

An Ecological Systems Approach to the Civic Education and Engagement of Adolescents

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Abstract

This study is an investigation of direct and indirect school and neighborhood effects on adolescents' civic knowledge and voting intentions utilizing data from the 1999 IEA Civic Education Study and the U.S. Census. The nationally representative U.S. sample consists of 2,729 students from 119 schools (in 119 neighborhoods) nationwide. I utilize multi-level regression techniques to give a precise estimate of the separate and shared impact of individuals, schools, and neighborhoods on youth civic engagement. For civic knowledge, student demographics, civic experiences in school, and learning civic topics are important predictors. The school and neighborhood context are not as strongly related, and only the neighborhood immigrant population is a significant predictor. For voting behavior, student civic experiences in school and learning civic topics predict voting behavior, while the effects of demographic characteristics (gender and SES) are found to vary between schools. School demographic and neighborhood characteristics directly relate to voting behavior, but also indirectly relate through interactions with student demographics.

Keywords: civic engagement, adolescents, context effects

Introduction

Competencies for civic participation, including an understanding of civic responsibilities and willingness to participate, are important for all young people. Yet it is well-documented that American youth from disadvantaged backgrounds do not develop these competencies at the same level as their peers from more advantaged circumstances. Disparate opportunities and experiences likely account for differences in civic outcomes, but which environments and contexts are providing (or not providing) these experiences? Multiple contexts can provide these experiences, especially schools and neighborhoods where a great deal of civic activity takes place. Although research indicates that the school context influences youth civic engagement, inequalities in civic learning opportunities in schools prevent youth from disadvantaged backgrounds from being adequately prepared for citizenship (Kahne & Middaugh, 2008). Likewise, insufficient civic opportunities and experiences in disadvantaged neighborhoods are associated with inadequate preparation for civic engagement (Atkins & Hart, 2003).

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The school is understood to be a context that influences academic and civic outcomes, while neighborhoods are important contexts for adolescent social and behavioral outcomes. Although many studies have demonstrated neighborhood effects on youth outcomes, civic engagement is rarely explored. Also unspecified is the extent to which the neighborhood and school contexts interact with individual student characteristics to affect students' civic outcomes. Given the existence of multiple systems of influence on young people, understanding the complex interaction between these systems is essential if policies are to be tailored to different contexts and practices are to be tailored to different students.

The intersection of context effects research and research on youth civic participation involves the examination of how school and neighborhood characteristics are related to youth civic engagement, including whether the effects are direct or indirect. What are the experiences within, and characteristics of, schools and neighborhoods that affect civic engagement? Can these contexts help to explain differences in youth civic engagement as a function of individual demographic characteristics, such as socioeconomic status (SES) or race? In the current study I examine these questions in an effort to determine the role that schools and neighborhoods have in preparing young people for civic life, with the ultimate goal of understanding how school practices and curricula can serve as a protective factor for the development of positive civic outcomes.

Literature on Context Effects on Adolescents

Civic Outcomes

Characteristics of adolescents are related to civic outcomes that indicate preparedness for functioning citizenship. National Assessment of Education Progress (NAEP) scores indicate that white and Asian students score higher on tests of civic knowledge (average scores of 161 and 154, respectively) than black, Latino, and American Indian students (average scores of 133, 131, and 127, respectively). Although there are no differences by gender, higher parental education and family income are both associated with higher civic knowledge (Lutkus & Weiss, 2007).

Similar findings exist for youth participation in civic behavior. A recent study by the Corporation for National and Community Service (CNCS) compared civic outcomes of youth from disadvantaged circumstances with non-disadvantaged youth. Classification of disadvantage was based on parents income; those living at 200% of the poverty line or below were considered disadvantaged. Black, Latino, and immigrant youth were overrepresented in the disadvantaged group, as were young people whose parents had a high school education or less. A class gap in civic participation was evident. Disadvantaged youth reported lower levels of volunteerism (43% volunteer compared with 59% of non-disadvantaged youth), and lower intentions to participate in future volunteer work and to vote once eligible (Spring, Dietz, & Grimm, 2007). Other work finds that Latino youth are least likely to believe that voting is an important activity and to think they can solve problems in their community (Lopez, 2003).

School and Neighborhood Effects

Schools play an important role in the civic knowledge and engagement of young people. Studying political topics in the classroom and perceiving a classroom climate that is open for discussion predicts higher civic knowledge and voting intentions (Torney-Purta, Barber, & Wilkenfeld, 2007), and learning about community problems in class is related to higher intentions to volunteer (Torney-Purta & Richardson, 2004). However, these opportunities are not available for all students in all schools. Kahne and Middaugh (2008) found grave discrepancies in such opportunities made available to diverse groups of students, and concluded that students from high-SES backgrounds and white students received more civic learning opportunities in formal and informal settings. When minority students are presented with the same opportunities, the class and race gap in civic engagement is not as evident. For example, Torney-Purta, Barber, and Wilkenfeld (2007) found that Latino youth reported lower voting intentions than non-Latino youth. However, the effect was reduced to non-significance once differences in school civic opportunities, such as studying political topics, were controlled for statistically. These findings indicate that schools are providing unequal opportunities for the civic development of all American youth, but also that schools have the potential to reduce the civic participation gap between different groups of students.

Research on the relation between neighborhood characteristics and youth civic outcomes is sparse. Hart, Atkins, Marken, and Youniss (2004) found that neighborhoods with a disproportionately large population of young people (aged 16- to 25-years-old) contained adolescents with lower civic knowledge but higher participation in volunteer work. However, there was an interaction between proportion of young people and the poverty rate in the effect on youth volunteering. In low-poverty neighborhoods, a high youth population predicted higher instances of volunteerism. The opposite was true for high-poverty neighborhoods, where a high youth population predicted lower adolescent volunteering (Hart et al., 2004). Other research confirms that youth in high-poverty urban neighborhoods report lower participation in community service (Atkins & Hart, 2003).

Studies examining other outcomes indicate that neighborhoods can have a direct and indirect influence on youth. In particular, the level of concentrated affluence or poverty in a neighborhood influences a variety of youth outcomes. To cite a few of the studies reviewed in Wilkenfeld (2007), living in a neighborhood with higher proportions of college-educated neighbors and working professionals has a positive effect on standardized test scores over and above the effect of school and family variables (Ainsworth, 2002) while living in an impoverished neighborhood is predictive of psychological and behavioral problems (Chung & Steinberg, 2006; Wight, Botticello, & Aneshensel, 2006).

Researchers have proposed that the observed influence of neighborhood affluence on academic outcomes may be indicative of a larger contextual influence on the recruitment of qualified educators (Connell & Halpern-Felsher, 1997; Jencks & Mayer, 1990), staff turnover, and allocation of resources

spent on security measures (Elliott et al., 2006). However, the neighborhood context may affect other student experiences, including interactions with teachers and curricula and opportunities to participate in out-of-class activities. In the neighborhood effects literature, measures of school characteristics are rarely examined. One of the few studies that considered both contexts found that both neighborhood affluence and school climate were positively related to standardized test scores (Ainsworth, 2002).

Theoretical Framework

I utilize ecological systems theory (Bronfenbrenner, 1979) in my examination of school and neighborhood influences on youth civic engagement, in particular because of the theory's focus on multiple systems of influence on development. According to Bronfenbrenner (1979), it is the interactions between multiple systems of influence that affect adolescent outcomes. Not only do these systems (or contexts) interact with each other, but the individual has a bidirectional relationship with the systems, meaning that individuals play a significant role in the effect their environment has on them. These relationships are precisely what I am examining in the current study.

Methodology

Data for this study come from the 1999 International Association for the Evaluation of Educational Achievement Civic Education Study (CIVED). The study examined the civic knowledge and engagement of approximately 90,000 14-year-olds in 28 countries (Torney-Purta, Lehmann, Oswald, & Schulz, 2001), including 2,811 students in the United States (Baldi et al., 2001). The current project utilizes the U.S. data for a multi-level examination of context effects on youth civic engagement.

Sample

The CIVED sample for the United States is nationally representative of American 14-year-olds in 1999. I have acquired a restricted data license from the National Center for Education Statistics (within the U.S. Department of Education) that provides access to the zip-codes for each school that participated in the study. Therefore, I am able to link neighborhood structural characteristics (from the 2000 U.S. Census) to schools and to students within schools.

The analytic sample for the current study is slightly smaller than the original sample. In the original sample there were four instances where two schools had the same zip-code. Given that I am aggregating student variables to the school, and including school and neighborhood variables at the same level, it would not be appropriate to keep both schools in these instances. Therefore, I randomly selected and dropped one school in each zip-code in which two schools were contained in one neighborhood. I weighted and normalized the data for the new analytic sample. This sample remains national representative because of the weighting procedures involved. Therefore, the analytic sample contains 2,729 students (weighted) from 119 schools (in 119 neighborhoods). Within this sample, 1,388 are female, 1,704 are white, 373 are Latino, 330 are black, and 142 are Asian (descriptive statistics for demographic

characteristics are listed in Table 1). In this sample the average school size is 23 students per school with a range of 6 to 61 students.

Outcome Variables

In the current study I consider the influence of school and neighborhood contexts on adolescents' civic knowledge and behavior. I am examining two different outcomes because civic engagement is a multifaceted construct and characteristics of neighborhoods and schools may affect aspects of civic engagement differently. Both outcomes are scales that were developed by combining confirmatory factor analysis with item response theory (IRT) techniques, which effectively account for missing data (scale construction is detailed in Husfeldt, Barber, & Torney-Purta, 2005, and Schulz & Sibberns, 2004). The first outcome, *total civic knowledge* is based on a 38-item test assessing students' content knowledge of basic democratic principles and concepts, as well as skills in interpreting political communication. The second outcome reflects adolescents' intentions to be a functioning member of a democratic society, specifically their *intentions to be informed voters*. The outcome consists of two items that asked if students expect to do the following once they are adults: vote in national elections, and get information about candidates before voting. Civic knowledge and intended voting behavior are both standardized for the analytic sample; each has a mean (M) of zero and standard deviation (SD) of one.

Predictor Variables

In order to understand the complex interplay of multiple contexts I include predictors that pertain to the individual adolescent, the school, and the neighborhood in which the school is located. All individual variables are entered as level-1 predictors, while school and neighborhood variables are entered at level 2 (discussed further below). Descriptive statistics for all predictors are depicted in Table 1.

Individual. For students, I include the demographic characteristics of *gender*, *race*, *immigrant status*, and *socioeconomic status*. Gender, race, and immigrant status are dichotomous indicators (where 1 = female, a particular race, and immigrant).² Socioeconomic status (SES) is an indicator of home intellectual and material resources. Scores are based on a composite of maternal education, paternal education, and books in the home. SES is a continuous variable that is standardized for this sample (M = 0, SD = 1).

Prior research has demonstrated that demographic characteristics can interact with neighborhood structural characteristics to influence youth outcomes (Beyers, Bates, Pettit, & Dodge, 2003). In order to understand how characteristics of students themselves interact with the school and neighborhood context,

² For student race, students originally responded to a question on race (asking them to identify as American Indian, Black, Asian/Pacific Islander, or White) and a separate question on Latino ethnicity (asking them to identify as Latino or non-Latino). The two questions have been collapsed to form one comprehensive race item. Specifically, if a student answered that they identified as Latino and any other race, they were classified as Latino. If a student answered that they identified as non-Latino they were coded as the race for which they identified.

I will not treat demographic characteristics as control variables but rather will investigate each for moderating effects.

The remaining level-1 predictors pertain to adolescents' civic experiences in school, including their perception of the civic environment and civic topics learned. Youth confidence in the effectiveness of school participation and perception of the openness of the classroom climate for discussion are both continuous predictors (standardized to $M = 0$ and $SD = 1$). *Confidence in the effectiveness of school participation* is a four-item IRT scale assessing the extent to which adolescents agree with statements such as "electing student representatives to suggest changes in how the school is run makes schools better" and "lots of positive changes happen in this school when students work together." *Perception of the openness of the classroom climate* for discussion is a six-item IRT scale assessing how often conditions that facilitate open discussion exist in the classroom. Examples include "students feel free to express opinions in class even when their opinions are different from most of the other students" and "teachers encourage us to discuss political or social issues about which people have different opinions."

I also include youth reports of learning civic topics in school, or the *school civic curriculum* as experienced by students. I consider each item individually because I am interested in whether the specific topics learned will have different effects on civic outcomes. There are five individual items assessing the extent to which adolescents agree that, in school, they have learned: to understand people who have different ideas, to cooperate in groups with other students, to contribute to solving problems in the community, to be a patriotic and loyal citizen, and the importance of voting in national and local elections. Each item is dichotomous (1 = student did learn the topic, 0 = student did not learn the topic).

School. In order to assess the role of schools' civic environments over and above individual students' experiences I include aggregates of the individual predictors pertaining to civic experiences in school. Therefore, the *average level of confidence in school participation* is the aggregate of individual students' confidence in school participation within each school, *average perception of open classroom climate* is the aggregate of individual students' reports of classroom climate within each school, and the *average reports of school curriculum* are the aggregate of individual students' reports of learning civic topics within each school (e.g., proportion of students reporting they have learned the importance of voting). Including aggregated individual variables at level 2 allows me to identify direct school context effects on civic engagement that are independent from student-level effects.

Neighborhood. The last set of predictors includes characteristics of residents in the neighborhood surrounding the school (all neighborhood data are from the 2000 U.S. Census). I have included neighborhood measures that are either consistent with prior neighborhood effects research or may be particularly relevant to civic outcomes. *Neighborhood concentrated economic advantage* is a score based on the proportion of residents with a high school or college education, proportion of residents in

managerial or professional occupations, and proportion of residents with annual incomes greater than \$75,000. A higher value equals higher affluence. *Neighborhood concentrated poverty* is a score based on the proportion of residents living below the poverty line, proportion of residents receiving public assistance, proportion of residents in female-headed households, and proportion of unemployed residents. A higher value indicates more impoverishment. For economic advantage and poverty scores are derived from a factor analysis and standardized for the sample. *Neighborhood racial diversity* is an indicator of diversity in a neighborhood based on the racial fractionalization equation. The equation is $1 - (S s^2)$, where s represents each racial groups' proportion of the population. A higher value for racial diversity indicates more diversity in the surrounding neighborhood (this variable has been standardized for the sample). The final neighborhood variable is the *proportion of foreign-born residents*, which is a one-item measure of the proportion of residents born outside the country. A higher value equates to more immigrant residents. Any significant effects of the neighborhood characteristics can be interpreted as compositional effects on youth civic engagement.

Analytic Technique

In an effort to disentangle individual effects from the effects of context I utilize a multi-level regression procedure (two levels) to better estimate the separate and shared impact of individuals, schools, and neighborhoods on adolescents' civic engagement. The nested nature of students in schools necessitates using a multi-level approach, such as hierarchical linear modeling (HLM; Raudenbush, Bryk, Cheong, & Congdon, 2004), to provide more accurate estimations of relationships between predictors and the outcome. HLM accounts for the lack of independence within schools (meaning that students that attend the same school inherently share more similar experiences than students who attend different schools) and the underestimation of standard errors associated with single-level models.

All individual variables will be examined at level 1, while school and neighborhood variables will be examined at level 2. The reasons for including school and neighborhood measures at the same level are twofold. First, the neighborhood is directly surrounding the school and therefore the school environment and the neighborhood environment are intertwined.³ Some of the adolescents attending the school will live within a short distance of the school, possibly even sharing the same zip-code, and will therefore have high levels of interaction with the neighborhood and its residents. Even adolescents who do not live in the same neighborhood will experience their schools' neighborhood environment. Whether students participate in school-sponsored after-school activities (e.g., sports teams or clubs), hang around in local shops and restaurants, or catch a ride home with friends, they will be exposed to the neighborhood in which their school is located.

³ In contrast to using neighborhood characteristics that are associated with students' homes, which may or may not be the same neighborhood in which the school is located.

The second reason is statistical and pertains to the fact that there is only one school per neighborhood (rather than multiple schools in each neighborhood). It would not be possible to consider neighborhood characteristics at a third level because there would be no variance in school variables between neighborhoods. Therefore, students are assumed to be nested simultaneously within schools and neighborhoods. Student experiences and characteristics will be considered at level 1 while school and neighborhood characteristic will be analyzed at level 2. Utilizing this approach will give a more precise estimate of direct and indirect school and neighborhood effects on adolescent civic outcomes.

Results

The first step when creating a multilevel model is to create a fully unconditional model with no predictors that partitions variance in the outcome variable between level 1 (within group) and level 2 (between group). The intraclass correlation coefficient (ICC) specifies the exact amount of total variance in the outcome that is attributed to differences between groups. The ICC for civic knowledge is .28, indicating that 28% of variance in youth civic knowledge occurs between schools. For voting intentions, the ICC is .09, indicating that 9% of variance in youth voting intentions occurs between schools.⁴ Both ICCs reveal that there are potential level-2 effects that warrant multilevel modeling.

Civic Knowledge

After determining that there was variance between schools in youth civic knowledge it was appropriate to proceed with within-school and between-school models. The within-school model (Table 2, Model 1) examines how characteristics and experiences of individual students (i.e., level-1 variables) influence knowledge. The between-school model (Table 2, Model 2) examines how school and neighborhood characteristics (i.e., level-2 variables) influence students' civic knowledge. The full model (Table 2, Model 3) combines all level-1 and level-2 variables to look at the combined influence of individual, school, and neighborhood predictors. It should be noted that in the full model, the level-1 and level-2 predictors explain 5% of the original variance within schools and 86% of the original variance between schools in adolescents' civic knowledge.

Fixed effects of individual variables. Many characteristics of students predict civic knowledge. Female, Latino, black, and immigrant students all have significantly lower levels of civic knowledge (Table 2, Model 1). However, when school and neighborhood variables are added to the model (refer to Table 2, Model 3), the negative influence of Latino and immigrant status on knowledge are both reduced to non-significance. The effect of being black is also reduced, but its significant effect remains. In each model, higher student SES predicts higher civic knowledge. It should be noted that the effects of individual characteristics did not vary between schools (i.e., none have significant random effects).

⁴ $ICC = t / (t + s^2)$; ICC for civic knowledge = $.29 / (.29 + .73) = .28$, ICC for voting intentions = $.09 / (.09 + .91) = .09$.

Students' civic experiences in school and learning civic topics are also related to civic knowledge. Having confidence in school participation is not a significant predictor, but perceiving an open climate for discussion predicts higher civic knowledge. Learning to understand others and learning the importance of voting are related to higher levels of civic knowledge, while learning to contribute and learning to be a patriotic citizen are civic topics that are related to lower civic knowledge. The effects of individual students' civic experiences and learning civic topics remain significant even after school and neighborhood context variables are added to the model.

Fixed effects of school and neighborhood variables. The effects of predictors at level 2 can be interpreted in the same manner as the level-1 predictors. Each coefficient is an indicator of the effect of that variable on individual students' civic knowledge, and the effect of each variable assumes that the other variables are constant.⁵

In the full model (Table 2, Model 3), school SES and school proportion of students learning the importance of voting are both significantly related to adolescents' civic knowledge. However, since the level-2 school variables are aggregates of level-1 variables it was necessary to conduct hypothesis tests to determine whether statistically significant effects were actually significantly higher than the effects of the student-level variable. For example, higher school SES appears to predict higher knowledge, but is that only because of the effect of high individual SES? What is of interest is whether adolescents have higher knowledge levels in high-SES schools regardless of their own SES. Therefore, I ran additional tests of significance for school SES and school proportion of students learning about voting. Results from these tests (as indicated by significant χ^2 statistics) indicate whether factors at the school level create a contextual effect that intensifies individual student effects. Based on these tests, the group effects for school SES and the proportion of students learning voting are not significantly larger than the individual effects (i.e., their context effect is not significantly different than zero). This finding indicates that attending a school with a high-SES population does not influence student civic knowledge over and above their own SES. Likewise, personal experiences learning civic topics influence civic knowledge, but the influence of attending a school where other students learn the topics does not have an additional effect over one's personal learning experience. The remaining school civic environment predictors did not directly predict civic knowledge, especially once individual civic learning experiences were included in the model.

Similar to the school context variables, the neighborhood context variables are not strong predictors of youth civic knowledge. Neighborhood advantage, neighborhood poverty, and racial diversity do not have a direct effect on adolescents' civic knowledge. The only neighborhood predictor that is

⁵ At level 2 all variables are grand-mean centered, so holding other variables constant is the same as assuming average levels of other variables. For example, assuming an average proportion of students learning civic topics.

directly related to youth knowledge is the proportion of foreign-born residents in the surrounding neighborhood. As the proportion of immigrant residents increases, students' civic knowledge decreases.

Voting Intentions

As with civic knowledge, I constructed within-school, between-school, and full models for adolescents' voting intentions (see Table 3). In the full model, the level-1 and level-2 predictors explain 30% of the original variance within schools and 100% of the original variance between schools in youth voting intentions.

Fixed effects of individual variables. As expected, individual demographic characteristics and civic experiences at school related to differences in voting intentions. Looking at the fixed effects, fixed meaning the effects of the individual characteristic or experience is constant across all students, student demographic characteristics predict intended voting behavior (refer to coefficients for the first model in Table 3). Gender is not a significant predictor of voting intentions, indicating that adolescent males and females report similar levels of voting intentions. Black students report lower voting intentions than white students, and immigrants report lower voting intentions than native-born youth (note that the coefficients for Latino and Asian students were statistically significant before immigrant status was added to the model). However, when school and neighborhood variables are added to the model (Table 3, Model 3), race is no longer significantly related to voting intentions. The difference between immigrant and non-immigrant students is only slightly reduced. Student SES predicts voting in that students with higher SES report higher intentions to vote than students with lower SES.

Characteristics of the school and the neighborhood have an influence on the gender-voting relationship (even though there is not a significant main effect) and on the SES-voting relationship. These interactions are discussed later in the section on random effects.

Student perceptions of the school environment and experiences learning civic topics are related to their intentions to vote. Having confidence in school participation and perceiving an open classroom climate predict higher voting intentions. In the full model, students who learn to understand people who have different ideas have higher voting intentions than students who have not had this learning experience. The same is true for students who learn to contribute to solving community problems and who learn the importance of voting. Learning to cooperate in groups predicted voting in the within-model, but the effect of this civic topic was no longer significant once the context predictors were added.

Fixed effects of school and neighborhood variables. The effects of level-2 predictors on youth voting intentions exist while controlling for other variables in the model. School SES, school proportion of females, school proportion of students learning cooperation, and school proportion of students learning the importance of voting are all significantly related to adolescents' voting intentions. However, as with the civic knowledge outcome, it was necessary to conduct hypothesis tests to determine whether statistically

significant effects were actually significantly higher than the effects of the student-level variable. Indeed, school SES has a direct effect on students' voting intentions over and above an individual student's SES. Regardless of students' own socioeconomic background, attending a high-SES school predicts higher voting intentions. Likewise, the proportion of female students in school has a positive effect on voting intentions over and above the influence of individual gender. Although there is not a significant effect of individual gender, students who attend schools with above average female populations report higher voting intentions.⁶

The group effects for school proportion of students learning cooperation and learning voting are not significantly larger than the individual effects (i.e., their context effect is not significantly different than zero). This finding indicates that personal experiences learning civic topics influence voting intentions, but the influence of attending a school where other students learn the topics does not have an additional effect over personal learning experience. The remaining school civic environment predictors did not directly predict youth voting. However, the school proportion of students learning to understand others has an indirect effect on youth voting, which is discussed further in the section on random effects.

In addition to having a stronger influence than the school civic environment, school demographic characteristics are also more strongly related to youth voting than neighborhood demographic characteristics. Neighborhood advantage, neighborhood poverty, and racial diversity do not have a direct effect on adolescents' intentions to vote. The only neighborhood predictor that is directly related to youth voting intentions is the proportion of foreign-born residents in the surrounding neighborhood. As the proportion of immigrants in the neighborhood increases, voting intentions also increase. In addition to this direct effect, the proportion of foreign-born residents interacts with student SES to have an indirect effect on youth voting intentions. Neighborhood racial diversity also has an indirect effect by moderating the influence of gender on voting. Both of these interactions are discussed further below.

Random effects. Random effects can be interpreted as interactions between level-1 and level-2 predictors, and random effects only occur for variables that were allowed to vary at level 1. Unlike fixed effects, for random effects the effect of the individual characteristic is not constant across all students. Specifically, the effect varies depending upon the school and neighborhood context. When initially constructing the within-school model I examined each individual demographic and civic experience predictor to see if the effect varied between schools. Only the effects of gender and SES varied.⁷

⁶ Note that I also ran the proportion of students of different races as level-2 predictors. There were no significant predictors pertaining to school racial composition.

⁷ To be more precise, the effects of the race variables did vary between schools, but there were not enough schools with variance in student race to keep race as a random variable. Variance in race is only achieved when there are students of more than one race at a school, so schools that had only white students (or only students of another race)

Overall, student gender is not associated with significant differences in voting intentions (i.e., there is not a significant main effect). However, there are characteristics of the school and neighborhood that alter the relationship between gender and voting intentions (i.e., there are significant interactions).

The first interaction is between gender and school proportion of students learning to understand people who have different ideas. In the full HLM model, the proportion of students in school learning to understand people who have different ideas does not appear to have a direct effect on youth intentions to vote. However, that finding only applies for males. Male adolescents' voting intentions do not seem to be affected by the school civic environment pertaining to learning to understand others (recall that their personal experience learning about this topic is controlled). Females seem to be negatively influenced by this civic environment, such that their voting intentions are approximately a third of a standard deviation lower in schools where more students learn to understand others.

The second interaction is between student gender and neighborhood racial diversity (see Figure 1). The amount of racial diversity in a school's surrounding neighborhood has little effect on males' voting intentions, but females' intended civic behavior is again influenced by context. When their schools are located in neighborhoods of low racial diversity (i.e., more homogenous), females report high voting intentions, much higher than males. The opposite occurs in neighborhoods with high racial diversity. Females report lower intentions to vote in highly diverse neighborhoods, lower than males.

It should be noted that in the original within-school model (Table 3, Model 1) the effect of gender varied significantly between schools. However, modeling the school proportion of students learning understanding and neighborhood racial diversity on the gender-voting slope reduced the random effect of gender to non-significance (Table 3, Model 3). Otherwise stated, these school and neighborhood context variables fully explain how the influence of student gender varies between schools.

The effect of student SES also varied significantly between schools. Recall that individual students' SES has a significant effect on their voting intentions such that higher SES is associated with higher intentions to participate in this particular civic behavior. However, the magnitude of the effect of individual SES varies between schools, and more specifically, it varies depending upon the proportion of foreign-born residents in the surrounding neighborhood. Another way to interpret this interaction is that the SES-voting slope is altered by this neighborhood characteristic. As illustrated in Figure 2, the influence of student SES on youth intentions to vote is strongest in neighborhoods with low proportions of foreign-born residents (meaning the slope is the largest). High-SES youth report voting intentions .42 SD higher than low-SES youth in neighborhoods with few immigrants. In neighborhoods with higher proportions of foreign-born residents, high-SES students still report higher voting intentions than low-SES

would be dropped from the analysis. The number of schools without variance in student race was too large and therefore the race variables had to be maintained as fixed rather than random.

students, but the difference between the SES groups is cut in half (.22 SD higher for high-SES youth). Recall that the neighborhood characteristic of foreign-born residents had a significant main effect, indicating that it predicted higher voting intentions for all youth. However, low-SES youth seem to benefit more from the immigrant neighborhood population than average- or high-SES youth.

Discussion

The purpose of this study was to examine how school and neighborhood contexts could influence youth civic engagement utilizing a multi-level approach. Student demographic characteristics and civic experiences in school were also examined, including varying effects of these characteristics and experiences between schools. I demonstrated that student, school, and neighborhood characteristics are related to adolescents' civic engagement, but the magnitude and nature of the relationship differed based on the outcome examined. For civic knowledge, individual students' demographic characteristics, civic experiences, and learning civic topics are the strongest predictors. These are also important predictors of students' intended voting behavior, but school and neighborhood characteristics had direct and indirect effects as well. The significant interactions between school context and individual characteristics, and between neighborhood context and individual characteristics, is in line with the tenets of ecological systems theory (Bronfenbrenner, 1979), which is that it is the interaction between contexts that influences development.

Consistent with prior research, minority and immigrant students reported lower civic knowledge and voting intentions even when other demographic and personal civic experiences were considered. However, adding differences in school civic environment and the neighborhood environment reduced many of the racial and immigrant differences to non-significance. This finding provides support for the assertion that differences in civic knowledge and participation between groups based on race and immigrant status are partially the consequence of contextual influences. Individual experiences learning civic topics and perceiving a civic environment in school predict higher knowledge and intentions for civic behavior, but differences were still evident after controlling for these experiences. It is not until the school and neighborhood context were considered that racial gaps for civic knowledge and voting intentions were either lessened or completely reduced to non-significance. The same is true for the immigrant gap in civic knowledge (though less so for voting intentions). This finding indicates that the contexts of school and neighborhood mediate the often-found negative relationship between minority status and civic engagement, as well as immigrant status and engagement.

The direct effects of the school context on youth civic knowledge were not significant over and above the individual effects of the disaggregated variables. This finding indicates that ensuring that individual students' have enhanced civic learning and engagement opportunities in school is the best way to advance adolescents' civic knowledge.

Unlike the school context, the neighborhood characteristic pertaining to the proportion of foreign-born residents was directly related to civic knowledge, such that a larger immigrant population predicted lower levels of civic knowledge. This neighborhood characteristic could be related to the resources and educational tools that are available in the school. Additionally, neighborhoods with higher proportions of immigrants will also contain higher numbers of individuals who are non-native English speakers. These individuals are less likely to be able to tutor students, talk to them about political and historical events, or make other contributions to the civic knowledge of local youth. This finding indicates that schools located in neighborhoods with a large immigrant population should attempt to mediate the negative effect on adolescent civic knowledge.

When considering the outcome of voting behavior, the context of school and neighborhood were directly and indirectly related to variance in this outcome. There were three direct effects of context: higher school SES, higher proportion of females in the school, and higher proportion of foreign-born residents in the surrounding neighborhood all predicted higher voting intentions. It is not surprising that high-SES schools predicted better civic outcomes, but it is an important finding because this effect is over and above the effect of individual SES. The implication is that students with socioeconomic backgrounds which put them at risk for poor civic outcomes, as found in prior research, can have more positive civic outcomes if they attend high-SES schools. The next appropriate line of research would be to examine the conditions and processes in high-SES schools that improve civic outcomes for their students, including their economically disadvantaged students.

School composition as it relates to gender was also directly related to voting intentions. More female students in a school predicted higher voting intentions regardless of one's own gender. It seems that there is a contact effect in that boys who have more contact with girls respond more positively to future participation in voting. Recall that the voting intention outcome is comprised of two items: students' intention to vote in national elections, and whether students will collect information about candidates before voting. Perhaps adolescent boys who have more exposure to adolescent girls are more willing to admit that collecting information and making an informed decision is an acceptable form of participation. Adolescent boys who have less exposure to girls, and therefore more exposure to other adolescent boys, may be more inclined to listen to gut instincts or make decisions about candidates without asking others for information. Future research on the nature of the interaction and possible influence of same- and different-gender peers on youth civic engagement could provide more insight.

The final direct effect of context was the positive influence of attending school in a neighborhood with foreign-born residents, which was the opposite of the effect of this neighborhood characteristic on civic knowledge. This finding is quite interesting because it conflicts with the common perception that immigrants are not civically participative. With the exception of known active groups, such as Cuban-

Americans, immigrants generally display lower levels of civic engagement, including voting. However, the status of citizenship and fear of deportation are likely explanations for the lack of civic participation. The finding of this direct effect indicates that there is something about communities with high immigrant populations that inspires young people to be active citizens. It could be that poor conditions or unemployment inspire adolescents to vote for candidates and policies that will help their community. Or perhaps immigrant adults are vocal about criticizing and possibly changing the country that they have worked so hard to become a part of (a form of informal civic participation), and young people in the neighborhood overhear the conversations and the desire for change and improvement is contagious. A less optimistic explanation is that students attending schools in high-immigrant neighborhoods could have negative attitudes toward immigrants and therefore more willing to vote for candidates that endorse anti-immigrant policies.

There were four indirect effects of context on youth voting behavior: the combination of school and neighborhood civic environment and demographic characteristics significantly reduced the racial gap in intended civic participation (discussed previously), higher proportions of students in school learning to understand others and higher racial diversity in the neighborhood both predicted lower voting intentions for females but not for males, and higher proportions of foreign-born residents in the surrounding neighborhood was related to higher voting intentions for all students but especially for low-income youth. Each of these interactions warrants further discussion, and further investigation.

In both gender interactions it is clear that female adolescents are more susceptible to these specific environmental influences. Male adolescents' voting intentions are barely affected by school civic environment or neighborhood racial composition. Conversely, females are not only affected but are negatively affected. Conditions that are deemed to be positive, such as attending a school where many students learn to understand others, predict a more negative outcome. When individual students learn to understand others, regardless of gender, it has a positive effect on their voting intentions. But there is something about a context in which most people (99% of students or higher, to be precise) learn to understand others that does not have a positive influence on female youth. Perhaps schools where understanding others is highly stressed are also characterized by negative conditions, such as violence or absenteeism. Such conditions might have a more negative influence on the morale of females than males, decreasing their engagement in school as well as engagement in conventional activities such as civic participation.

The finding that neighborhood racial diversity predicts lower voting intentions for females can be interpreted in light of research on adult civic participation. Neighborhood racial diversity is found to have a negative influence on adult civic attitudes and behavior, perhaps because of initial issues with trust and cooperation (Putnam, 2007). The research is limited, but perhaps females are more affected by these

conditions. In comparison to males, females attending schools in more homogenous neighborhoods might be more comfortable and generally more positive, and therefore more likely to participate in any activity, including civic participation. Research on young people in Canada found that higher proportions of minorities in neighborhoods predicted lower trust levels for 15- to 25-year olds regardless of gender. However, although the neighborhood minority composition involved a negative context effect, there was a positive effect of having racially diverse friends. The researchers stressed the difference between a racial diversity *context* effect (more distal) and a racial diversity *contact* effect (more proximal; Harell & Stolle, 2008). This distinction could be very important in future research on the effect of context and contact on other civic outcomes. In a country with an increasingly diverse population, exposure to others who are different than us should enhance our civic involvement rather than impede it.

The last indirect effect pertains to the proportion of foreign-born residents in the school's surrounding neighborhood and the differential influence this characteristic has on students depending upon their SES. Attending a school in a high-immigrant neighborhood predicts higher voting intentions, however, the effect is particularly strong for low-SES students. Whatever benefit this neighborhood characteristic is conferring, low-SES adolescents are benefitting the most (partly because high-SES students have high voting intentions regardless of the neighborhood conditions). This finding indicates that schools in neighborhoods with many foreign-born residents are able to reduce the income gap in intended civic participation. As previously discussed, there are a few reasons why attending school in a high-immigrant neighborhood might increase voting intentions (some reasons positive and others negative), but whatever the explanation is the effect is enhanced for low-income youth.

Many of the predictors included in this study influence the voting intentions of our young citizens. Some predictors pertain to the adolescents themselves, some pertain to schools, and some pertain to the more distal context of the neighborhood. Many of the findings provide insight as to the nature of the interactions between multiple systems and how these systems influence development. However, more research is needed to provide concrete explanations for the significant interactions. In my own research I will continue to examine direct and indirect effects of multiple systems of influence, but I will also expand my analyses to include interactions between the school and neighborhood contexts.

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Table 1. Descriptive statistics of level-1 and level-2 predictor variables

	Mean	Standard deviation	Minimum	Maximum
Level-1 variables				
Student demographics				
Gender				
Female	.51	.50	.00	1.00
Race/ethnicity				
White	.62	.48	.00	1.00
Latino	.14	.34	.00	1.00
Black	.12	.33	.00	1.00
Asian	.05	.22	.00	1.00
Native American	.01	.09	.00	1.00
Other/multiple-race	.04	.20	.00	1.00
Immigrant	.11	.31	.00	1.00
SES ^a	.00	1.00	-3.09	1.46
School civic experiences				
Confidence in school participation ^a	.00	1.00	-3.07	1.85
Open classroom climate for discussion ^a	.00	1.00	-3.55	2.24
Student learned...				
To understand people	.89	.32	.00	1.00
To cooperate with others	.91	.28	.00	1.00
To contribute to solving problems	.73	.44	.00	1.00
To be a patriotic citizen	.67	.47	.00	1.00
The importance of voting	.73	.45	.00	1.00
Level-2 variables				
School demographics ^b				
School SES	-.04	.49	-1.28	1.17
School % female	.51	.15	.00	1.00
School civic environment				
School confidence in participation	-.02	.33	-.87	.83
School open climate for discussion	-.01	.32	-.59	.97
School % learn understanding	.88	.11	.50	1.00
School % learn cooperation	.91	.09	.53	1.00
School % learn to contribute	.73	.13	.43	1.00
School % learn patriotism	.68	.14	.38	.94
School % learn importance of voting	.73	.14	.33	1.00
Neighborhood characteristics				
Concentrated advantage ^a	.00	1.00	-2.11	2.89
Concentrated poverty ^a	.00	1.00	-1.35	4.43
Racial diversity ^a	.00	1.00	-1.38	2.82
Foreign-born residents	.11	.12	.00	.54

Note. The weighted sample size at level 1 (students) is 2,729; the sample size at level 2 (schools) is 119.

^a Variable is standardized for the sample (M = 0; SD = 1).

^b All school variables at level 2 are aggregates of their respective level-1 variables. Neighborhood variables at level 2 are taken from the U.S. Census.

Table 2. HLM model for adolescents' civic knowledge

	Model 1: Within-school model	Model 2: Between-school model	Model 3: Full model
FIXED EFFECTS			
Intercept	.07	-.10***	.01
School SES		.72***	.60***
School confidence in participation		.03	-.02
School open climate for discussion		.30*	.18
School % learn understanding		.20	-.06
School % learn cooperation		.88*	.32
School % learn contribute		-.21	-.20
School % learn patriotism		-.61*	-.47
School % learn voting is important		.47*	.52*
Neighborhood advantage		.00	.04
Neighborhood poverty		-.06	-.01
Racial diversity		-.01	.03
Foreign-born residents		-.21	-.63*
Female	-.11*		-.10*
Latino	-.25***		-.09
Black	-.52***		-.40***
Asian	.01		.08
Immigrant	-.12*		-.09
SES	.19***		.21***
Confidence in school participation	.04		.03
Open climate for discussion	.08**		.07**
Learned understanding	.31***		.30***
Learned cooperation	.16		.13
Learned to contribute	-.12*		-.12*
Learned patriotism	-.32***		-.29***
Learned importance of voting	.16**		.16**
RANDOM EFFECTS			
Intercept	.16***	.04***	.04***
L1 error	.69	.73	.69

Note. All level-1 and level-2 variables are grand-mean centered.

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

Table 3. HLM model for adolescents' voting intentions

	Model 1: Within-school model	Model 2: Between-school model	Model 3: Full model
FIXED EFFECTS			
Intercept	.02	-.08***	-.03
School SES		.40***	.33***
School % Female		.54***	.43**
School confidence in participation		.30**	.10
School open climate for discussion		.06	-.04
School % learn understanding		.09	-.06
School % learn cooperation		.74**	.68*
School % learn contribute		.02	-.17
School % learn voting is important		.64***	.42**
Neighborhood advantage		.01	.02
Neighborhood poverty		.03	.02
Racial diversity		-.03	-.02
Foreign-born residents		.43*	.49*
Female	.06		.06
School % learn understanding			-1.45**
Racial diversity			-.11*
Latino	-.15		-.04
Black	-.27***		-.12
Asian	-.18		-.14
Immigrant	-.19*		-.16*
SES	.15***		.16***
Foreign-born residents			-.47*
Confidence in school participation	.17***		.16***
Open climate for discussion	.13***		.12***
Learned understanding	.32***		.28**
Learned cooperation	.25*		.19
Learned to contribute	.16**		.16**
Learned importance of voting	.23***		.24***
RANDOM EFFECTS			
Intercept	.03***	.00	.00
Gender slope	.04*		.02
SES slope	.02**		.02**
L1 error	.64	.90	.64

Note. All level-1 variables are grand-mean centered except gender and SES, which are group-mean centered. All level-2 variables are grand-mean centered.

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

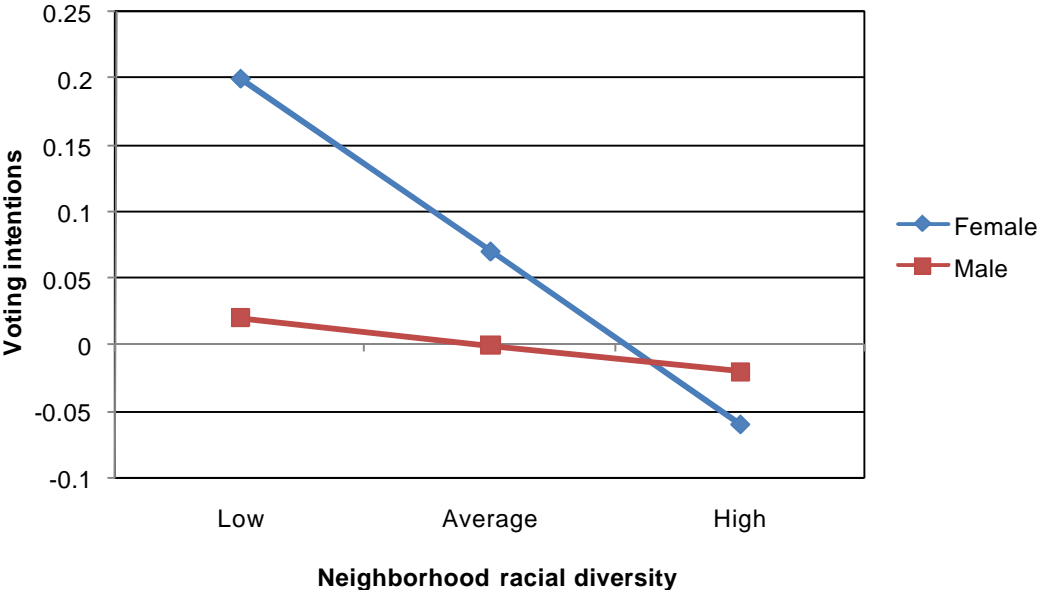


Figure 1. Interaction of student gender and neighborhood racial diversity

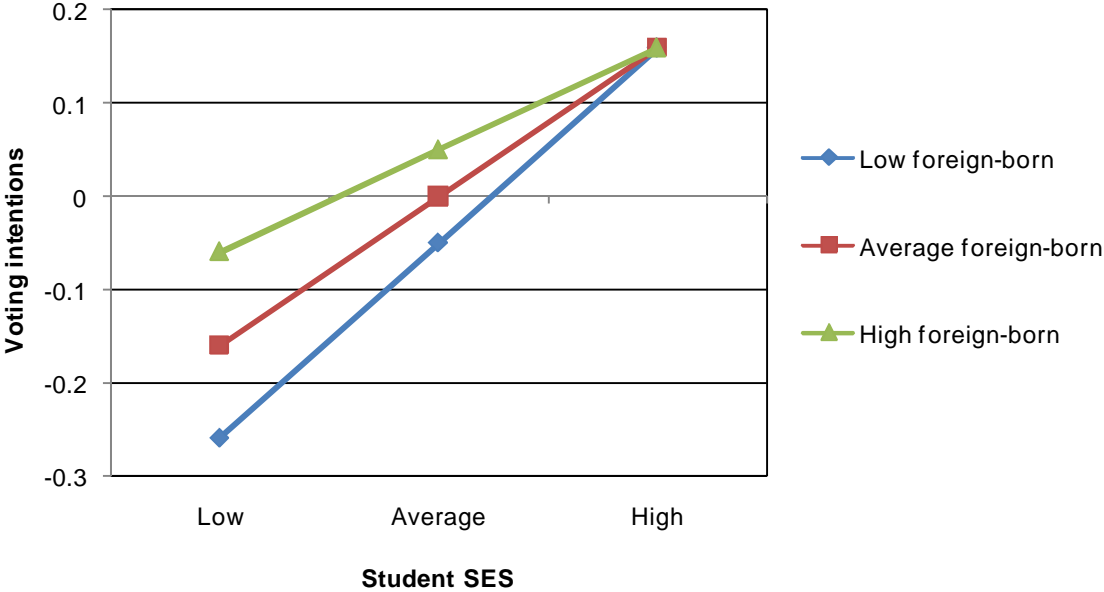


Figure 2. Interaction of student SES and neighborhood proportion of foreign-born residents

Appendix I

Identifying explanatory variables within IEA Civic Education Study (CIVED):

In order to identify relevant variables from CIVED study several sources were considered: the variables and characteristics of Creemers' model (Creemers, 1994), previous studies that investigated the model on TIMSS (IEA) mathematics dataset (Creemers & Kyriakides, 2007, Kyriakides, 2006) and the description of the variables in the IEA Civic Education Study technical report (Schultz & Sibberns, 2004). Finding from previous analysis of CIVED dataset are considered.

According to the main principles of the model, variables were identified within categories as context, time, opportunity and quality factors and can be organized in three levels (student, school/classroom and country level) to recognize the multilevel influences on students' civic achievement that Creemers' model assumes.

Explanatory variables at student level.

- **Student background factors.** Indicators of student background are gender (girls are the reference category) and SES (home literacy = number of books at home). This last variable can be seen as a proxy indicator for the socio-economic level of the student (Schultz, 2002). The variable correlates highly with the educational level of the parents which cannot be included in the analysis due to high levels of non-response.
- **Expectations.** A relevant variable from CIVED is years of expected education. It refers to how many years of further education students expect after the current year (Schultz, 2002) It can be regarded as an indicator of students general ability and motivation to improve his knowledge.
- **Time factors.** Actual time on task spend by the students cannot be assessed within CIVED. A proxy for this variable can be students' reports about how often they spend evenings outside of their families with their friends. Students with high scores on this variable may tend to neglect their study (Schultz, 2002)
- **Opportunity factors** Because information on the amount of time spent doing homework was not available in the CivEd data, "political discussions with parents" was seen as a measure of the opportunity factor

Explanatory variables at classroom (school level) level.

- **Contextual factors.** Variables related to the context of the classroom as percentage of girls and average home literacy (SES) are measured. These can be aggregated from the student-level data. Other contextual variables are concerned with the characteristics of teachers' experience. Information on teachers experience reveals whether the teacher holds an academic degree in a civic related discipline or whether he participated in in-service professional activities in a discipline related to social studies or civic education. (Torney-Purta, Richardson & Barber, 2005)
- **Quality of instruction** it is considered to be one of the main factors that account for students' learning. The variables measured in CIVED cannot offer the entire information located at this level as prescribed by the model so indicators of quality of instruction will be poorly covered. However, there are indications on teachers' behaviour that facilitates an "open classroom climate". This variable reflects students' perceptions of an open classroom climate for discussions and it was proven to be a strong predictor of civic

knowledge in several studies based on CIVED. The scores for this variable at classroom (school) level will be aggregated from the student-level data.

- **Time factors.** An indicator for this factor can be found in the school questionnaire and refers to the amount of time (hours) per week which students are required to spend on taking classes in civic-related subjects (history, social sciences, law and economics).
- **Opportunity to learn.** Even though the available data does not contain any indicator of the amount of homework that students usually undertake for civic-related topics there is an indication of the existence of assessment measures and the types of assessment measures that are used for this topic.

Explanatory variables at the country level.

- **Context.** Contextual factors at the country level concern average SES indicators which can be aggregated from the student-level data. Also, the school questionnaire provides information on the frequency of student behaviours that cause problems in schools life.
- **Quality factors.** At country level, information on conditions for the quality of instruction can be gathered from the school questionnaire. It is not possible to identify the extent to which a school has developed rules and regulations related to citizenship education. However, the extent in which the school disposes of teachers who cover civic-related topics and the percentage that these teachers represent from the overall number of teachers in that school can be regarded as conditions for the quality of instruction at this level. Quality factors can also be measured by the extent to which parents are involved in school life.
- **Time factors.** In order to investigate the country effect, time factors concerning average amount of time (hours) per week which students are required to spend on taking classes in civic-related subjects are measured. The school questionnaire provides this information.
- **Opportunity to learn.** Among the factors that indicate the opportunity to learn is consensus about the mission of the school. In the case of civic education and considering the available data an indicator of opportunity to learn can be teachers' agreement about the way civic education should be thought.

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