampled from selected schools, in a multistage design. All mean estimates reported in this chapter have been adjusted for the complex sampling design.⁴⁸

The student surveys accompanying the 2007 NAEP writing and reading tests include questions about eight politically useful communication skills that correspond to the analyses in Chapters Three through Five of this dissertation. Thirteen and 17-year-old students report whether they have written a letter, an essay, a report, or a summary of something they have read. Additionally, 13-year-olds report whether they have given an oral presentation, or participated in whole-class or small-group discussions. I showed in Chapters Three and Four that practice with letter writing has a positive effect on related

⁴⁶ Nine-year olds, in third grade, are also tested and surveyed for the NAEP, though I do not examine that data here.

⁴⁷ I present data from the Long Term Trend (LTT) reading assessment, the appropriate test for over time comparisons of verbal skills. The LTT assessment originally included writing as well, but this test was discontinued for methodological reasons. As with most standardized tests, oral language skills are not assessed. Writing tests have been administered in 1998, 2002, and 2007, but are not part of the linked, LTT tests, and their use for over time comparisons is not recommended. All group disparities, by SES, race, and gender follow nearly identical patterns in the writing and reading tests. Please see the discussion of alternative measures of verbal skills in Chapter Two for more detail.

⁴⁸ T-tests, also conducted with survey-adjusted standard errors, are statistically significant at the one percent level for all differences discussed and reported in this chapter. For ease of viewing, figures are reported without asterisks or other visual indications of significance.

forms of political efficacy, and showed in Chapters Three and Six that presentation and discussion have positive effects on efficacy about political speaking, conversation, and political engagement. The additional writing learning opportunities included in this chapter (essay, report, and summary writing) capture the student's general experiences with writing practice. And essay writing in particular, which ideally requires the student to craft and defend an original argument, has a direct connection to political communication and activity.⁴⁹

I examine these achievement and opportunity measures across social groups: socio-economic status, race, and gender. The measure of student race is school-reported, based on administrative records for most of the results reported in this chapter (any data from 2004 or later including all opportunity measures). For testing data prior to 2004, the race measure was “observed” by the person administering the test.⁵⁰

I operationalize the student's family socioeconomic status with a measure of parental education. Students report educational attainment for both parents, and the

⁴⁹ To correspond to the experimental treatments and survey questions I examine in the rest of the dissertation, and for economy of presentation, in this chapter I dichotomize each learning opportunity. In the NAEP data, students do report the frequency of their practice. The demographic patterns in the categorical data are substantively similar to the patterns I discuss in the chapter. However, the largest disparities are those reported here – between disadvantaged students who receive no opportunities to practiced skilled communication, and their more advantaged peers who have at least some opportunity. Future experimental studies should investigate the added benefits of frequent communication practice, dosage effects, and corresponding inequalities.

⁵⁰ Small groups of students who for whom no racial classification or multiple classifications have been dropped from the analysis, but when multiracial students are examined separately, they are lower on all achievement and opportunity measures than white students.

highest level for either parent is used here. Family SES could also be measured with the NAEP indicator for whether or not the child qualifies for the federal free lunch program. This is a rougher instrument for family social and economic advantage, splitting the sample into two groups by income: the poorest, who qualify for the means tested lunch program, and everyone else. Thus, all students above 130 percent of the poverty line are lumped into the non-free lunch category. Failing to qualify for the federal lunch program hardly captures economic advantage. Consider that the current (2013) cut off is just below thirty thousand dollars annually for a family of four. Parental education is a more nuanced indicator of family SES, and provides more information about the stratification of achievement and opportunity. That said, as a check of the robustness of the results presented in the next section of this chapter, I have examined the differences in achievement and learning opportunities split by the free lunch indicator. As expected, I find that the students from poor families are lower on all skill and opportunity outcomes than their more advantaged peers, though larger disparities are visible with the parental education measure.

6.3 Social Class and Inequality

The starkest disparities, in achievement, learning opportunities, and political participation, exist between people of high and low socioeconomic status. As Figures 6.1 and 6.2 illustrate, the verbal skills of adolescents whose parents attain higher education far exceed the skills of adolescents from less advantaged families. Adolescent verbal skills increase at each level of parental educational attainment, with the offspring of high

school dropouts trailing nearly thirty points, nearly a full standard deviation, behind the offspring of college graduates in most years. This inequality, which exists in both early and late adolescence (at ages 13 and 17), has changed very little over time; inequality in verbal skills has not improved.

Though some of this variation is likely attributable to similarities between parents and offspring, or to other individual differences between students, some of the variation can be traced to school factors. Family, community, school, and individual differences all contribute to educational inequality. Scholars hotly debate the relative importance of each, but there is growing consensus that schools and learning opportunities play an important role. Multilevel model estimates indicate that thirty to forty percent of the variation in student achievement is found between schools, indicating that school quality and learning opportunities are essential in the production of achievement (Borman and Dowling 2010; Konstantopoulos and Borman 2011).

In Chapters Three through Five of this dissertation, I showed that school-based learning opportunities – specifically, the opportunities to practice politically useful communication skills – positively affect political efficacy and civic engagement. Test scores offer clear evidence that the important skills themselves are not provided to all young people, but are the learning opportunities? Figures 6.3 and 6.4 display the percent of adolescents who report having had politically important communication learning opportunities in the last school year, broken out by parental education. Again, the disparities are striking, especially for the eighth grade respondents. While the majority of adolescents in all categories report experiences like giving presentations, participating in

discussions, and writing letters, many do not do these things in school. And family background, as measured by parent education, has a clear role.

For example, 84 percent of the eighth graders in the most advantaged category have had the opportunity to write a letter in class, a learning opportunity that affects an adolescent's attitudes about political engagement (as shown in the experiment in Chapter Four). But only 77 percent of eighth graders in the least advantaged category have had the same opportunity, even once. More than one in every five adolescents whose parents have not completed high school do not have the chance to learn this skill in school. The gap for essay writing, perhaps the most sophisticated form of written expression I examine in this chapter, is the largest. An eighth grader in the most advantaged category is ten points more likely to write essays in class than the student in the least advantaged category. The relationship between parental education and opportunity in the classroom is the same for a number of the skills I have discussed in the earlier chapters of the dissertation, such as giving presentations and participating in discussions with peers and larger class-sized groups about material that has been read. These learning opportunities correspond directly to those I examined in the experiment with older adolescents, presented in Chapter Five. Gaps between least and most advantaged student groups range from four to ten points.⁵¹ This is clear evidence that young people from disadvantaged

⁵¹ In twelfth grade, the least advantaged students are actually more likely to experience the less demanding and less politically useful writing opportunities: writing summaries and reports, tasks in which they do not have to craft or defend arguments or consider specific audiences. It is possibly that this indicates a lag in the standards less advantaged students confront in school. Disadvantaged high school seniors are still less likely to have the opportunity to engage in the more challenging tasks of writing letters and essays.

families are less likely to be given the chance to develop the human capital that is essential for civic and political activity.

This pattern tracks closely with engagement. Class differences in political and civic participation are the most severe in American politics. Across numerous political and civic behaviors, the participation of adults in high-income groups dwarfs that of the low-income. The recent report of the American Political Science Association Task Force on political inequality (2009) shows these “engagement gaps” ranging from five points (for protesting or board membership) to 50 points (for donating money). The forms of engagement I have addressed in this dissertation are no different. While 25 percent of low-income respondents in the study had contacted a government official, 50 percent of high-income respondents had done so. Fifty-two percent of low-income respondents had voted in a presidential election, while 86 percent of high-income had exercised this right. And only 13 percent of the low-income had participated in informal community activity, versus 38 percent of the high-income.⁵² And like class inequality in education, engagement disparities have changed very little in recent decades. These income and class inequalities translate into racial and gender disparities as well, because women and racial minorities earn less than men.

Again, as I stated in the introductory section to this chapter, my aim here is not to test the aggregate causal relationship between communication skills and participation. Undoubtedly there are many other disparities between high- and low-socioeconomic

⁵² “Low-income” respondents in the APSA Task Force report have annual household incomes below \$15,000; high-income respondents have incomes above \$75,000.

status individuals that contribute to participatory inequality. Some of these traditional predictors of participation, like time, money, and social position may be, in part, mediating the skill-participation relationship. These resources are, in part, a *result* of the skills acquired through schooling. Educational achievement has an effect on labor market success independent from the effect of educational attainment (Mulligan 1999; Murnane et al. 2000; Lazear 2003; Hanushek and Zhang 2009). Estimates vary, but these studies show that an increase of one standard deviation in test performance translates into 10-20 percent higher annual earnings in adulthood. One key difference is that these economic returns to education are driven largely by math achievement. In Chapter Two, I showed that this does not hold for civic returns, driven only by verbal skills. This contrast, in concert with the experimental evidence in Chapters Four and Five, strongly suggests that verbal skills and learning opportunities have a direct effect on participation.

[Figures 6.1-6.4 here]

6.4 Race and inequality

It is not news that racial differences in achievement exist. These gaps garner considerable attention from scholars, policy-makers, and the media. Figures 6.5 and 6.6 display the trends in reading achievement on the NAEP, broken down by race. White and Asian students consistently outperform Black, Hispanic, and American Indian⁵³ students

⁵³ Reporting requirements (sufficient sample sizes) are only met for American Indian students in a few years. Figures indicate average test performance for these years only.

by twenty to thirty points in both early and late adolescence. Though the gap between Black and White students narrowed considerably in the eighties, it then stagnated in the early nineties. (See Neal 2006 for a more detailed treatment of Black-White skill convergence). Recently, the gap for thirteen-year-olds has again begun to narrow, but not for seventeen-year-olds, where it persists, relatively unchanged over the last twenty years. The size of the Black-White achievement gap is roughly three-fourths of a standard deviation across years, a severe disparity.

Gaps between Hispanic and White adolescents are also serious. Though slightly smaller than the Black-White gaps, they have remained relatively stable over time. And, because Hispanic students make up a larger, and more quickly growing portion of the student population and electorate, these inequalities are especially noteworthy. Clearly, young Black, Hispanic and American Indian people enter political maturity with far fewer verbal skills than White adolescents, and this difference has persisted over time.

Racial differences in learning opportunities are not as stark as the SES differences. In general, students in marginalized racial groups experience fewer chances to practice communication skills, but that is not always the case. In early adolescence, gaps between White and Black or Hispanic students' writing opportunities track closely with achievement differences. White students are slightly more likely to practice every form of writing measured in this chapter. However, differences are modest, and this trend does not hold for speaking opportunities. Hispanic and, even more-so, Black students are more likely than their White peers to participate in small group discussion and to give presentations, though less likely to participate in whole-class discussions. In late

adolescence, Hispanic students gain an advantage, experiencing similar, or in some cases more writing opportunities than White seniors. Disadvantage persists for Black high school seniors.

Overall, among racial groups, Asian students are at the clearest advantage. Their achievement and learning opportunities are on par with, or higher than those of White students in every case. American Indian students are at the clearest disadvantage in terms of learning opportunities, trailing behind their peers in all other groups for each opportunity measured.

The correspondence between these smaller educational inequalities and political participation patterns is weaker. White adults turnout more than racial minorities, but these differences are not nearly as sizable as those we see by class and income. Among minority groups, Black voters have the highest turnout, Hispanic voters the second highest, and Asian voters the lowest, though in 2008 Black turnout rose sharply, according to data from the Current Population Survey. The only social group examined in this chapter for which the patterns in participation do not match the patterns in verbal skills and communication learning opportunities is Asians. The reasons for this lack of correspondence are unclear, but this result is consistent with recent research that shows that other important predictors of participation, especially socioeconomic status, are less predictive of Asian turnout (Wong et al. 2011).

[Figures 6.5-6.8 here]

6.5 Gender and inequality

Verbal achievement differences between boys and girls are also persistent over time, though the gender gap (Figures 6.9 and 6.10) is considerably smaller than the SES or racial achievement gaps. Girls consistently outperform boys at all ages on tests of verbal achievement. And learning opportunities follow a similar pattern, with girls reporting greater opportunity to practice politically useful communication skills in school. The only exception is presentation-giving in eighth grade, where boys are slightly more likely to have done so.

Women are currently outperforming men in the political sphere as well. Since 1980, a gender gap in voter turnout has grown, shown clearly in recent presidential elections.⁵⁴ Turnout among women was 3.8 points in 2004 and 4.7 points in 2008 than turnout among men according to data from the Current Population Study. Women also turnout more than men in midterm elections and are more likely to be registered.

Gender differences in learning opportunities are particularly interesting from a policy perspective because they indicate within school variation. Unlike adolescents in difference socioeconomic or racial groups, who are persistently segregated in school, boys and girls attend schools together. Where differences in opportunity exist, they can be attributed to course taking patterns, differential treatment from teachers, or other within school determinants of learning opportunities. This lesson is important for

⁵⁴ Prior to 1980, men voted at higher rates than women. The gap narrowed through the midcentury period, and then reversed in 1980.

understanding how policy or practice might be leveraged to equalize opportunities, and I will return to it in the final chapters of this dissertation.

[Figures 6.9-6.12 here]

6.6 Conclusion

In this chapter I described inequality in verbal skills, and in the opportunities American adolescents have to learn and develop these skills in formal educational settings. By examining the nationally representative student data from the NAEP, in this chapter I have shown that patterns of educational inequality track very closely with patterns in political inequality. More generally, trends over time in verbal achievement look quite similar to the trends in participation. As I noted in the earlier chapters of this dissertation, political scientists have long been puzzled by the lack of correspondence between aggregate trends in educational *attainment* and participation, given strong theoretical expectations and the persistent micro-level relationship. But In Chapter Two, I showed that there is a micro-level relationship between verbal *achievement* – the verbal skills acquired in school – and participation; this relationship is robust and independent of attainment effects. I noted then that the aggregate pattern in verbal achievement corresponds much more closely to participation trends.

Now, in this chapter, I have shown that this resemblance holds for other important participatory patterns: disparities between social groups. There are great inequalities in achievement; and, though it may surprise readers more familiar with the schools that

serve the advantaged, not all adolescents in the United States get to practice basic, politically useful communication skills like writing letters, drafting essays, and participating in group discussions. The students who do not get these opportunities, and the students who gain fewer verbal skills are more likely to be non-White, male, and poor.⁵⁵ The starkest divides fall along class lines; adolescents from socioeconomically advantaged families far outpace their peers, both in terms of communication learning opportunities and the skills they learn. Inequality in political and civic engagement follows nearly identical patterns. This is further evidence that scholars of education and politics should move toward a dual focus on attainment and achievement, just as education economists have done in recent years (see Hanushek et al. 2008 for a review).

So, in the earlier chapters in the dissertation, I showed that verbal communication learning opportunities and skills have clear micro-level causal effects on engagement, and now it is clear that they are distributed disproportionately to advantaged youth. These are the same young people that go on to have greater voice in American politics as adults. However, though mass participation appears to echo educational inequity, this only suggests a causal relationship in the aggregate. Future studies should put this hypothesis to the test with additional analyses.

Future studies might also examine other educational disparities and their relationship to political inequality. One promising direction is the openness of the classroom climate, which positively affects political engagement in adolescence

⁵⁵ These distinctions can also be observed with the NHES 99 data I analyze in Chapter Three. The table of summary and balance statistics details group differences.

(Campbell 2008). Some qualitative evidence suggests that classroom climate and the distribution of power in schools more generally varies greatly by the socioeconomic status of the student population and local community (Hayward 2000). Further examination of this relationship is needed. And the distribution of high-quality civics instructional methods, service learning, additional communication learning opportunities, or even politically engaged peers may follow similar patterns, playing a role in the transmission of political inequality.

Schools are “institutions of concentrated disadvantage” (Orfield and Lee 2005, 7), and understanding the ways in which the early years spent in these institutions matter for political inequality is imperative. As I noted in the introductory chapter to this dissertation, engagement scholars understand that important power resources are distributed unequally to adults, within social institutions like church and the workplace (Verba et al. 1995). This insight must be extended to youth, and learning opportunities and skills beyond civics must become a crucial component of that undertaking.

Figure 6.1 Reading achievement for 13-year-olds, by parent's highest education

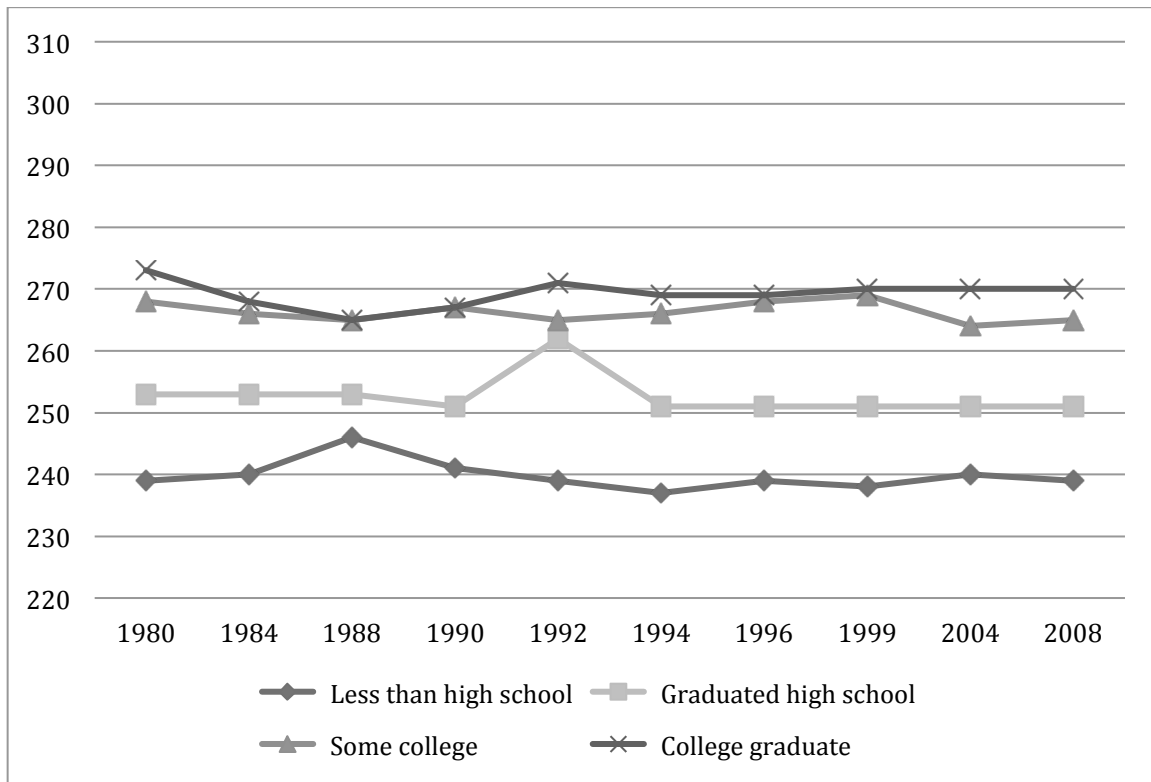


Figure 6.2 Reading achievement for 17-year-olds, by parent's highest education

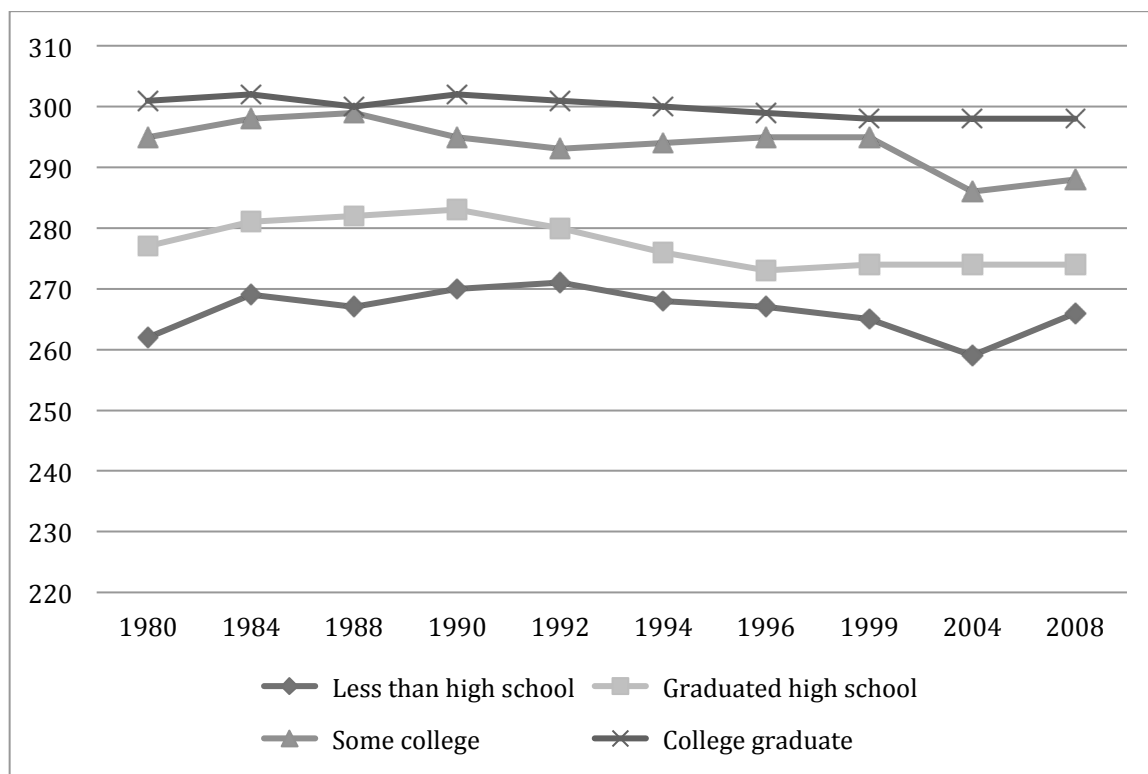


Figure 6.3 Learning opportunities in eighth grade, by parent's highest education

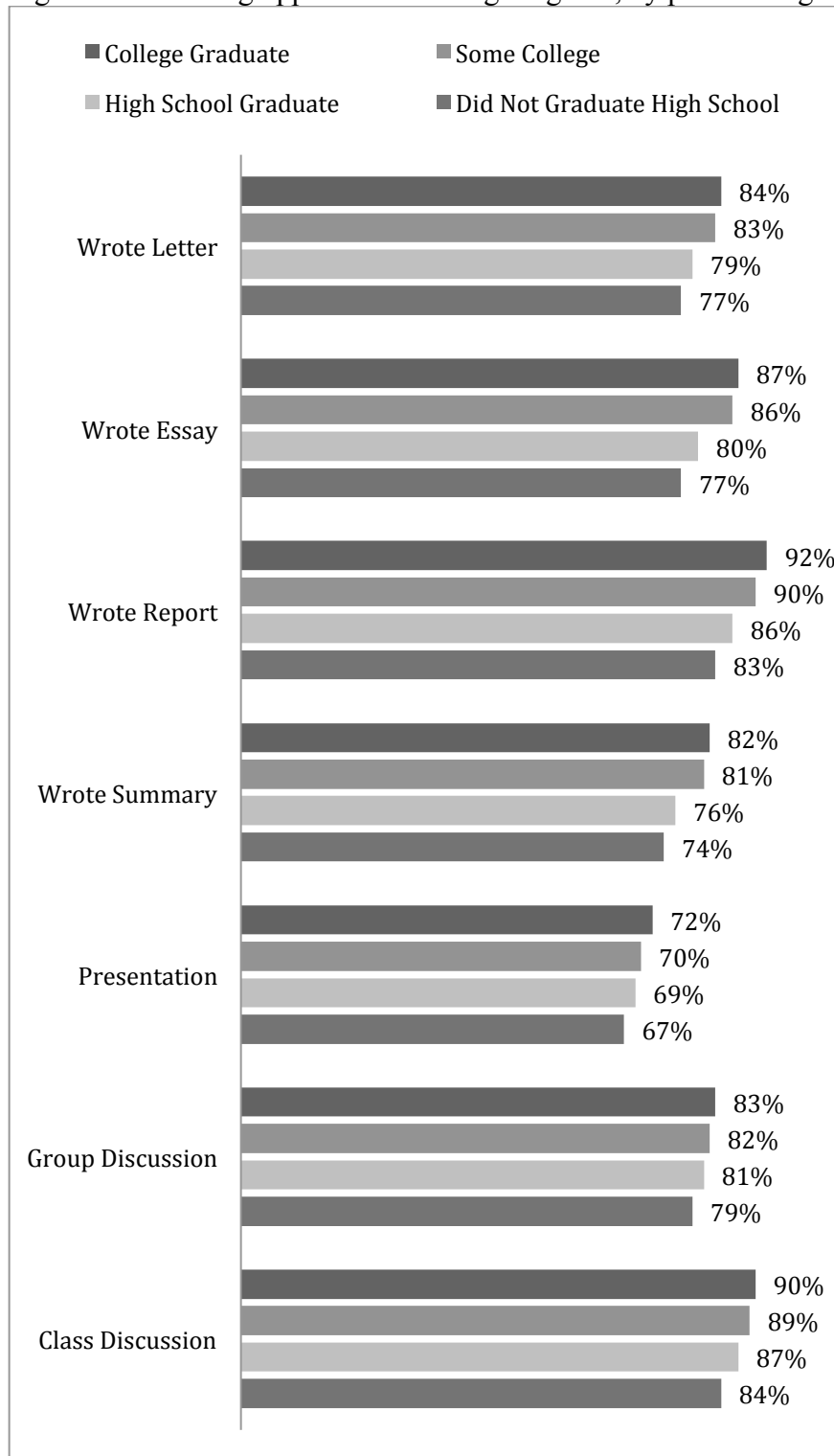


Figure 6.4 Learning opportunities in twelfth grade, by parent's highest education

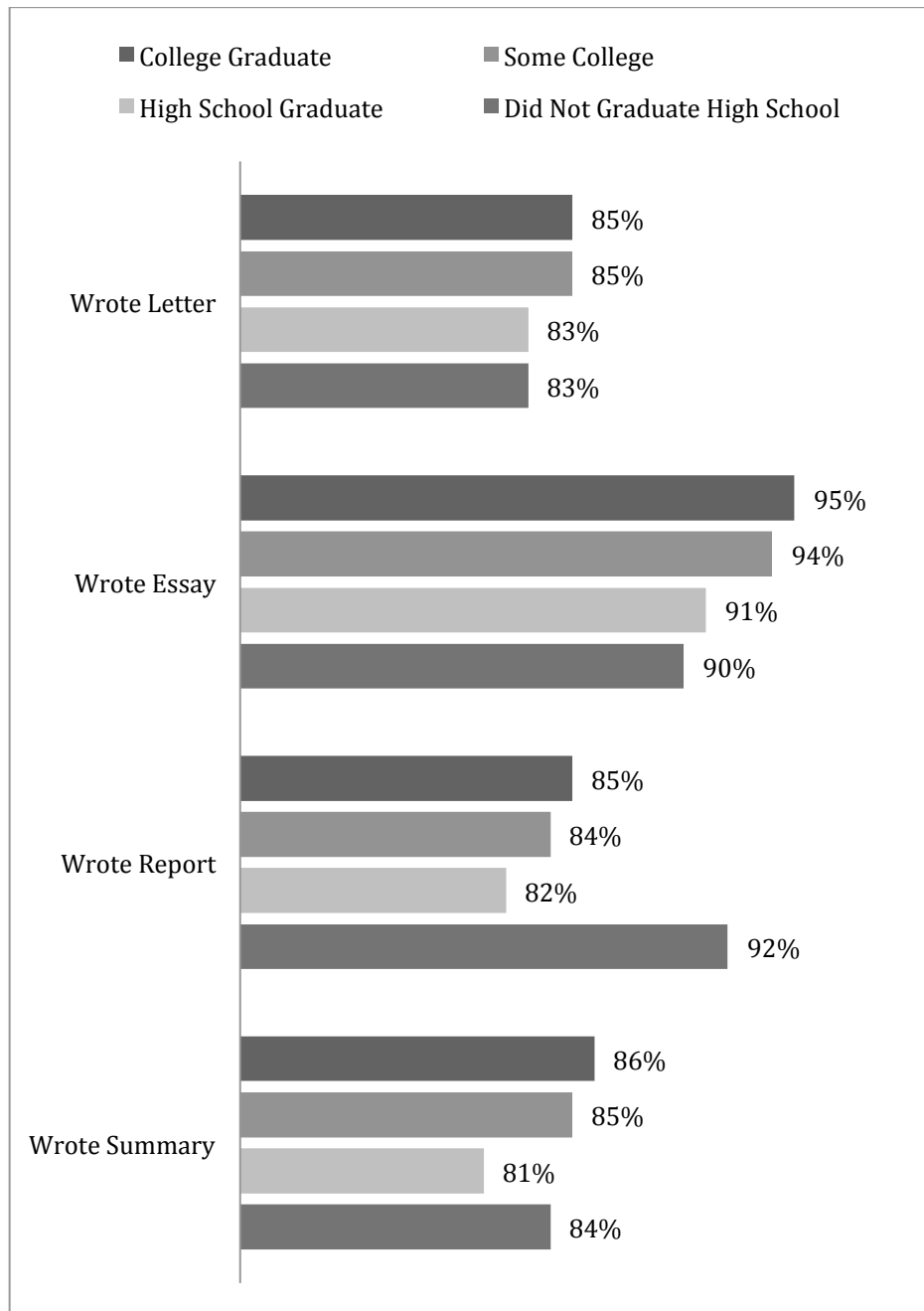


Figure 6.5 Reading achievement for 13-year-olds, by race

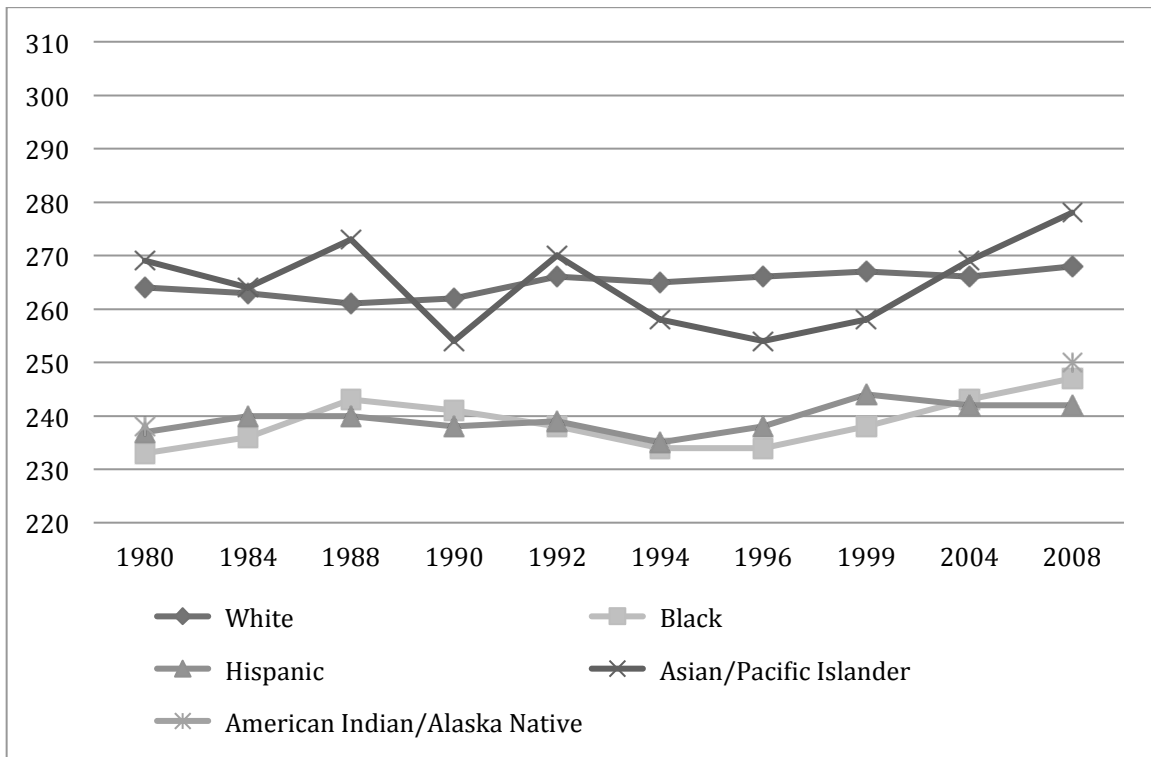


Figure 6.6 Reading achievement for 17-year-olds, by race

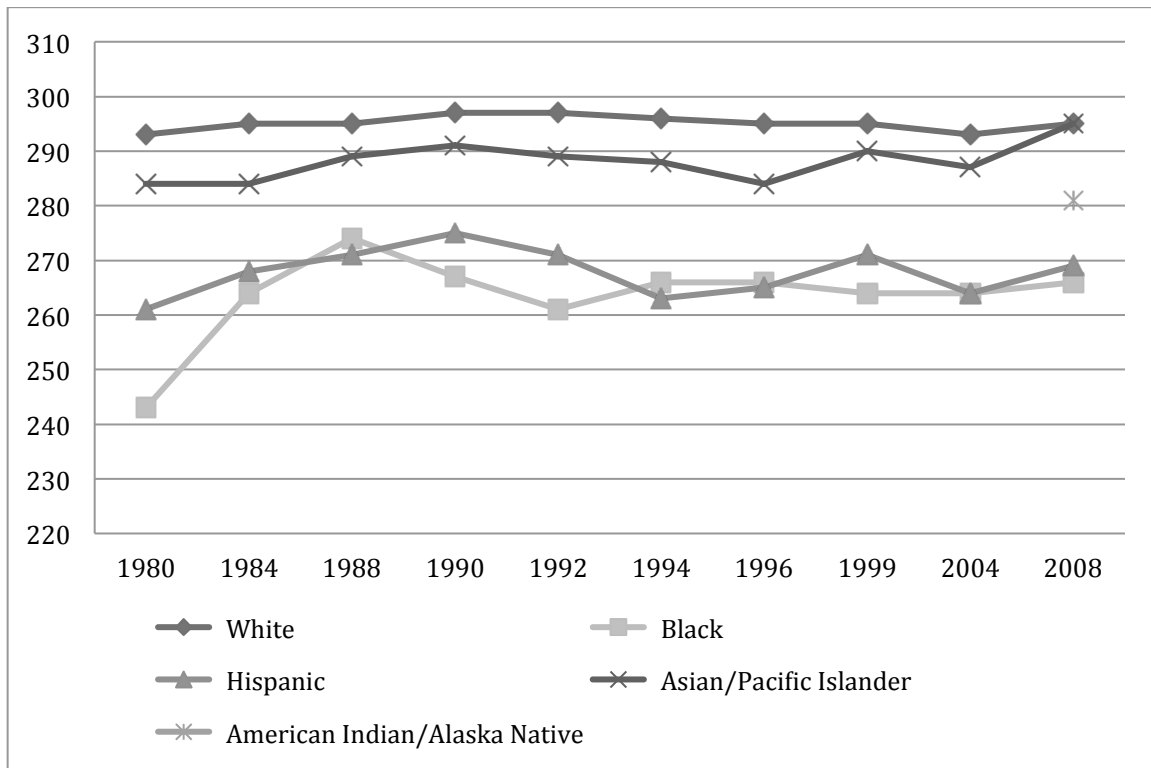


Figure 6.7 Learning opportunities in eighth grade, by race

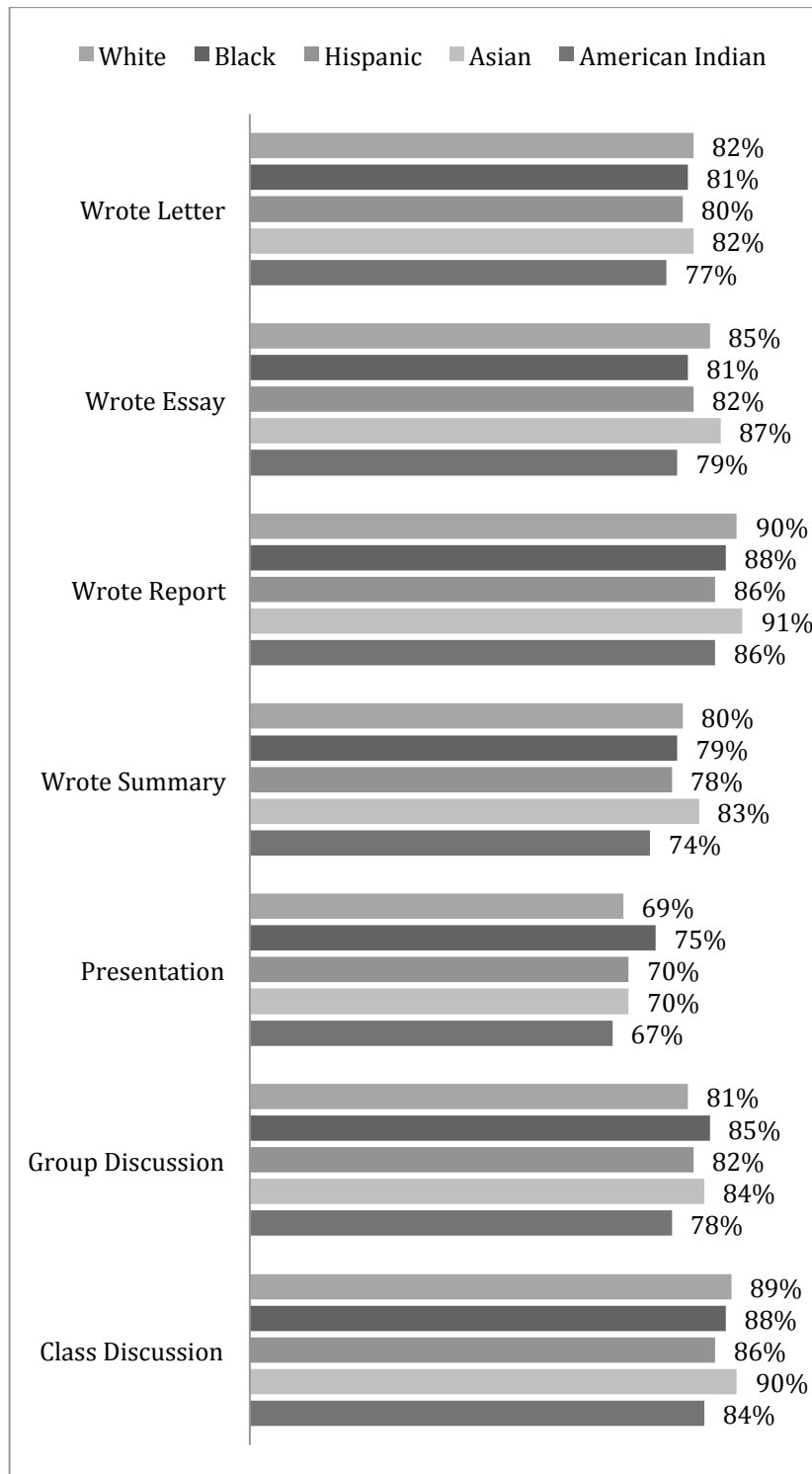


Figure 6.8 Learning opportunities in twelfth grade, by race

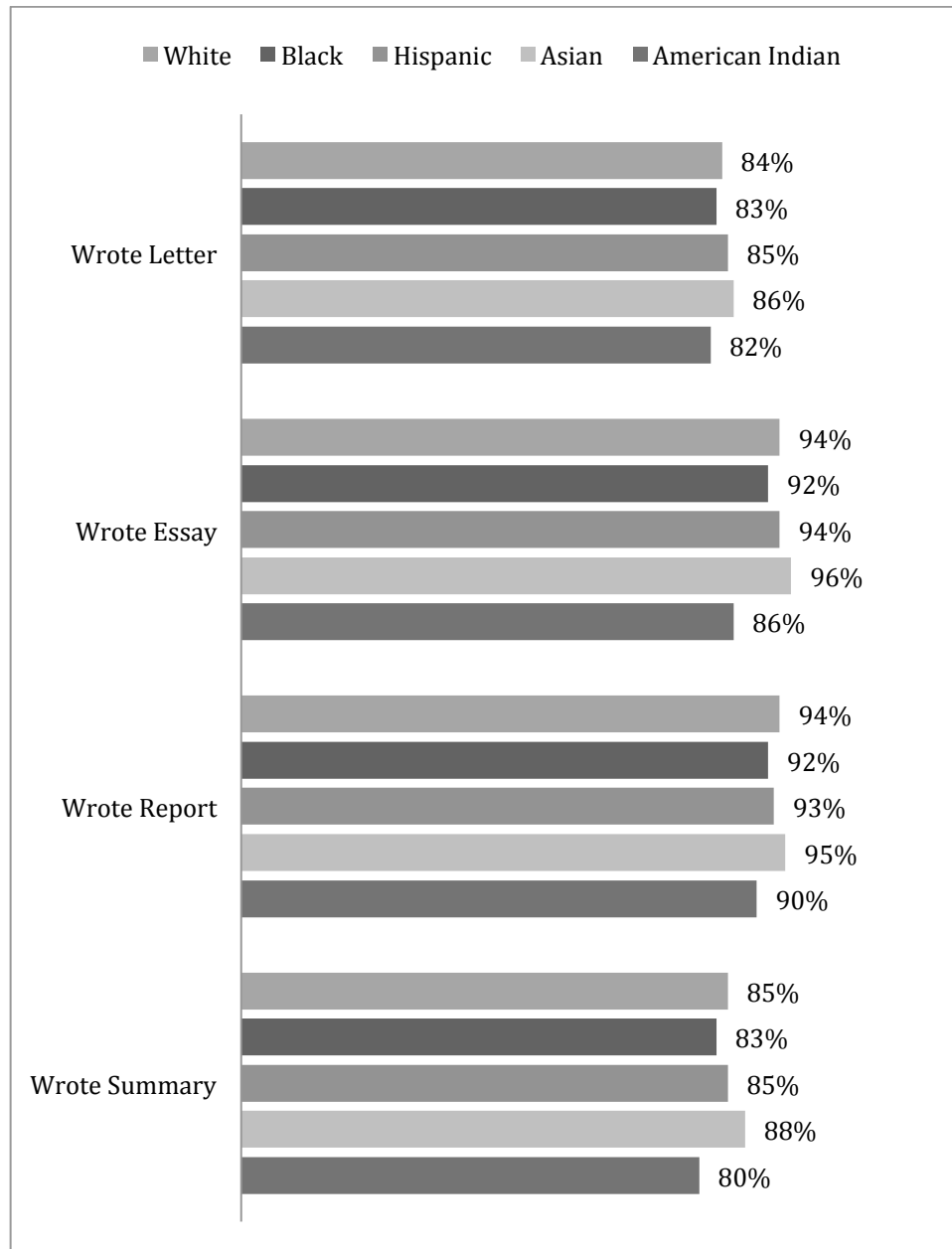


Figure 6.9 Reading achievement for 13-year-olds, by gender

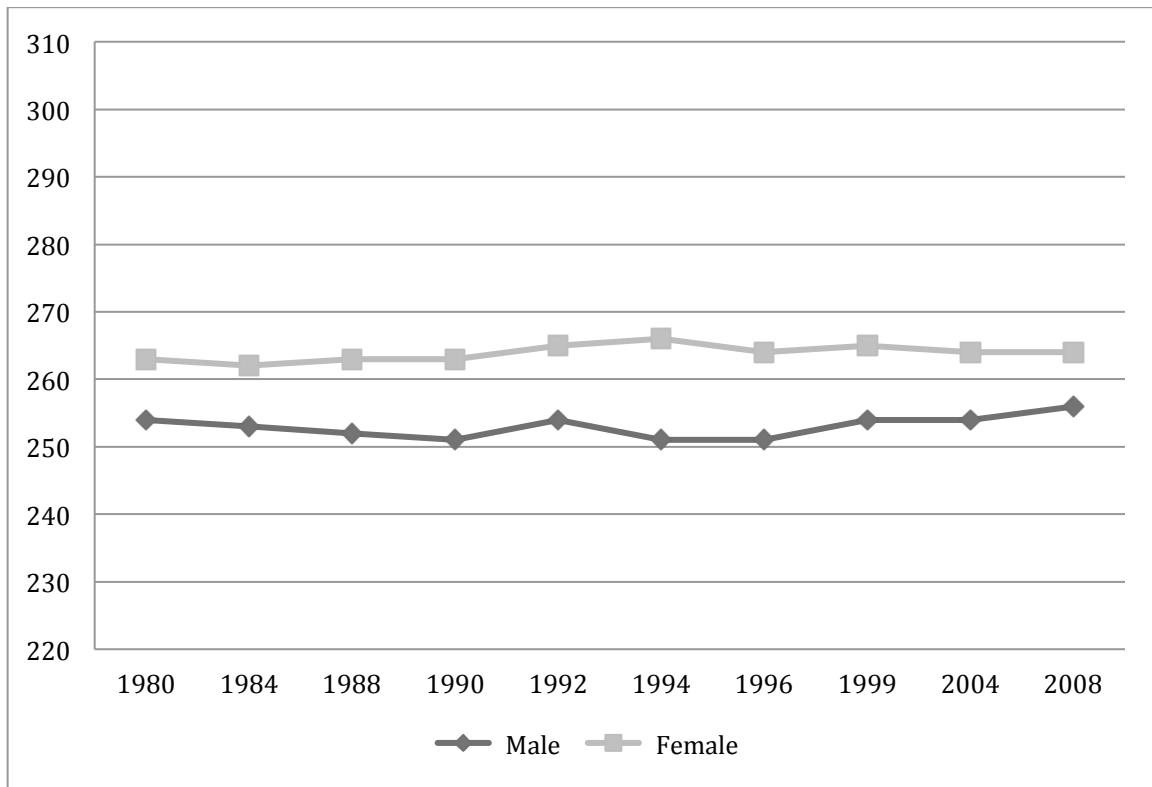


Figure 6.10 Reading achievement for 17-year-olds, by gender

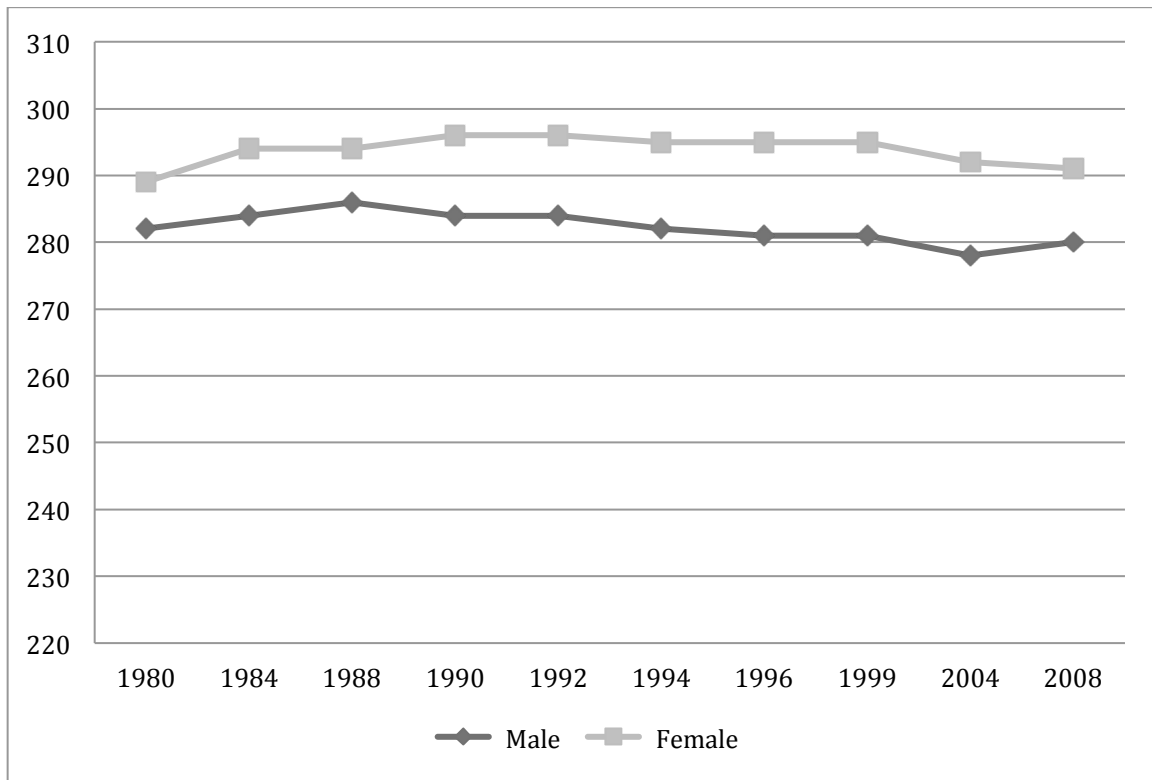


Figure 6.11 Learning opportunities in eighth grade, by gender

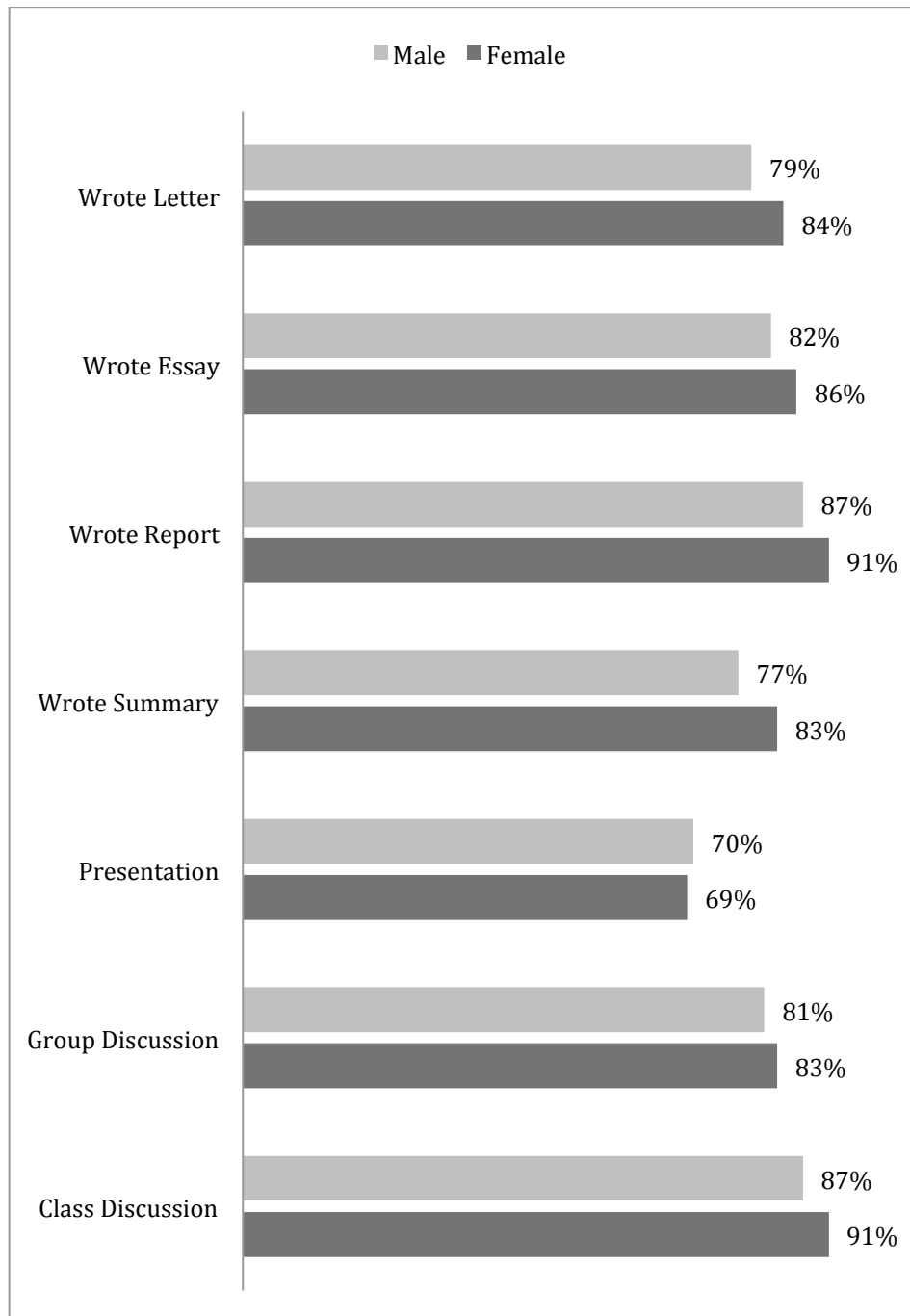
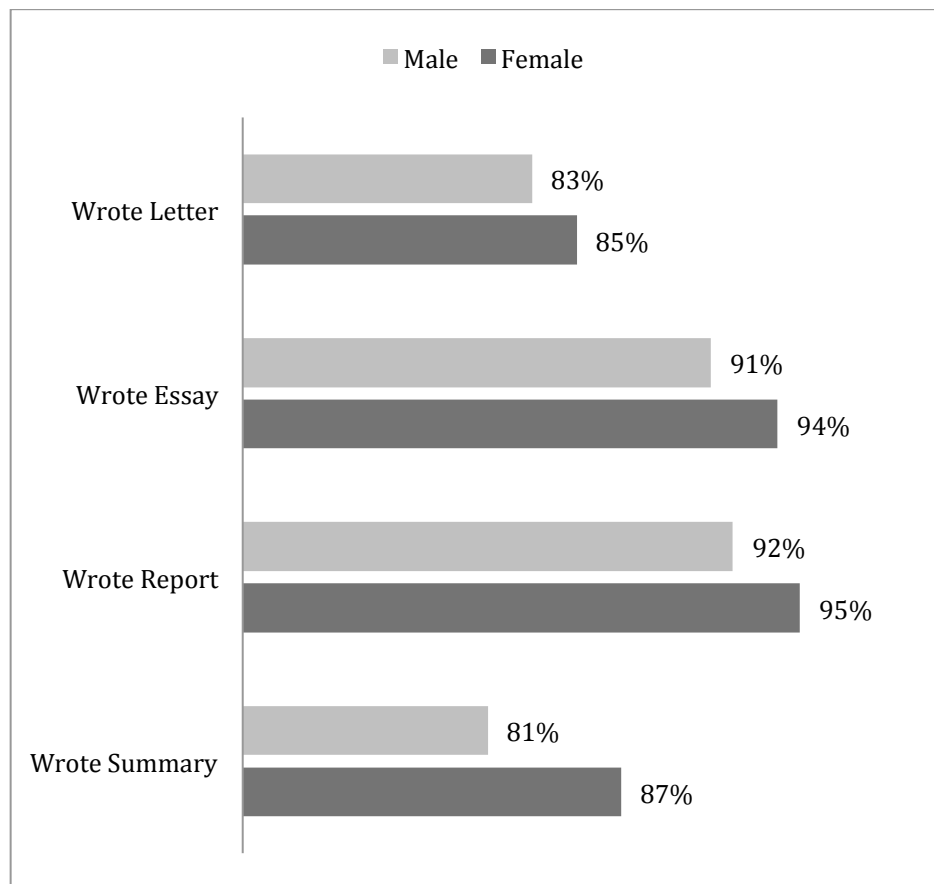


Figure 6.12 Learning opportunities in twelfth grade, by gender



Chapter 7

The Distribution of Opportunity: Schools as Sites of Policy Feedback

7.1 Introduction

“A government is to be judged by its action upon men and by its action upon things, by what it makes of the citizens and what it does with them, its tendency to improve or deteriorate the people themselves....Government is at once a great influence acting on the human mind and a set of organized arrangements for public business” (Mill 1861, 14).

The central finding of this dissertation – that general verbal communication skills acquired in school, rather than civics education or degree attainment alone, drive the relationship between education and political engagement – is important for two reasons. First, this expanded view of education for citizenship explains much of what has puzzled scholars of political behavior. Though high quality, discussion-centered civics education in the upper grades can have some effect on engagement (Niemi and Junn, 1998; Torney-Purta, 2002; Beumont 2011), scholars have long-understood that civics

education alone does not, and cannot explain the relationship between education and political behavior. That there is a clear, causal relationship between engagement and the much more general, but politically useful communication learning helps to resolve this question.

And the long-debated inconsistency between aggregate trends in educational attainment and political participation, the so-called “puzzle of participation,” is no longer so puzzling if we consider the fact that the verbal skills that really matter for participation have not risen with attainment. Adolescents enter political maturity today with much the same communication skill set that they did decades ago. Additionally, the vast inequality in verbal skill and learning opportunity among American adolescents maps closely with patterns in political and civic engagement, over time and across social groups, suggesting that these general skills acquired in youth may be an essential ingredient for understanding the production of political inequality.

But this finding has more than theoretical value; it is my hope that a more nuanced understanding of the pathways between education and political engagement can offer lessons for policy and practice. In this chapter, I take up that task. The communication learning opportunities I tracked in Chapter Six – to write, speak, and discuss in the classroom – are far from universal, and students from disadvantaged families are particularly likely to miss out. But they are also a clear, and relatively simple, point of intervention. In this chapter I ask which aspects of education policy determine the distribution and what can be done to address this democratically important inequity. Based on theory from the policy feedback school in political science, and the

literature on the determinants of learning opportunities in education, I further develop and test the dissertation's fourth and final hypothesis:

H4: The distribution of opportunities to actively practice communication skills in school should be determined by existing education policies and school context.

I estimate multilevel models of communication learning opportunity, where students are nested within schools. I show that, holding student characteristics constant, three features of a school determine this opportunity: school composition (the proportion of minority and socioeconomically disadvantaged students it serves), teacher quality, and professional development programs that build teacher capacity to integrate language arts across the curriculum. I explain how these results are consistent with the hypothesis, illustrating the interplay of school policy, teacher characteristics, and school composition. I conclude by discussing directions for future inquiry in this area and possible strategies for increasing the prevalence and equity of active communication learning opportunities in American schools.

7.2 Schools and Policy Feedback

My aim in this chapter is to explain how school policies and characteristics structure opportunities to practice politically valuable communication skills. This is a question about how “policy creates politics,” as Theodore Lowi famously put it (1964). The policy feedback school in political science takes aim at such questions, explaining how individual's experience with policy programs affect the attitudes, resources, and

identities they bring to bear in the political arena. Policy programs can enhance or suppress political and civic engagement and efficacy (e.g. Campbell 2003; Mettler and Soss 2004; Mettler 2005; Soss 2000; Bruch et al. 2010). These effects can be particularly powerful for poor and otherwise socially disadvantaged people. For example, Campbell (2003) shows that the political engagement of low-income Social Security recipients is affected more by program participation than is the participation of higher-income recipients. Bruch and her colleagues show that Welfare and other means tested programs “structure low-income citizens’ experiences with government in ways that raise or lower their levels of civic and political engagement” (2010, 206; see, for other examples, Mettler 2005; Soss 2000).

While adults experience policy and government when they visit the welfare or social security office, youth experience them every day at school. Schools are the institutions where young people spend the brunt of their formative years, developing the resources, identities, and understanding of government they carry into adulthood. Educational institutions are governed by a complicated system of federal, state, local, and “street-level” policy designs and decisions, and it is imperative that scholars of American democracy learn how these policies feed back into democracy. As I noted in the introduction to this dissertation, Mettler and Soss charge the field to view schools as sites of policy feedback:

Citizens who receive more education are, to state the matter simply, advantaged in the political arena. How do they come to be privileged in this manner? The answer lies, to a significant degree, in public policies that distribute educational

opportunities to citizens and shape their quality of education. Yet studies of political behavior rarely mention government policy as an important factor influencing observed outcomes. And policy studies that focus on social and economic outcomes say almost nothing about how education policies affect the political process. In the overlooked space between these subfields, one finds the crucial question of how education policies create, sustain, and challenge political inequalities—and how such policies might better serve a polity that aims to govern itself in a democratic fashion" (2004, 56).

Despite this compelling argument, there has been little work in the area. A few scholars have taken on the charge. Marschall et al. (2011), in a study of bilingual education, situate school-level decision making in the policy feedback literature, viewing teachers as street-level bureaucrats whose decisions about curriculum and instruction are partially, but not totally, constrained by state policy. And Bruch, in a fascinating study of school disciplinary policy (2012), draws clear connections between educational decisions about punishment and young people's attitudes about their citizenship. This chapter adds to these studies, showing how school policies and context structure the distribution of opportunities to actively practice communication.

7.3 Teachers Make Decisions Based on Social Constructions

In education, many policy decisions are made locally. Though state policy dictates general content standards, teachers make the "street-level" decisions about curriculum and instruction in American schools. In the political science literature, there is some support for the theory that teacher decisions structure political inequality: teachers inform students' understanding of power via the active versus passive character of student activity (Hayward 2000). And the education literature is rife with evidence that

teachers make curricular decisions based on student demographic and social characteristics (e.g. Brophy and Good 1970; Payne 2010; Rist 1970; Rosenthal and Jacobson 1968; Diamond et al. 2004; Rumberger and Palardy 2005; Warren 2002; Weinstein 1996; Tenenbaum and Ruck 2007).

For example, Harris (2012) shows that inequality of educational opportunity persists even when state standards and a designed curriculum are supposed to guide instructional choices, because teacher views of disadvantaged student groups lead them to alter the curriculum. For example, in the Harris study, teachers are asked if all students can be expected to learn the same thing, to achieve the same standards. Teacher answers include the following:

I'm not really sure . . . They want us all to be similar. I don't know what they base the standards on. America's Choice⁵⁶ gives you a curriculum, but it is impossible that they [the kids] will all meet the standard because it's no one's fault they just can't because of IQ or home life or whatever. They have problems outside of school larger than anything else I can even imagine (10).

I think different students are going to meet standards in their own way. It's not a cookie cutter. Every student will not be able to do every component of a standard (14).

In another study, Balfanz (2000) shows that teachers in low-performing schools focus on lower-level skills because they believe the skills have not been taught in previous grades – a practice that, when repeated across grades, can lead to limited

⁵⁶ America's Choice is the name of the curriculum.

exposure to more advanced skills like those that are the focus of my dissertation. On one hand, the remarks and rationales above are those of conscientious educators, trying to meet the unique needs of their students. But, though the intent may be benign, the effects are not. When decision makers' constructions of poor and minority students center on difficult home lives, lower ability, assumed deficits, or obstacles to learning in general, then curricular decisions are made based on the rationale that these students cannot be expected to meet the same standards as other students. The result is that different learning opportunities are offered in the classroom. When the opportunities offered have political value, as do active communication learning opportunities, citizenship and political equality are affected. This process has been thoroughly documented in the education literature, but has not been interpreted from a policy feedback perspective. Doing so sheds light on the path from educational inequality to political inequality.

7.4 A Multilevel Model of Active Communication Practice Opportunity

My empirical goal is to estimate the effect of school policies and contextual factors generated by education policies on students' active communication learning opportunities. To do so, I model learning opportunity as a function of student and school characteristics. I use the same NAEP administrative and student survey data described and analyzed in Chapter Six, and, following contemporary research on school effects, I estimate multilevel models of active communication learning opportunity with students nested within schools. As Konstantopoulos and Borman explain, multilevel models "have, in several respects, brought about a revolution in the analysis of school effects.

Rather than choosing between the student level or school level as the primary unit of analysis, multilevel models allow the researcher to model simultaneously hypotheses about effects occurring at each level while taking into account the nesting of the data” (2011, 104).

Following the work of Konstantopoulos, Borman, and others in education research, in this chapter I assess the degree to which school level factors predict active communication learning opportunity. I operationalize this form of opportunity as I did in Chapter Six, with student reports of experiences they have had in the last school year to write and speak in the classroom. I construct two outcome variables: one for speaking and one for writing opportunity, through a factor analysis.⁵⁷ Though the questionnaire items included are observed behaviors, the resulting factor scores can be thought of as measures of latent constructs – operationalizing the degree to which the learning environment is rich in active communication learning opportunities. A principle components factor analysis finds that all speaking items load well onto one factor, as do all writing items. The speaking practice analysis produces one factor with an eigenvalue greater than one (1.50), as does the writing analysis (2.04). All speaking items load well onto a single factor, as do all writing items. (See Table F.1 in Appendix F for factor loadings.)

⁵⁷ Writing and speaking skill practice are examined separately because of the structure of the NAEP. Different nationally representative samples of students take the reading and writing assessments, and answer the associated survey items. No one student answers both the reading and writing questions I use here. I also conduct the analysis in this chapter using only the eighth grade NAEP data, because the high school seniors and their schools do not report all of the necessary variables.

Based on policy feedback theory, I expect that school policies and context are central to the production of these outcomes. I operationalize this process in three ways, with school level measures of: (1) student body composition, (2) teacher quality, and (3) teacher professional development programs that encourage the teaching of language arts across subjects.

First, I include school composition measures to capture the makeup of the student body. I use three administratively reported school level variables: the percent of students who are Hispanic, Black, and who are eligible for free or reduced federal lunch.⁵⁸ The analysis in this chapter focuses on learning opportunities, but other scholars have already shown that school composition has important effects on achievement (both math and verbal), even after holding student characteristics constant (e.g. Gamoran 1996).

Segregation in American schools is still high, and has been rising since the eighties (Clotfelter 2004; Logan, Oakley, and Stowell 2008; Orfield and Lee 2005). Racial segregation interacts with class segregation because minority children are more likely to be poor and attend schools with higher overall levels of poverty (Saporito and Sohoni

⁵⁸ The percents Hispanic and Black are continuous. The federal lunch variable is not continuous. In the NAEP data, rather than reporting the actual percent of students who are eligible for the lunch program, administrators report a category into which the school falls: 0 percent, 1–5 percent, 6–10 percent, 11–25 percent, 26–34 percent, 35–50 percent, 51–75 percent, 76–99 percent, and 100 percent. While this measure is not ideal, both because of its imprecision at the school level and the issues with measuring family SES with a federal lunch indicator at the individual level, which I discussed in Chapter Six, it is nevertheless a decent indicator of the general socioeconomic disadvantage in the student population. Perhaps a more precise measure would produce even stronger results, but as I show in the next section of this chapter, even with the measure used in this analysis a strong relationship is found.

2007). Unlike their White and Asian peers, the majority of Hispanic and Black children in American attend high poverty schools (Orfield and Lee 2005). And school composition is associated with teacher quality – students in disadvantaged social groups attend schools with less qualified teachers, and these differences produce gaps in achievement in the early and middle grades (Rivkin et al. 2005; Hanushek and Rivkin 2009). These compositional characteristics are all functions of school districting and enrollment policies.

The school level indicators of composition are also important indicators of teacher policy decisions. My expectation is that teachers make different curricular decisions for different student groups. If an individual student's own poverty or race predict opportunity, it may be because the student is self-selecting into certain classes or activities, or because some other student characteristic, unobserved but correlated with race or SES, is affecting opportunity. But teachers give assignments and activities to entire classes of students; if the racial and SES composition of the school affect a student's opportunity *above and beyond that student's own characteristics*, that is evidence that school personnel are making policy decisions about what is offered in ways that are determined with the group of students they serve. I already showed in Chapter Six that student characteristics are strongly related to the learning experiences they have. In this chapter I show that the characteristics of their classmates matter too.

Teacher quality is the second key element I include in the model of active communication practice opportunity. I expect that teacher decisions about instructional techniques to produce the outcome, and it may be that better teachers make decisions to

offer their students more of these valuable opportunities. Teacher quality, as I just mentioned, does affect the quality of instruction and learning outcomes, but it is notoriously difficult to measure. I include indicators for the average educational attainment and certification type of the teachers in a school. These are typical but imperfect measures of teacher quality. For example, Rivkin et al. (2005) argue persuasively and then demonstrate empirically that these observable teacher characteristics have little association with important student outcomes, while more sophisticated measures based on student achievement show strong results. Development of valid teacher quality measures is indeed a hot topic in policy and education research, but those debates are beyond the scope of this chapter. So, I use the standard teacher characteristics offered in the NAEP data, and offer my results with the caveat that more precise or valid measures of teacher quality may yield different results in future research.

The third and final way that I operationalize the effect of school-level policy is with a measure of teacher professional development programming at the school. Professional development is the training and education that teachers receive on the job. Development opportunities are intended to alter the decisions and practices of the teachers by increasing their skill, knowledge, and capacity. These programs can and do alter teacher practice (e.g. Gamoran et al. 2003). I use a measure for the degree to which the school provides teachers with professional development about integrating language arts across the curriculum. This is a school-level policy that is intended to reach all teachers, across subjects. My expectation is that in schools where teacher capacity to integrate reading, writing, speaking, and listening skills across subjects is built through

professional development, the students will experience a more communication-rich learning environment.

This third measure of school policy – professional development – is also noteworthy because with it I can test whether or not students' politically valuable experiences might be enhanced through a relatively common and well-developed class of interventions. Thus, positive results here would point to the clearest and perhaps simplest route to increasing student opportunity.

In addition to these three key independent, school-level characteristics, I include a host of control variables at the student and school levels. Student characteristics in the model include: indicators of parental education, gender, race, and whether or not the student has an individualized education plan (IEP).⁵⁹ Because my goal is to examine the effect of the key school-level characteristics on the school-level intercepts, net of individual characteristics, it is appropriate to grand-mean center all individual covariates (Raudenbush and Byrk 2002, 142; see also Konstantopoulos and Borman 2011).

Individual characteristics are centered on the mean from the whole sample, rather than each school mean, so the coefficients on the school-level characteristics are adjusted for

⁵⁹ The IEP measure is important because it indicates that the student has a recognized disability or exceptional learning need. Children with disabilities are dramatically less likely to experience all communication learning opportunities in this dissertation. While I did not focus on disability status as a separate social group indicator in Chapter Six, the disparities these students face have political importance as well. Disabled Americans are less likely to participate in politics and have lower levels of efficacy and other important political attitudes (Schur et al. 2003). Education policies and decisions like those I discuss in this dissertation may play an important role in the political engagement of people with disabilities.

the individual effects and the individual predictors explain both within and between school variance.

At the school level, I include the size of the school, the sector (public or not), and whether or not the school reports tracking students by ability, an important predictor of student learning opportunity (Heyns 1974; Oakes 2005; Gamoran and Mare 1989; Gamoran 2000).⁶⁰ All of these covariates are important and interesting in their own right, but in this analysis, because I am primarily interested in identifying the role of teacher decision-making and views of student target populations, I treat them as control variables. Summary statistics for all covariates are included in table G.1 in Appendix G.

In sum, using nationally representative data from the NAEP, I model student opportunity with three key school-level factors: the composition of the student population (target group), the general quality of the policy decision makers (teacher quality), and policy intended to alter teacher decisions (language arts professional development). I control for other school and student characteristics that may be correlated with these key independent variable and learning opportunity.

⁶⁰ The indicator of school tracking policy is not ideal. In the eighth grade survey, schools report whether or not they group, or track, students by ability in *math*, but do not report whether they have a comprehensive tracking policy or whether they track in other subjects. Because students switch classes in most middle schools and junior high schools, tracking in one subject can produce de facto tracking in others, but this is still a less-than-ideal measure.

7.5 Results

Table 7.1 presents the results of two multilevel models with students nested in schools. All three of the school characteristics I expect to matter – school composition, teacher quality, and professional development – do have detectable relationships with the degree to which the student in the school experience opportunities to practice writing and speaking. First, I examine the effect of school composition. The factor score used as the outcome has a mean of zero and a standard deviation of one, so the coefficients can be interpreted in standard deviation units. The results are nearly identical in the writing and speaking opportunity models. In both models, individual student characteristics matter for opportunity in expected ways, but the essential finding is that school composition affects students' opportunities to practice communicating above and beyond their own social circumstances. Holding a student's own race, SES, gender, and disability status constant, on average that student is less likely to experience writing opportunities if he or she attends a school with a greater proportion of poor students. For every category that a school moves up in poverty composition, the average writing and speaking opportunities increase .05 standard deviations. This means that a student in a school with 100 percent poverty is expected to fall .45 standard deviations below a similar student in a school with the no poor students.

[Table 7.1 about here]

School racial composition also has a detectable effect on communication opportunity. Holding student characteristics and the poverty of the school constant, a student in a school with more Black and Hispanic students is actually more likely to be given opportunities to write and speak in the classroom. These effects are detectable with this large sample, but substantively smaller. The average writing opportunity increases only .02 of a standard deviation with every 10-point increase in the percent of Black or Hispanic students in the school. So, the average student in a school with 100 percent Hispanic or Black students would be .2 standard deviations higher on the opportunity scale than a similar student in a school with all white students, holding other school characteristics constant. Remember too, that that school poverty is held constant. Schools serving all minority or all White student populations are rarely equivalent in school-poverty and other school level characteristics.

Next, I examine teacher quality. Again, I offer these results with the caveat that the measures I use – teacher educational attainment and certification – have limited validity. Readers should note that nearly all public school teachers have at least a bachelor's degree, so there is little reason to expect a detectable effect from the teacher educational attainment measures. However, though in the model of writing opportunity, no measures of teacher quality are significant, that is not the case for speaking opportunity, where certification has a detectable association with opportunity. For every point increase in the percent of teachers with a standard certification, as compared to uncertified teachers, in a school, opportunity to speak increases by .03 of a standard deviation. So, consider a school where ten percent of the teachers are uncertified; if all of

these teachers were exchanged for fully certified teachers, the school's average speaking opportunity would increase by nearly a third of a standard deviation. The teachers' educational attainment does not have a detectable effect. It seems more highly trained teachers give students greater opportunity to practice speaking communication in class.

Finally, I look at school professional development programs encouraging teachers to integrate language arts across the curriculum. Are these programs associated with a more communication-practice rich environment for the students? It appears that they are, but only if the school reports a high enough "dosage" of the professional development. No professional development is the omitted category. When a student's school offers "a small extent" of language arts professional development to teachers, there is no detectable effect, but when the school offers a "moderate extent" of language arts professional development, the average student's writing and speaking opportunities are increased by .06 of a standard deviation. When the school offers a "large extent" of language arts professional development, opportunity is increased by .09 of a standard deviation. These are small but detectable effects, even after holding the other school and student characteristics constant.

All three indicators of the teacher decision-making process have detectable relationships with communication opportunity. Clearly, though, the largest and most important school effects can be traced to school poverty. When a school serves a large proportion of socioeconomically disadvantaged students, the curriculum includes fewer opportunities for writing and speaking – fewer opportunities for students to develop their voices.

7.6 Conclusion

The analysis in this chapter is a first look at the school characteristics that affect the politically important communication opportunities students encounter. In concert with the evidence in the rest of the dissertation that these communication experiences increase political engagement and efficacy, I argue that this process in the schools is one of policy feedback, in which public institutions and the policies that govern them affect the citizenship of the people experiencing them. I find that three indicators of this feedback process – school composition, teacher quality, and teacher professional development – are associated with the opportunities students in the school have to practice politically valuable communication skills. Students in high poverty schools are at a particularly troubling disadvantage.

My aim has been to paint with a broad brush and examine nationally representative NAEP data, but further study is needed to truly understand the nature of the process by which communication practice opportunity is distributed in schools. First, the school-level decision-making process is not actually observed. Future qualitative study is needed, following the work of Harris (2012) and others who have described the ways in which teacher views about groups of students inform instructional choices. Researchers can investigate the nature of the constructions and rationales held by decision-makers. From this analysis, I am unable to tell whether teachers think that poor children need more reinforcement of basic skills, rather than advanced, active

communication skills; whether they believe the students are less capable; or even whether they feel that guiding students through debates and essays is too demanding given the resources and challenges of teaching a high poverty population. In-depth interviewing and observation can uncover the nature of the decision-making process itself. In future quantitative work on this topic, more valid and precise measures – especially of teacher quality, but also of the nature of the professional development – would be valuable. Finally, as is true with many educational outcomes, much of the variation in opportunity here exists within, not between, schools. A fuller examination of the within school determinants of these opportunities is a clear next step for scholars. For example, a study in which teachers are nested within schools would be the next logical companion to this chapter. Within school differences in professional development, quality, and classroom composition could be examined.

Looking at the distribution of learning opportunity in school from a policy feedback perspective is fertile ground for scholarship. Even the analysis in this chapter has implications for the feedback literature and education policy. To the policy feedback school, this work underscores the need for greater focus on education policy, and the policies that affect youth in general. Working in the policy feedback tradition, Ingram and Schneider argue that public policy designs must “enlighten, educate, and empower all citizens,” but that this goal is unlikely to be achieved “unless the power of target populations is made more equal and social constructions become less relevant or more positive” (1993, 345). The insight that education and empowerment occur in many policy

contexts is critical, but it should not lead us to overlook the institutions designed explicitly to serve that function and the citizens in their most formative years.

How policy feedback occurs for the youngest Americans is an important and logical extension of the lessons provided in the literature about adults. Bruch et al. (2010) argue forcefully for attention to policy feedback in youth:

Are citizens more susceptible to policy-based learning at some points in the life course than at others (Sears 1990)? Are we, for example, more likely to observe feedback effects on political attitudes and behaviors when individuals experience policies during their younger, impressionable years (Niemi and Hepburn 1995)? Likewise, do earlier policy experiences have greater weight because they structure interpretations of later experiences, or do recent experiences provide more salient cues that override policy-based lessons of the past (Sapiro 1994)? To ask these questions is to highlight the newness of policy feedback studies, the complexity of policy-based learning processes, and the need for longitudinal analyses of citizens' political development (222).

There is already evidence in the education literature that teachers base decisions on their ideas about student groups, and connecting the policy feedback to this teacher decision literature should lead to important advances in our understanding of political development in youth. Other policy designed to affect young people (e.g. juvenile justice, foster care, health care policy, and others) can also be included in this effort. People experience policy regimes before they reach adulthood, and these early experiences may teach especially important lessons about citizenship.

Attention to education policy also complicates the duality often drawn in the policy feedback literature between universal and means-tested policies. Universal programs are often seen to have better democratic outcomes (Campbell 2007), but

universally provided public education is rife with internal inequalities. Benefits, burdens, and effects on citizenship are distributed unevenly within and between schools. A fuller examination of this variation is required, and may lead to insights about inequality within universal policy regimes.

The study in this chapter also has direct implications for education policy. To increase active communication practice, especially in high poverty schools, the first step can be teacher professional development. Development efforts can focus on teacher capacity to integrate language arts across the curriculum, like the programs examined in this chapter, or they might combine language arts training with a program designed to alter beliefs and constructions about target populations of students (Weinstein et al. 1995). Professional development can be a powerful tool to change teacher practice (Gamoran et al. 2003), and it is a good first step in enhancing communication opportunities in schools.

However, the fundamental role of school composition cannot be downplayed. Inequalities in active communication learning are produced by class segregation in education. Because school enrollment areas are usually determined geographically, this can be seen as a mechanism through which residential segregation translates into political inequality. Segregation is a major source of educational inequality more generally, and in this chapter, I have argued that concentrated poverty has important political implications. Further inquiry is needed into the civic and political consequences of educational segregation, and enrollment policies that create, and might eventually address it.

Table 7.1 Two-level fixed and random effects estimates of communication learning opportunity (speaking and writing) n=101,506, N=306

	Speaking	Writing
School Characteristics		
<u>School Composition</u>		
% Hispanic	.002 (.0002)	.001* (.0002)
% Black	.002* (.0002)	.002* (.0002)
% Eligible For Free or Reduced Lunch	-.05* (.002)	-.05* (.002)
<u>Language Arts Professional Development</u>		
PD Small Extent	.03 (.02)	.03 (.02)
PD Moderate Extent	.10* (.02)	.06* (.02)
PD Large Extent	.11* (.02)	.09* (.02)
<u>Teacher Quality</u>		
% Teachers Advanced Degree	.55 (.86)	.80 (.90)
% Teachers Bachelor Degree	.59 (.86)	.67 (.89)
% Teachers Standard Certification	.29* (.14)	-.01 (.12)
% Teachers Provisional Certification	.27 (.16)	.11 (.13)
<u>Additional School Covariates</u>		
Tracks by Ability	0 (.01)	-.01 (.01)
Enrollment	0 0	0 0
Public	.08* (.02)	.02 (.02)
Level 2 Variance Component	.06* (.01)	.03* (0)

Table 7.1 continued

Student Characteristics		
Parent Less than High School	-.18*	-.30*
	(.01)	(.01)
Parent High School Diploma	-.10*	-.19*
	(.01)	(.01)
Parent Some College	-.04*	-.03*
	(.01)	(.01)
Male	-.05*	-.17*
	(.01)	(.01)
Black	.08*	-.07*
	(.01)	(.01)
Hispanic	.04*	-.02
	(.01)	(.01)
Asian	-.01	-.02
	(.01)	(.01)
Has an IEP	-.11*	-.28
	(.01)	(.01)
Variance Component	.97*	.95*
	(0)	(0)

Chapter 8

Conclusion

8.1 Education, Voice, and Inequality

“Whatever invigorates the faculties, in however small a measure, creates an increased desire for their more unimpeded exercise; and a popular education is a failure if it educates the people for any state but that which it will certainly induce them to desire and most probably to demand” John Stewart Mill (Mill 1861, 63).

“Disparities in participation ensure that ordinary Americans speak in a whisper while the most advantaged roar” (APSA Task Force 2004, 11).

Democracy requires that all people have the opportunity to advocate for their own interests and participate in collective decisions (Guttman and Thompson 1996). Despite this ideal, inequality persists. Scholarly attention across disciplines has increasingly focused on American inequality: economic, educational, and political. But the relationships between these forms of inequality are only beginning to be understood. Hacker and Pierson (2010) point out that early scholarly inquiry about rising economic

inequality focused only on its relationship with other economic factors, not politics. Eventually, political scientists began to examine its relationship to the health of democracy. Now, after a decade of study, there is a robust and growing literature arguing that economic inequality has serious political consequences (e.g. APSA Task Force 2004; Bartels 2008; Gilens 2005, 2009, 2011, 2012; Jacobs and Page 2005) and roots in policy and politics (e.g. Hacker and Pierson 2010).

Similarly, contemporary research in education is driven by questions about inequality. Gaps in student achievement, unequal opportunities to learn, and policies intended to decrease disparities are the main story in education research and policy today. But to date, political scientists have paid little attention to the democratic consequences of educational inequality. In this dissertation, I have shown that educational inequality matters for politics, and I have demonstrated precisely how achievement and opportunity gaps in school translate into inequality in civic engagement and participation.

Schooling provides young people with opportunities to practice and develop general, but politically valuable, verbal communication skills. These reading, writing, and speaking skills make youth more confident about their ability to successfully engage in related forms of collective action. This practice increases political efficacy about and motivation to engage in related civic activities; it also makes acquiring information about politics and political discussion easier, lowering the cost of behaviors like voting. When students have greater opportunity to practice communication, and when they develop higher levels of verbal skills through schooling, they are more engaged in politics and more likely to participate as adults. Thus, young people receive “voice lessons” in school

– chances to develop their ability and motivation to speak up as adult citizens.

With this causal relationship established, I identify an important relationship between educational and political inequality: opportunity to practice and develop verbal communication skill is vastly unequal in American schools, meaning that exposure to the essential causal mechanism connecting education to engagement is different for children in different social groups. Public institutions, existing policies, and the ways in which social groups are viewed by decision-makers structure this opportunity for political development. Pateman’s statement that that “individuals and their institutions cannot be considered in isolation from one another” (1970, 42) does ring true for youth, but the “cumulative pattern of participation opportunities” (49) she identifies in education is not limited to the civics classroom (49).

American political and economic inequalities are, at times, excused because of equality of opportunity. Inequality certainly exists, from the labor market to the voting booth, the argument goes, but that does not defy justice because all Americans have the *opportunity* to participate fully and succeed in political and economic life. Persistent educational inequality constitutes the clearest and most serious flaw in this line of reasoning. Young people are not provided with equal opportunity to develop the resources, attitudes, and skills necessary for democratic participation, even in the public institutions designed to serve that purpose. In this dissertation I have isolated the ways in which the most serious educational inequalities we know of today – those in core subject achievement and classroom learning opportunities – translate into political inequality.

8.2 Solving Puzzles About Education and Participation: Human Capital Does Matter

Political thinkers since Aristotle have argued that education of young citizens – preparing them to participate as adults, – is a democratic state’s most important responsibility (see: *Politics* VII 17, VII 1-3), and modern researchers have been documenting the strong correlation between education and engagement for a half-century. But scholars have yet to uncover precisely how education affects citizenship, and education remains something of a “black box” in the political behavior literature. This gap in knowledge leaves the relationship between education and engagement open to question. Unexplained puzzles in the study of political behavior add to the skepticism: civic education, a main candidate for the causal mechanism between education and engagement, does not seem to explain the relationship (Langton and Jennings 1968; Niemi and Junn 2005; Greene 2000). And though educational attainment has increased since mid-century, political participation has not.

Drawing on these puzzles, a faction of researchers has begun to argue that the relationship between education and engagement is not causal at all: that education is merely a proxy for pre-adult advantage (Kam and Palmer 2008; Tenn 2007; Berinsky and Lenz 2011), or that education only affects politics by sorting people into social positions (Nie, Junn, and Stehlik-Barry 1996). In short, the field does not understand how, or even whether, education affects political and civic engagement.

In the first four empirical chapters of this dissertation (Chapters Two through Five), I show that education does have a causal effect on multiple indicators of political

engagement. I offer a theory explaining the connection: the verbal communication skills adolescents develop in school along with their opportunities to practice these skills across subjects positively effect efficacy, motivation, and participation itself. I test this theory with multiple analytic methods and data sources – longitudinal, quasi-experimental, and experimental. This research design allows me to triangulate and compensate for the weaknesses of each method or data source with the others. And it offers evidence that verbal communication skills and practice opportunities in school have a sizable causal effect on engagement, an effect that is remarkably robust to different analytic decisions.

In Chapter Two, I addressed the most basic question in the study of education and political behavior: does human capital acquired through education affect civic and political engagement? I argue that most studies of this question miss the mark by restricting measurement of the human capital acquired through education to either attainment or the quality of civics instruction. As economists have recently discovered, attainment is a weak instrument for the human capital acquired in school, which varies considerably within people with the same amount of education. And political theorists and students of adult political behavior have long-argued that skills beyond civics – like communication skills – are important for politics. Building on those insights, I focus on the more general verbal communication skills that matter for civic engagement. I test the effect of communication skills gained in high school on post-high school civic engagement using student achievement data from the National Longitudinal Education Study of 1988. I find a strong, positive effect.

This finding stands in contrast to previous tests of the human capital theory. Most famously, Nie and colleagues (1996) argue that verbal skill is not the link between education and engagement. But they, like many others in the field, measure verbal skill acquired in school with vocabulary knowledge in adulthood. I detail the problems with this measurement choice and show that using a more theoretically valid measures and longitudinal data challenge their finding. By taking advantage of the rich data in the NELS, including pre-high school measures of verbal achievement and indicators of childhood disadvantage, I show that verbal skills matter greatly, and the association between education and civic engagement cannot be attributed only to selection effects and the sorting of individuals into social positions, as many critics have argued. The results clearly show that the verbal skills individuals acquire in school affect engagement independently from ability, non-cognitive skills, family public engagement, family social class, civics instruction, attainment, and skills gained after the completion of schooling.

In Chapter Three I dig more deeply into the role of verbal communication skills in producing engagement. I argue, based on developmental psychology (e.g Piaget and Inhelder 1969; Eccles et al. 1983; Bandura 1986), that to understand political socialization, scholars should attend more to the developmental theory of human learning, which draws focus to the agency of the learner rather than the quantity of institutional experience. This perspective challenges us to see youth as active participants in their development, rather than passive receivers of socialization messages; that schools are not just “factories in which raw materials (children) are to be shaped into the products to meet the various demands of life ” (Ellwood P. Chubberly quoted by Tyack 1995,

195). Rather, schools, at their best, are institutions where young people are provided with opportunities to engage in developmentally important activities.

In this chapter, I also argue that skill-specific forms of political efficacy are the psychological link between active skill practice in school and participation. When an adolescent practices a politically useful skill, like speaking publicly, debating, or writing correspondence, feelings of efficacy related to that skill increase. The newly developed confidence about writing or speaking in general contexts translates into *skill-specific political efficacy*: confidence about ability to effectively use that skill in a political context. Using data from the National Household Education Survey of 1999 and a multivariate matching model, I find that practicing communication skills in school increases multiple forms of skill-specific political efficacy, such as efficacy about writing to officials or speaking at public meetings. Importantly, the learning opportunities reported in the NHES are not confined to the civics classroom, so this analysis shows that communication practice in any subject can affect forms of political efficacy.

The studies presented in Chapters Two and Three employ nationally representative survey data and analytic techniques for the identification of causal effects with observational data, and so they provide good evidence that verbal communication skills and learning opportunities are strongly related to civic engagement and participation in the population, and some indication that this relationship is causal. But even with these techniques, doubt about causality remains. Young people with greater learning opportunity or greater skill acquisition may be different from their peers in unobserved ways that are correlated with engagement. Randomized experiments solve this selection

issue, and so in Chapters Four and Five I offer results of two field experiments testing the same hypotheses. Chapter Four presents the first experiment, conducted in a Milwaukee, WI middle school, testing the effect of communication practice (writing correspondence) on adolescent political engagement. Writing practice increases students' efficacy about writing to elected officials and their intent to write to officials as adults. Chapter Five presents the second experiment, conducted with college students during the 2008 general election. I deliver a public speaking intervention and show that it increases both voter turnout of the subjects and students' self-reported confidence that they could get their point across to a fellow student in a discussion about politics. Importantly, the communication practice does not have to be political in nature to have an impact.

These four empirical chapters, together, stake a strong claim in favor of education's real, causal effect on democratic outcomes, and they demonstrate how that effect works. Institutional sites of communication skill acquisition matter in childhood, as they do for adults (Verba et al. 1995). Expanding the definition of civic education to include politically valuable skills beyond civics helps explain the puzzles in the study of education and engagement. First, it shows why the limited correspondence between civics education and political engagement is not inconsistent with a relationship between education overall and engagement; other, more general skills acquired in other subjects drive the effect. Second, the famous "puzzle of participation," the lack of correspondence between aggregate patterns in educational attainment and participation, is explained in part once we know that the human capital acquired in school (verbal communication

skill) matters as much or more than degree attainment, and human capital has not increased over time as attainment has.

Finally, this dissertation shows that understanding how education affects politics requires the marshaling of cross-disciplinary knowledge. I draw from the literature in economics, developmental psychology, sociology, education, policy, and political science to build my theory, and in doing so, I am able to address many empirical puzzles that have long-troubled engagement scholars.

8.3 Beyond Government 101: The Civic Value of General Skills

Improving civic education and closing achievement gaps in core subjects like reading are often viewed as competing educational goals. Pundits and policy observers on both ends of the ideological spectrum bemoan the educational attention given to core subjects at the expense of civics instruction. Frederick M. Hess of the American Enterprise Institute, in a recent blog post entitled “Achievement Gap Mania” wrote: “Lost too has been an appreciation of schools' broader mission. For American founders like Benjamin Rush and Thomas Jefferson, the primary function of schooling was to produce democratic citizens. In Rush's telling phrase, schools needed to mold "republican machines." Yet in a 2010 survey, 70% of high-school social-studies teachers reported that civics has been marginalized by the focus on reading and math assessments” (2011). Fawn Johnson of the *National Journal* asks her readers, “Has civics education been shunted to the sidelines as educators concentrate on basic employability skills?” (2012).

Monica Potts for *The American Prospect*, writes in support of a Florida law that extends testing requirements beyond math and reading, into civics; Potts quips: “It’s nice to imagine that the health-care debate might have gone differently if more Americans had understood the mechanics of government.” These comments all arise from the common view that the civic and economic goals of education are separate and competing, and that attention to the economically important core subjects takes attention away from preparing citizens.

This view is not limited to journalists and pundits. Education researchers commonly accept it. Buckley and Schneider (2007) position education in civics and other subjects in direct competition:

...if there is little obvious return to individual students from civic education and engagement, and since such areas of a curriculum have both a real cost (the cost of teacher time, for example) and an opportunity cost (that is, a cost in terms of lost opportunity to cover other subjects or activities), in a competitive market we should expect democratic education to be driven out of the curriculum by lack of demand” (16).

Similarly, Grubb and Lazerson (2004) explain the concern that civic education will be lost as schools increasingly focus on preparing young people for work and career:

“One familiar form of dissent has come from those who fear that vocationalism will undermine the public purposes of education, especially its civic roles...defenders of civic education hark back to the nineteenth century and the common school’s emphasis on the knowledge and behavior necessary for a democracy” (15).

My dissertation challenges this paradigm by bringing to light the political consequences of educational inequality across the curriculum. General communication skills, which can be practiced in any subject, have a role in determining whether students become active citizens. And, students in disadvantaged social groups, already underrepresented in the political process, get fewer opportunities to develop their voice in school by practicing these skills. As a result, these students are even less likely to participate as adults. Carol Geary Schneider, the President of the American Association of Colleges and Universities, in a similar spirit, argues that the same skills can have political *and* economic value: “A twenty-first-century education can and should build those capacities of mind and heart that foster innovation and productive problem solving wherever they are needed—in the workplace, in our communities, and in the crosswalks that embed the economy in our democracy” (2012). The communication skills I examine in this dissertation are a prime example; they are fundamental to success in economic and democratic life.

Civic knowledge and political sophistication are undoubtedly important to democracy, but they are not the only civic goods provided by education, and when it comes to participation and engagement, they are not the most important. Elite expressions of alarm about low civic knowledge like that in the remarks above can seem driven by a desire for disadvantaged and ordinary Americans to “know what they are talking about,” rather than to feel confident and motivated to say it. Education should prepare the young citizen to speak up in the first place.

Starting with skill may then produce increases in expertise: in the process of the resulting expression and participation, people acquire greater civics knowledge and engagement. As participatory democratic theorists have long-argued: “the major function of participation...[is] an educative one, educative in the very widest sense, including both the psychological aspect and the gaining of practice in democratic skills and procedures (Pateman, 1970, 42). Bachrach (1975) argued that individuals needed to enter into dialogue with each other to understand and articulate their interests in the first place. Furthermore, young people with greater verbal skill are at an advantage when it comes to lifelong civics learning. Pure civics instruction has a place in American education, but the fear that a focus on other subjects will damage democracy is unwarranted. Education for democracy should focus on voice; when citizens communicate, the rest will follow. As long as instruction beyond the civics classroom includes the active practice of complex and politically valuable communication skills rather than rote, passive schoolwork, students will develop democratic competence and power.

8.4 Lessons for Policy and Practice

This insight has direct implications for education policy and practice. If education is to remediate rather than perpetuate political inequality, young people in disadvantaged groups need greater opportunity to actively practice communication in school. In Chapter Six, I placed the vast literatures on educational and political inequality into dialogue. I demonstrated that non-white, male, and poor adolescents have fewer opportunities to

practice speaking, discussing, and writing in school, and they acquire lower levels of general verbal skill. Inequalities by family SES are particularly severe. The same students who are disadvantaged in communication and verbal learning then grow up to participate less in civic life. Trends in verbal achievement over time, unlike trends in attainment, map closely with trends in participation. Coupled with the evidence of a causal relationship between communication skills and practice and engagement shown in the earlier chapters, these aggregate patterns make a compelling case that inequality in verbal learning opportunity produces democratic inequality. Addressing this inequality is a good place for policy makers interested in democratic equality to focus attention.

But how to increase opportunity for disadvantaged students is an open question. Scholars across disciplines are working to find answers, and in Chapter Seven I added to their efforts. I framed the distribution of learning opportunities as a problem of policy feedback. I drew also from the literature on educational inequality and developed a set of empirical expectations about how street-level education policy decisions affect students' citizenship orientations.

I then estimated a multilevel model of communication learning opportunity, with students nested in schools. Even holding a student's own characteristics constant, if more of his or her peers are poor, communication learning opportunities are decreased. And when teacher quality and language arts professional development increase, so do communication practice opportunities.

Therefore, I recommend that policy-makers begin by enhancing relevant teacher training and professional development, especially in high-poverty schools. Encouraging

educators to offer politically valuable communication practice across subjects, and increasing their capacity to do so is the clearest and simplest place to begin. But, policy makers, educators, and scholars should not disregard the strong relationship between school poverty and student experience. Policy initiatives that decrease the concentration of high-poverty students in schools and efforts to change teacher views of poor students may be even more powerful interventions.

This work also has implications for policy scholarship and theory. To the policy feedback literature, my work in Chapter Seven stresses the need for attention to schools, education policy, and feedback in youth, specifically to the policies that dictate the distribution of general, but politically useful skills. Hacker and Pierson (2010) argue that scholars of American politics have not adequately addressed the *political* and policy roots of rising economic inequality. Here, I show that this process begins in childhood, and some of the educational policies that affect economic inequality also affect political inequality.

8.5 Education for Democracy: Practice Makes Participants

The capacity to communicate is an essential component of civic competence and political power. Youth who learn to communicate in school gain motivation and ability to represent their interests and contribute to social goals. Therefore, opportunities to actively practice and develop verbal communication skills are an important power resource distributed within schools. Much like other educational resources, these opportunities are allocated unequally, and the distribution is governed by public policy and the decisions of

street-level policymakers. These opportunities deserve further attention from scholars of political behavior and public policy.

Communication skills are just one way that education beyond civics instruction matters for citizenship, but there may be others. Future studies can also examine the political consequences of other aspects of the educational experience, paying particular attention to inequality. Rothstien (2004) expresses concern that researchers

“don’t know how large are the social class gaps in non-cognitive skills – character traits like perseverance, self-confidence, self-discipline, punctuality, communication skills, social responsibility and the ability to work with others and resolve conflicts. These are important goals of public education” (7).

Rothstein is interested in the economic value of such skills, and goes on to discuss demand in the labor market for them. In my dissertation, I have documented inequalities in communication skill and shown how those inequalities feed back into democratic society. Future attention to gaps in interpersonal and organizational skills, which are thought to affect adult engagement (Verba et al. 1995), and which are practiced and acquired across subjects in school, may shed an even brighter light on the role of education in democracy.

Overall, our understanding of education for democracy must be expanded. The fixation on attainment in the political behavior literature is limiting, since a year of education is so different for children from different backgrounds, and because it restricts inquiry to postsecondary education when earlier schooling matters as well. Additionally, beyond the civics classroom, young people learn lessons about politics, government, and

themselves as citizens, and acquire skills that empower them. Civics instruction is important – it increases knowledge and sophistication, and in some cases can affect aspects of engagement – but it cannot explain how education makes participants. Civics instruction is a small component of a major life experience.

Politics is about more than the three branches of government or the length of a senator's term; it is about voice, power, efficacy, and interests. So is education, and it prepares people to be active citizens in ways that go beyond civics instruction. To participate, people must communicate. To communicate, they must practice, and the schools are the places designed to make that practice happen. Peter Bachrach told us:

“when the boundaries between the social and the political sectors are set at a place that prevents the political system from facilitating the political development of all its citizens, then only those who have the private resources for this kind of development can articulate their real interests and cross the boundary into the political. A significant number are thus blocked from making the conversion from feelings and moods to articulated preferences” (1974, 44).

Schools are the public institution most clearly charged with providing the resources for political development, including the articulation of interest, and they must do a better job of equitably preparing young people to cross the boundary into the political. In the broadest sense, all education is political education.

Appendix A: Descriptive Statistics for Chapter 2

	Mean	Standard Error
Engagement Outcome Variables		
Turnout 92	0.49	(.01)
Turnout 96	0.57	(.01)
Volunteering: Civic	0.22	(.01)
Volunteering: Campaign	0.04	(.001)
Average English Grades		
8th Grade GPA	2.91	(.02)
8th Grade English	3.32	(.15)
8th Grade Math	4.04	(.25)
12th Grade English	7.11	(.06)
12th Grade Math	7.67	(.06)
Test Scores		
8th Grade Verbal	50.99	(.22)
8th Grade Math	50.97	(.22)
12th Grade Verbal	51.01	(.22)
12th Grade Math	50.93	(.23)
Model Covariates		
Black	0.12	(.01)
Hispanic	0.11	(.01)
Asian	0.03	(.003)
Male	0.50	(.01)
8th Grade Family SES	0.09	(.02)
South	0.36	(.02)
8th Grade Family Paper	0.88	(.02)
Took Civics	0.90	(.01)
High School Diploma 1992	0.83	(.01)
College Entrance 1992	0.34	(.01)
High School Diploma 2000	0.83	(.01)
Post Secondary Degree 2000	0.27	(.01)

Table entries are mean estimates, adjusted for the sampling design. Numbers in parentheses are survey adjusted linearized (robust) standard errors.

Appendix B: Questionnaire Item Wording for Chapter 3

Treatment Variables (All Variables Coded as 1=YES, 0=NO)

During this school year, have you done any of the following things in any class (at school)

- a. Written a letter to someone you did not know?
- b. Given a speech or an oral report?
- c. Taken part in a debate or discussion in which you had to persuade others about your point of view?

Outcome Variables (All Variables Coded as 1=YES, 0=NO)

Political Correspondence Efficacy: Suppose you wanted to write a letter to someone in the government about something that concerned you. Do you feel that you could write a letter that clearly gives your opinion?

Public Meeting Efficacy: Imagine you went to a community meeting and people were making comments and statements. Do you think you could make a comment or a statement at a public meeting?

Questionnaire Items in the Matching Model (all coded 1, 2, 3, 4)

I enjoy school

My teachers maintain good discipline in the classroom

In my school, most students and teachers respect each other

Appendix C: Experiment Questionnaire Items for Chapter 4

Political Correspondence Efficacy:

Suppose you found out about an issue in your community or country that you cared a lot about (for example if illegal drugs were being sold near a local elementary school, Congress was debating whether or not to pay full college tuition for all high school graduates, or something else you care a lot about). How well do you think you would be able to do the following?

Contact an elected official about the issue (I definitely could, I probably could, I probably couldn't, I definitely couldn't)

Internal Political Efficacy:

I think I am well qualified to participate in politics. (Strongly Agree, Agree, Disagree, Strongly Disagree)

I feel that I have a pretty good understanding of the important political issues facing our country. (Strongly Agree, Agree, Disagree, Strongly Disagree)

When I grow up, I think I could do as good a job in a public office as most other people. (Strongly Agree, Agree, Disagree, Strongly Disagree)

I think I know as much about politics and government as most people my age. (Strongly Agree, Agree, Disagree, Strongly Disagree)

Adult Intent to Write to Officials (pre- and post-treatment)

When I am an adult, I will write letters or emails to elected officials. (Strongly Agree, Agree, Disagree, Strongly Disagree)

Appendix D: Intervention Materials for Chapter 4**ACTIVITY**

Directions: Many states are considering increasing the legal driving age to 18. Should Wisconsin make its legal driving age 18 instead of 16? Read the arguments for and against the change below. Then, write a short email to Governor Jim Doyle – let him know what YOU think Wisconsin should do.

The Governor and his staff read these emails to help them decide what laws to make.



GOVERNOR JIM DOYLE

YES! Increase the driving age to 18 in Wisconsin.

- Sixteen-year-old drivers are the most likely people to die in car accidents. Making the driving age 18 would save many lives.
- The current driving age was set around 1900 when roads were smaller and safer. Driving is more dangerous now.
- Car accidents are the number one cause of death for teenagers. Each year, nearly 5,000 teens are killed in crashes and nearly 375,000 are injured.
- New Jersey made its legal driving age 17, and it now has one of the lowest rates of teen car accident deaths. Other states should do the same thing.
- The rate of crashes for 16-year-old drivers is almost 10 times the rate for drivers ages 30 to 59.
- Many other countries have a driving age of 17 or 18.

NO! Keep the driving age in Wisconsin 16.

- Sixteen year olds need to be able to drive. Many have jobs.
- Most parents and teens do not want the driving age to be increased to 18. The government should do what the people want it to do.

- Drunk driving is a much more serious problem in Wisconsin. Drunk driving causes many more deaths than teen driving. The government should focus on fixing that problem first.
- It should be the parents' job to make sure teens are driving safely, not the government's job.
- Teens get in accidents because they are inexperienced, not because they are young. Making the driving age 18 would only delay deaths from accidents.



DIRECTIONS

What do you think? Email Governor Doyle.

Tell the Governor of Wisconsin what you think and why.

Your email should be one or two paragraphs long. You can say whatever you like. You might want to tell the Governor what your opinion is and why you have it.

Your email will be delivered to the Governor and his staff.

You might want to start your email like this:

Dear Governor Doyle,
I heard that the state of Wisconsin might increase the driving age to 18. I think...

ACTIVITY

Directions: Teen car accidents are a major problem in the state of Wisconsin. Dr. Gwen McIntosh is a doctor and a professor at the University of Wisconsin. She studies teen driving and accidents. She also asks parents and teens what they think about teen driving. Read about her research below. Then, write a short email to Dr. McIntosh – let her know what YOU think about her research and teen driving.



Dr. Gwen McIntosh

Some facts about teen driving in Wisconsin:

- Sixteen-year-old drivers are more likely to crash than older drivers.
- Car accidents are the number one cause of death for teenagers in Wisconsin.
- In Wisconsin teenagers have to drive for 30 hours with an adult before they get their license.
- In Wisconsin teens can't drive at night and can't drive with more than one passenger for 9 months after they get their license.
- Since 2000, car accidents with 16 year olds dropped by 15 percent in Wisconsin.

What do people think about teen driving in Wisconsin?

- Most parents like the rules about driving at night and driving with only one passenger.
- Some parents say it is inconvenient to spend 30 hours practicing driving with their teen.
- Most teens do not like the rule that they can only have one passenger in the car.
- Dr. McIntosh is worried that many teens will keep trying to drive with more than one passenger in their car.

**DIRECTIONS**

What do you think? Email Dr. McIntosh.

Tell Dr. McIntosh what you think about her research and why.

Your email should be one or two paragraphs long. You can say whatever you like. You might want to tell Dr. McIntosh what you think about the safety of teen driving. What is interesting about her research? Do you think you will be a safe driver?

Your email will be delivered to Dr. McIntosh at the University of Wisconsin.

You might want to start your email like this:

Dear Dr. McIntosh,
I read about your research on teen driving. I think...

ACTIVITY

Directions: Read about the country Turkey below. Then, answer the questions at the end of the activity.



Geography

Turkey is a large peninsula that bridges the continents of Europe and Asia. Istanbul, the largest city in Turkey, is partly in Europe and partly in Asia. Turkey is larger than the state of Texas.

Turkey is one of the most earthquake prone areas on Earth and has suffered from 13 earthquakes in the past 70 years.

Turkey's highest mountain, Mount Ararat, is considered sacred by many people. Many believe Noah beached his ark on Mount Ararat after the great flood in the Bible.

Nature

At one time, Turkey was home to jackals, lynx, wolves, and bears but those animal species are rare now. The Turkish horned viper snake has spike-like scales that poke upward near their eyes



TURKISH HORNED VIPER

History

Turkey is home to one of the earliest settlements in the world. Built 8,800 years ago, Catal Hoyuk was a labyrinth of 150 mud homes joined together. There were no streets in between, so people had to enter the homes through holes in the roof!

The ruins of the city of Troy are believed to be in the city of Hissarlik in Turkey.

In 330 A.D., Constantine became the Roman emperor and moved the capital of the Roman empire from Rome to Turkey.

People and Culture

The majority of Turkish people live in cities, and children who want to go to high school must move to a city.

The people are primarily Sunni Muslim.

Soccer is the most popular sport in Turkey.

Their diet includes lamb, eggplant, and yogurt. A sweet flavored with rose petals called Turkish delight, or lokum, is sold in many flavors and colors.



TURKISH DELIGHT

DIRECTIONS

What are the most interesting things about Turkey?

Copy six facts from the information above that you think are most interesting in the boxes below. Put them in order starting with the most interesting fact (#1).

Appendix E: Experiment Questionnaire Items for Chapter 5

Speaking Efficacy (Meeting) *Imagine you went to a community meeting a people were making comments and statements. Do you think you could make a comment of a statement at a public meeting? (definitely could, probably could, probably couldn't, definitely couldn't)*

Speaking Efficacy (Peer) *Suppose you were having a conversation with another student about a political issue you care about. Do you think you could state your opinions clearly? (definitely could, probably could, probably couldn't, definitely couldn't)*

Appendix F: Questionnaire Item Wording and Variable Construction for Chapter 7

Outcome: Learning Opportunity

Table F.1 Factor loadings

Variable	Factor Loading
Speaking Opportunities	
Class Discussion	0.73
Group Discussion	0.78
Formal Presentation	0.59
Writing Opportunities	
Letter	0.67
Summary	0.69
Report	0.74
Essay	0.76

The unrotated factor loadings are reported in the table above. See Chapter Six for item wording.

Administrator-reported, school-level items

During the last two years, to what extent have professional development activities offered to teachers in your school focused on the following? Fill in one oval on each line.

a. Use of language arts across the curriculum (Not at all, Small extent, Moderate extent, Large extent)

During this school year, about what percentage of students in your school was eligible to receive a free or reduced-price lunch through the National School Lunch Program? (0%, 1–5%, 6–10%, 11–25%, 26–34%, 35–50%, 51–75%, 76–99%, 100%)

Appendix G: Summary Statistics for Chapter 7

Table G.1 Summary statistics for model covariates

Variable	Mean	St. Dev.	Minimum	Maximum
Student Characteristics				
Parent Less than High School	.08	.27	0	1
Parent High School Diploma	.20	.40	0	1
Parent Some College	.20	.40	0	1
Male	.51	.50	0	1
Black	.17	.37	0	1
Hispanic	.15	.36	0	1
Asian	.06	.23	0	1
Has an IEP	.11	.31	0	1
School Characteristics				
School Composition				
% Hispanic	15.84	22.92	0	100
% Black	16.15	24.41	0	100
% Eligible For Free or Reduced Lunch	5.70	1.78	1	9
Language Arts Professional Development				
PD Small Extent	.21	.41	0	1
PD Moderate Extent	.41	.49	0	1
PD Large Extent	.35	.48	0	1
Teacher Quality				
% Teachers Advanced Degree	50.34	9.59	0	100
% Teachers Bachelor Degree	49.54	9.55	0	100
% Teachers Standard Certification	88.54	6.98	0	100
% Teachers Provisional Certification	10.48	6.39	0	100
Additional School Covariates				
Tracks by Ability	.73	.44	0	1
Enrollment	730.78	400.22	0	8678
Public	.97	.18	0	1

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