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The Long-Term Impact of High School Civics Curricula on Political Knowledge, Democratic Attitudes and Civic Behaviors: A Multi-Level Model of Direct and Mediated Effects Through Communication

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ABSTRACT

This report examines the effects of exposure to various elements of a civics curriculum on civic participation, two forms of political knowledge, internal political efficacy, political cynicism, news elaboration, discussion elaboration and various forms of interpersonal and mediated political communication behaviors. The data are based on a longitudinal study of high school students in a challenged large urban school district in Ohio. Two approaches to instruction are contrasted: stimulating political communication by discussing media sources and engaging in political debate; and rote learning of traditional civics content. Both approaches correlated *negatively* with civic outcomes, but there could be several interpretations of that correlation.

BACKGROUND

The decline of participation in politics among young people in America has been of concern to both scholars and professionals (Delli Carpini, 2004; Zukin, Keeter, Jenkins, Andolina, & Delli Carpini, 2006). Their concerns have renewed a focus on the impact of civics teaching as an important agent of political socialization. In recent years, exposure to a civics curriculum has been shown to produce positive effects on political socialization outcomes (McDevitt & Kousis, 2006; Meirick & Wackman, 2004; Simon & Merrill, 1998), even though previous research had dismissed civics classes as largely ineffective (Langton & Jennings, 1968; Niemi & Junn, 1998). While advances have been made in scholars' understanding of how civics teaching can positively impact today's youth, questions still remain.

Various curricular programs can have effects not only on the children who participate, but also on the children's parents through increased discussion and media use at home (McDevitt & Chaffee, 2000; McDevitt & Kiousis, 2006; McDevitt, Kiousis, Wu, Losch, & Ripley, 2003; Simon & Merrill, 1998). Other research has highlighted the importance of communication in the

classroom as an important consideration for the effectiveness of the curriculum (Campbell, 2005; Torney-Purta, Barber, & Wilkenfeld, 2007). The impact of these communication effects, both inside and outside of the classroom, is an important consideration that should be further examined when evaluating the long-term effects of civic education programs.

Another way to improve our current understanding of civics courses would be to expand the scope of political socialization outcomes. Factual political knowledge is a commonly employed outcome, but political knowledge is a broader concept than simple recall of disconnected facts (e.g., Eveland, Marton, & Seo, 2004). Specifically, this study incorporates a measure of knowledge structure density (KSD) to assess the structural aspect of political knowledge. KSD examines the extent to which students perceive political concepts as related or connected, whereas factual knowledge examines what bits of political information students know. Beyond knowledge, several important political beliefs and cognitions are known to be empirically tied to political participation among adults, and thus might be important socialization outcomes among adolescents. These variables, which generally have not been examined in longitudinal political socialization research, include political efficacy, cynicism, news-elaboration and discussion-elaboration (Cappella & Jamieson, 1995; Delli Carpini, 2004; Eveland, 2004).

This report examines the effects of exposure to various elements of civics teaching on civic participation, two forms of political knowledge, internal political efficacy, political cynicism, news elaboration, discussion elaboration and various forms of interpersonal and mediated political communication behaviors. The data are based on a longitudinal study of high school students in a single, urban school district in Ohio. Outcomes are measured one year after exposure to the curriculum to better determine its long-term impact. We utilize multilevel modeling to assess the effects of macro-level variables describing individual schools, courses in the curriculum, and specific teaching behaviors within classes taught by specific teachers, as well as individual-level variables which may serve as moderators and/or mediators of the effects

of the macro-level variables. With respect to the content of civics instruction, we contrast two strategies of instruction: 1) those emphasizing the *process of communication* through using and evaluating politically-relevant media sources and engaging in debate and discussion regarding politics; and 2) those emphasizing *rote learning* of traditional civics content such as lengths of terms of office, constitutional amendments, legislative process, and the constraints on and expansion of suffrage. Results suggest that within this school district, contrary to many findings, the impact of schools and classroom activities is weak and often negative.

METHOD

Research Setting

The present study was conducted in high schools within the Columbus Public School (CPS) district, which serves the urban portion of the Columbus, Ohio metropolitan area. The Columbus Metropolitan Statistical Area includes over 1.7 million people, and 718,477 individuals reside in the city of Columbus (US Census Bureau, 2006). The CPS district represents a unique population for study not only because of its urban location but also because of its highly diverse demographic makeup and the struggling nature of its schools at the time of our study. According to the Census Bureau, 73.9% of Columbus city residents identify themselves as white, while 12.4% of residents identify themselves as black. The 56,151 students that attended CPS in 2006, however, vary quite dramatically from the city population estimates. Overall, 62.5 % of CPS district students are black and 29.2% are white (Ohio Department of Education, 2006). During the 2005-2006 school year, the average graduation rate for CPS district high schools was 68.5%, and 73.9% of students were classified as "economically disadvantaged." Academically, the CPS district was designated as being on "Academic Watch" due to failing to meet adequate yearly progress, in addition to meeting only 5 of 25 state indicators of success in the 2005-2006 school year. By comparison, the Upper Arlington school district, which serves a relatively wealthy suburban community contiguous to Columbus and part of the Columbus MSA, has been designated as "Excellent" and met all of the indicators of success in the 2005-2006 school year.

The demographic make-up of Upper Arlington school district is also quite different, with 90.8% of the students being white and none considered economically disadvantaged.

Participants

Data were collected from social studies teachers in all but one CPS high school in 2005. Surveys were distributed to teachers by the social studies department chairs at each school. Of the approximately 100 high school social studies teachers in CPS, 67 teachers completed the survey. The survey asked teachers in indicate which of 12 curriculum components they utilized in each of the social studies courses they taught at the time. A listing of these components can be found in the following measures section.

For each of the teachers who completed our survey, the district provided us with their class rosters, including home mailing addresses of the students. Data were collected in 2005 from parents and students in these classes; however, given our interest in the long-term impact of the various classroom activities and the low response rate for students in 2005 (see below), only student data collected in 2006 will be utilized here. In autumn 2006, immediately following the Ohio midterm election (including a U.S. Senate race and a gubernatorial race), a local survey research firm was employed to: (a) re-contact the 202 students who completed our survey in 2005 and for whom we also had parent data; (b) contact the 2005 non-respondent students for whom we had 2005 parent data only; and (c) contact a random sample of the 2005 students for whom we had neither parent nor student data but for whom we had 2005 teacher data. Students were offered $7 in return for completing the survey.[1] A total of 896 students were interviewed. For 90 of those respondents we had 2005 student, parent, and teacher data; for 120 of the 2006 respondents we had 2005 parent and teacher data only; and for 686 of the 2006 student respondents we had only 2005 teacher data. Respondent age ranged from 13 to 20 (*M*

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[1] When students were contacted, interviewers first asked to speak with the parent to assess the age of the student. If the student was 18 or older, the student was then approached for consent. For students younger than 18, parental consent was obtained before the student was approached for assent.

= 16.41, *SD* = 1.20). Both genders were represented fairly evenly (45.6% male, 54.4% female). The most prevalent ethnic group was African American (54.9%), followed by Caucasian (36.4%).[2]

Measures

Independent variables at the classroom environment and course level. The primary independent variables under both course and classroom environment nesting were the classroom activities that teachers indicated were utilized in their courses prior to the 2005 election campaign. In order to examine nesting at the course level, aggregates for each activity were created across all classrooms and teachers for a specific course.

Six of the measured activities explicitly incorporated communication, while six were more focused on traditional, rote learning of civic information. The communication activities were summed to create a "communication score" which reflects the number of communication activities utilized by a given teacher in a given course. The six communication activities were: analyzing news media content, analyzing political advertising messages, reading the newspaper or watching TV news for an assignment, debating political issues in the classroom, talking to family members about their political opinions, and debating a classroom issue and coming up with a binding resolution.

The learning activities were summed to create a "learning score" which reflects the number of activities utilized by the teacher that focused on more traditional civics teaching. The six activities were: teaching the length of terms of public officials, teaching students how to register to vote, teaching how a bill becomes a law, teaching how groups have been excluded from political processes in the past, and teaching the amendments that make up the Bill of Rights. While the means for each individual teacher on these two variables were somewhat

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[2] Caucasians were somewhat overrepresented in our sample, and African Americans were somewhat underrepresented in the sample relative to the demographic statistics released by CPS. However, our sample should not necessarily reflect all students in CPS but instead only those who were enrolled in a social studies course – for many students, an elective – in 2005. We examined the racial make-up of each school to see if our differences were based on over- or under-sampling in a given school. However, according to Table 1, it appears that out sample is fairly representative of the actual racial makeup in each of the schools. The ethnicity that was the majority in each school according to district reports was also the ethnicity of the majority of the respondents for that school in our sample. Thus, any bias comes from some schools being relatively underrepresented in our sample.

Hutchens & Eveland

different, Figure 1 represents what the mean communication and learning scores were for each

course taught by at least one of the 67 social studies teachers at CPS. As can be seen from the

figure, the number and type of activities taught in each course varied greatly.

Figure 1. **Mean Communication and Learning Scores by Course**

Mean Number of Activies by Course Title
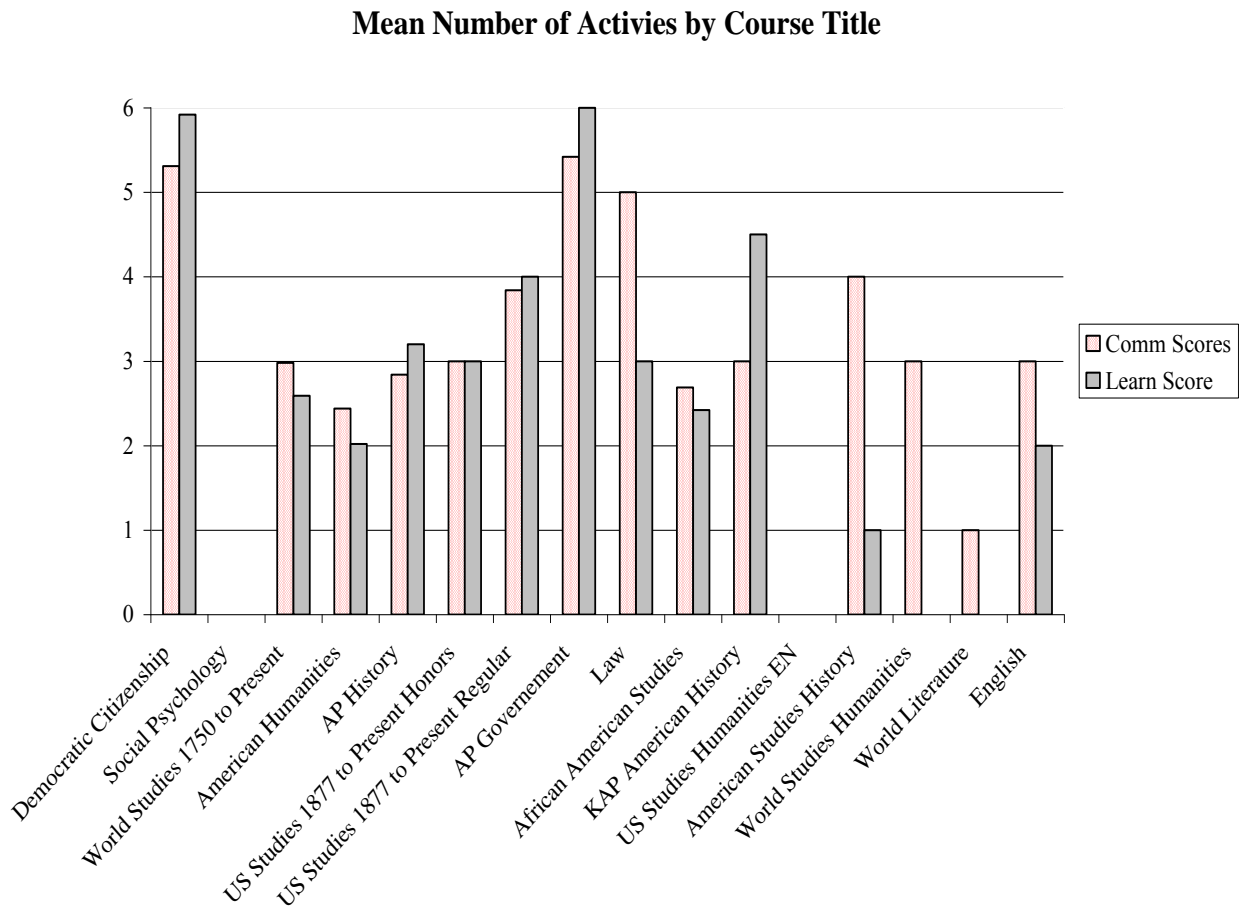
Independent variables at the school level. To examine effects of the school that students

attended, data available from the district were utilized to assess differences among schools. The

variables examined were the percentage of students who self-identify as being white, the

percentage of students who are considered economically disadvantaged, and the graduation

rate for the school.

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Dependent variables. Dependent variables were internal efficacy, cynicism, news elaboration, discussion elaboration, civic participation, factual political knowledge and KSD. See Table 1 for complete item wordings and descriptive statistics.

Table 1. Item Wording and Descriptive Statistics for Dependent Variables

| Item wording	Mean	SD	α/KR-20
Internal Efficacy	3.53	.73	.57
I consider myself to be well qualified to participate in politics when I turn 18. I think I am better informed about politics than most people my age. I feel I have a pretty good understanding of the important political issues facing our country.			
Cynicism	3.61	.75	.57
Elected officials almost never keep campaign promises. Politicians will say anything to get elected. The government wastes a lot of the taxpayer's money.			
News Elaboration	6.24	1.64	.76
I try to think about how the various stories I come across in the news connect with one another to form a big picture. Often when I come across something in the news I recall it later and think about it. I often mentally tie what I come across in the news to things I have seen or heard before. I often think about how what I come across in the news relates to other things I know. I try to relate the things I come across in the news to my own personal experiences.			
Discussion Elaboration	6.75	1.89	.66
When I talk with others about something in the news, I usually think about the topic after the conversation is over. When I talk with others about something in the news, I often relate what they say to my own experiences. When I talk with others about something in the news, it often makes me think more about my own opinions and beliefs.			
Participation (Yes or No, proportion of yes responses)	.28	.25	.62
In the fall, did you do any volunteer work? In the fall, did you go to any sort of club meeting? In the fall, did you work on a community project? In the fall, did you go to a community or neighborhood meeting? In the fall, did you work for a social group or cause? Do you belong to any local associations such as a religious group, a political club or organization, a social club or organization, or a neighborhood group?			
Knowledge	4.48	3.04	.82
Do you happen to remember which office Ted Strickland was running for, Governor or Senator? Do you happen to remember if Ted Strickland is a Republican or a Democrat? Do you happen to remember which office Mike DeWine was running for, Governor or Senator? Do you happen to remember if Mike DeWine is a Republican or a Democrat? Do you happen to remember which office Ken Blackwell was running for, Governor or Senator? Do you happen to remember if Ken Blackwell is a Republican or a Democrat? Do you happen to remember which office Sherrod Brown was running for, Governor or Senator? Do you happen to remember if Sherrod Brown is a Republican or a Democrat? Could you tell me which of the two candidates for Governor this year, Ken Blackwell or Ted Strickland, maintained a Pro-life stance on abortion? Could you tell me which of the two candidates for Senator this year, Mike DeWine or Sherrod Brown, supported a timeline for withdrawal from Iraq?			
Knowledge Structure Density	3.41	.65	NA
I'm interested in whether or not you think each of the following pairs of topics is related to one another. By related I mean whether or not the issues affect or are affected by one another. Please tell me how related you think two concepts are by telling me a number from 1 to 5, where "1" means "not at all related" and "5" means "very closely related." There are no right or wrong answers to these questions - simply give your first reaction and don't bother to think in too much detail about each pair of concepts. All possible combinations of the following six terms were presented: Terrorism Fuel prices Economy Taxes Education Environment			

Hutchens & Eveland

Mediating variables. Communication variables were conceptualized as mediators of class environment and course effects and political socialization outcomes. In particular, we examined the number of days in a given week respondents reported watching a local television news program, reading a print newspaper, and discussing politics with someone.

RESULTS

All models were estimated using HLM with Restricted Maximum Likelihood estimation. Robust standard error estimates were employed[3]. The individual level variables included in all models were the child's age, gender, and whether or not the student identifies as white. We considered three different contexts, as portrayed in Figure 3 along with the typical default assumption of no clustering (Panel 1 of Figure 2). The first cluster was the specific school within the district, since significant variations in variables such as race and graduation rate existed between schools (Panel 2 of Figure 2). The second context was the specific class taught by a specific teacher (which will be referred to as the class environment from this point on), since there are both individual differences across teachers in the way they teach, but also a single teacher will likely include different content in the different courses s/he teaches (Panel 3 of Figure 2). The final context was the given course independent of the teacher, since some courses (e.g., specific civics courses) will have considerably different content from others (e.g., American history). In Figure 2, we represent this form of clustering by using different colors to reveal clusters of geographically dispersed students (Panel 4).

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[3] Tables for all analyses are available in the appendix.

Figure 2. **Visual Representation of Clustering Strategies for Multi-level Models**
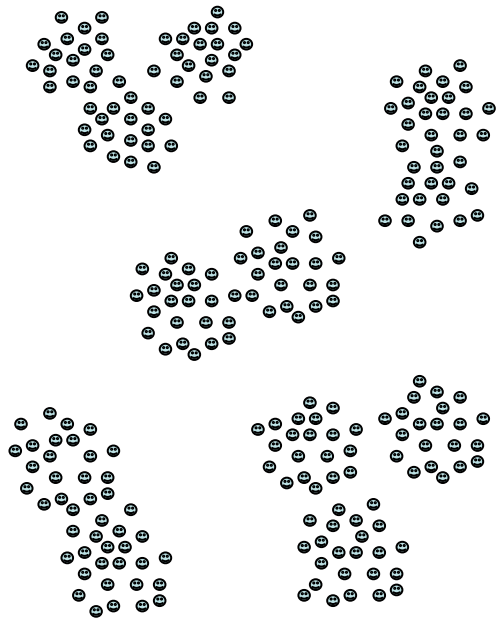
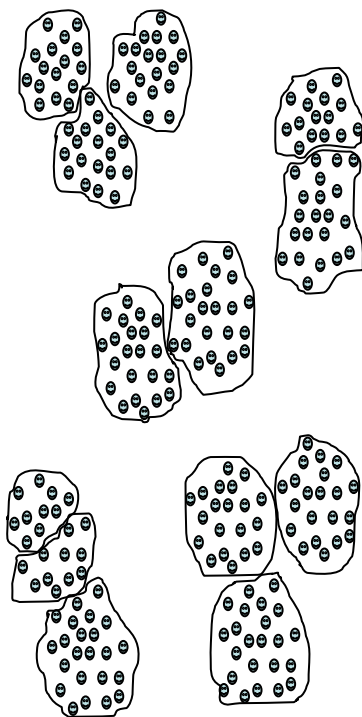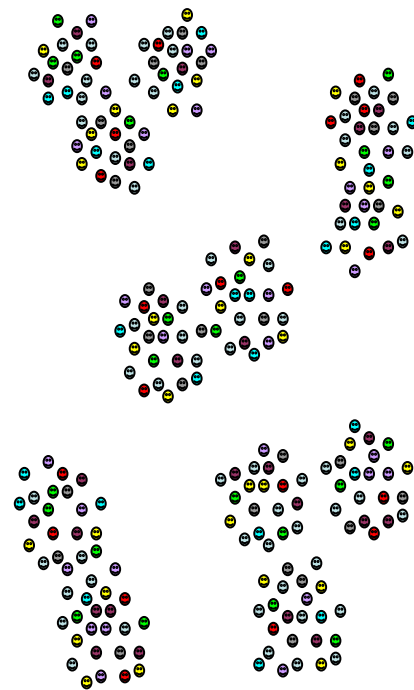Panel 1: Clustering Ignored
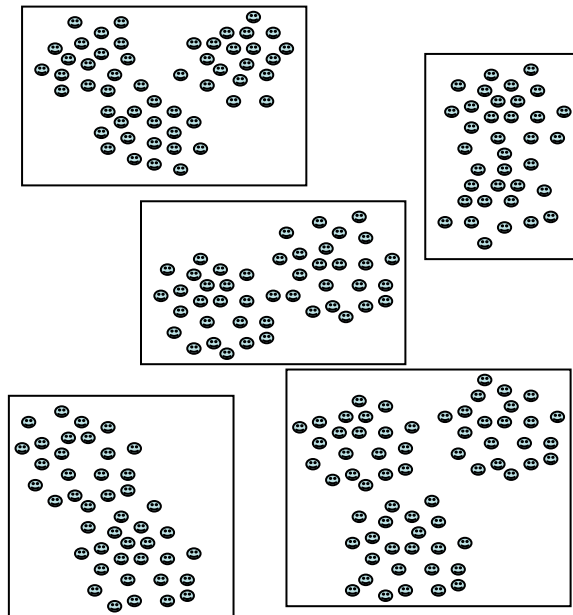
Panel 2: School Clustering

Panel 3: Class Clustering

Panel 4: Course Clustering

Hutchens & Eveland

School Effects

Three outcome variables – factual knowledge, participation and cynicism – had significant variation across schools. The school-level predictors included in these models were the graduation rate of the school, the percentage of White students in the school, and the percentage of students in the school who were classified as economically disadvantaged. All three of these predictors were added to the equation for the intercept, which allows us to determine the effect that those variables have on the school mean for each outcome variable. In addition, the cross-level interaction – e.g., whether or not being white (individual-level variable) in a school with higher or lower percentages of white students (school-level variable) – was also examined. The cross-level interactions test whether context has an effect on the relationship between traditional individual-level predictors and the individual-level outcome.

The results suggest that in schools with higher percentages of economically disadvantaged students, the mean score of factual knowledge was lower, mean participation score was lower, and the mean score for cynicism was higher. In schools with a higher percentage of white students enrolled, the mean knowledge score was lower, as was the participation score and the cynicism score. There was also a significant cross-level interaction between self-identifying as white and the percentage of white students enrolled at a school. As can be seen in Figure 3, the data indicate that white students report lower levels of cynicism when they are in schools with higher percentages of other white students; non-white students report higher cynicism when they are enrolled in schools with higher percentages of non-white students.

Figure 3. **Cross-level Interaction for Cynicism**
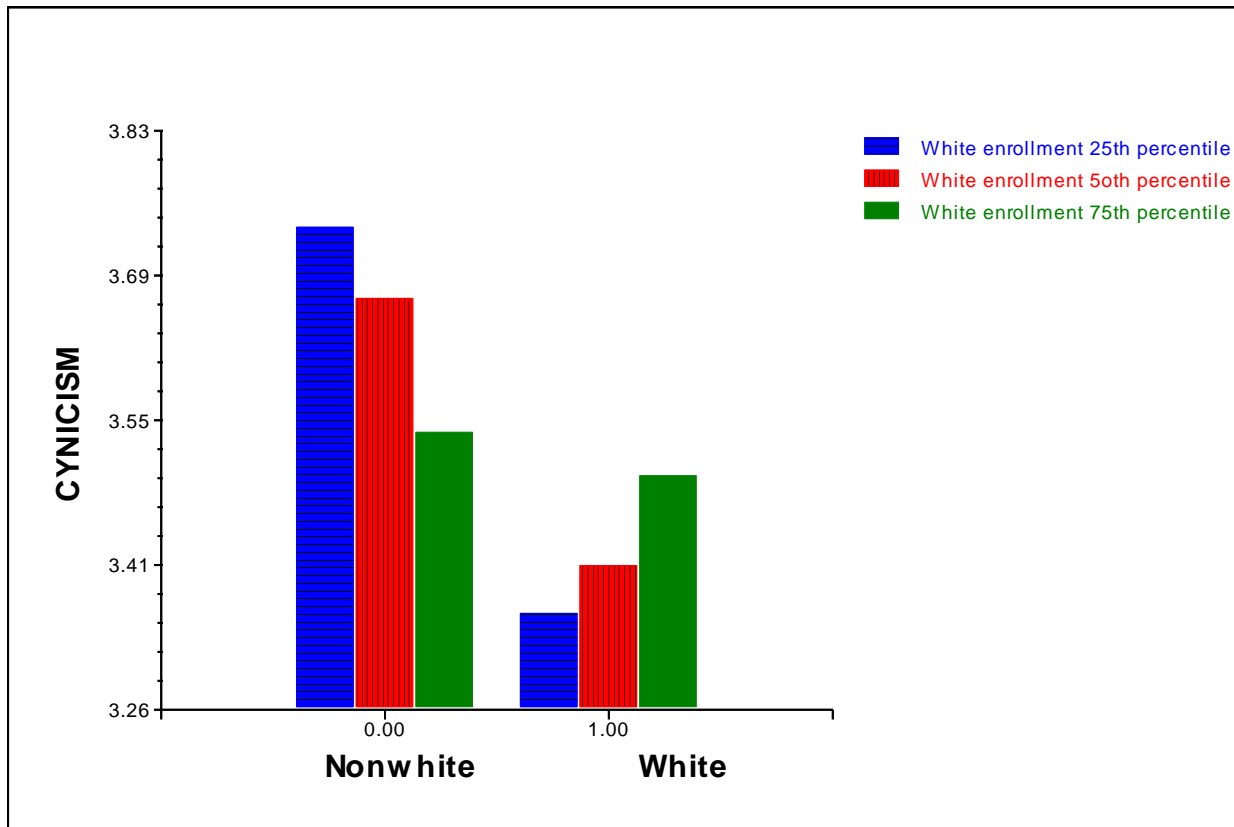
Environment Effects

Results indicate that newspaper use, factual knowledge, KSD, participation and cynicism varied based on the environment (i.e., teacher-class intersection). The characteristics of the environment that were considered in these models were the number of communication activities and number of learning activities reported by each teacher for a given class. Results indicate that environments which tend to have higher amounts of learning activities are associated with lower levels of civic participation and cynicism. Exposure to communication activities positively predicts cynicism. For all other outcomes, only the individual level variables as opposed to the contextual level variables were predictive. The individual-level predictors effectively account for environmental differences, likely due to variations in these individual-level variables across environments.

Course Effects

Newspaper use, discussion frequency, factual knowledge, participation and discussion elaboration varied based on the course in which respondents were enrolled. Similar to the environmental effects, the characteristics of the course considered were the average number of communication activities and average number of learning activities reported by all teachers teaching a given course. Results indicate that the average number learning activities in a course is negatively related to factual knowledge, and all other effects can be attributed to individual differences.

Direct Effects of Communication

Neither the classroom activities nor the characteristics of the school were significantly related to the communication variables; however, because there was significant clustering by classroom and environment it would be inappropriate to examine the direct effects of the various forms of communication on the outcome variables using traditional OLS regression. The contextual level that had the strongest clustering effect for communication behaviors was the

course in which students were enrolled. Therefore, multi-level modeling was used with course as the contextual level, but only individual level predictors were entered into the model. Age, gender and self-identification as white were retained as controls in addition to the three communication behaviors: frequency of reading newspapers, watching local television news and political discussion. The results are summarized in Table 2. The results demonstrate that for every socialization outcome variable, with the exception of cynicism, at least one of the communication variables was a significant predictor. Frequency of discussion was positively related to every variable except for cynicism. How often individuals watched local television news was positively related to internal efficacy and participation. Newspaper use was positively related to internal efficacy and marginally related to news elaboration.

Table 2.

Direct Effect of Communication Behaviors on Socialization Outcomes Accounting for Course-Level Clustering

	KSD	Factual Knowledge	Internal Efficacy	Cynicism	Civic Participation	News Elaboration	Discussion Elaboration
Intercept	3.17 (.17)*	-.20 (2.22)	2.43 (.54)*	2.93 (.62)*	.05 (.13)	6.00 (1.95)*	8.17 (.95)*
Age	-.004 (.008)	.28 (.15)#	.03 (.03)	.03 (.03)	.01 (.01)	-.05 (.11)	-.12 (.05)*
Gender (female = 1)	.09 (.06)	-.80 (.37)#	.03 (.09)	.12 (.04)*	-.01 (.02)	.16 (.07)*	-.17 (.13)
White	-.06 (.04)	.19 (.13)	.08 (.04)#	-.21 (.10)#	-.05 (.05)	-.25 (.13)#	-.16 (.14)
TV News	.01 (.02)	.06 (.04)	.05 (.01)*	.02 (.02)	.01 (.003)*	.03 (.04)	.03 (.05)
Newspaper	-.01 (.01)	.02 (.06)	.07 (.02)*	-.004 (.02)	.01 (.01)	.04 (.02)#	-.001 (.02)
Discussion	.05 (.02)*	.37 (.07)*	.05 (.02)*	.03 (.02)	.02 (.01)*	.23 (.02)*	.23 (.02)*

Note: Cell entries are HLM coefficients with robust standard errors in parentheses.
* = $p<.05$, # = $p <.10$

Hutchens & Eveland

DISCUSSION

The purpose of this study was to examine the long-term influence of macro-level factors related to civics education that are associated with important socialization outcomes among high school students. In order to do so, we employed data linking schools, social studies courses, and social studies teachers with students one year after their exposure to these macro-level influences. This paper assessed the joint influence of the macro-level factors and select individual variables on traditional indicators of political socialization such as factual political knowledge and political participation. We also extended these outcomes to include various civic-relevant perceptions and attitudes such as internal efficacy, cynicism, and knowledge structure density; behaviors such as news use and political discussion; and cognitive activities such as news and discussion elaboration.

Our first basic assumption was confirmed: macro-level contexts such as school, course, and classroom environment had important implications for socialization outcomes. Among the seven central socialization outcomes, three varied significantly by the specific school building in which respondents had been enrolled the prior year. Four of the seven outcomes varied significantly based on the combined class/teacher environment in which they were located the year before. And, three of the seven outcomes varied on the basis of the particular course in which they were enrolled the prior year.

Broken down by socialization outcome rather than by contextual unit, we found that both factual political knowledge levels and participation varied significantly across school (within the same district), course, and classroom environment, with the greatest variation being for factual knowledge. Cynicism as an outcome was also affected by context, with significant variation across both schools and classroom environments. Knowledge structure density and discussion elaboration also each varied by one of the contexts – classroom environment for KSD and course for discussion elaboration. News elaboration and internal political efficacy did not vary by any of the contextual units.

Once it becomes apparent that these clusters – by school, by course, or by the teacher-class environment – continue to have implications for socialization outcomes a year later, it is incumbent upon us to identify the key variables within these contexts that may be exerting influence. With regard to schools, we identified three variables that we thought might be operating to affect the socialization outcomes – the ethnic composition of the school, the percentage of economically disadvantaged students in the school, and the school's graduation rate. Our results clearly demonstrate that among these three school-level variables, the most important were the ethnic and economic makeup of the students. For the three dependent variables for which there was significant variation at the school level, these two school-level variables (but not graduation rate) were significant predictors. For factual political knowledge and participation, schools with higher proportions of white students scored lower. Districts with higher proportions of economically disadvantaged students scored lower on knowledge and participation.

The results for cynicism were somewhat different, however. There was a cross-level interaction such that although white students were lower in cynicism, white students in schools with higher proportions of white students were more cynical than white students in schools with lower proportions of white students. By contrast, the most cynical non-white students were those in schools with low levels of white enrollment; the lowest levels of non-white student cynicism were in schools with high levels of white enrollment (Figure 3). Schools with higher percentages of economically disadvantaged students produced students with higher levels of cynicism.

Our results for the class environment and course were much more ambiguous. Despite finding significant variation across these contextual units comparable to the level in the school context, our two key variables for these contexts – communication-related curriculum components and rote learning-related curriculum components – seem to have little influence on our socialization outcome variables. In many cases, it appears that individual-level variables were able to account for differences in context. That is, our individual-level control variables of

age, gender, and ethnicity varied across class environment or course, and once these individual-level variations were controlled, class environment and course effects disappeared.

Nonetheless, we did identify some instances of curricular influence, although often in a direction opposite our expectation. For instance, class environments with a greater number of learning components actually appear to have *reduced* levels of participation compared to those had fewer learning components. Courses with more learning components produced *lower* levels of factual political knowledge than those with fewer learning components. And, class environments with more communication components actually *increased* rather than decreased cynicism, although more learning components produced lower cynicism compared to class environments with fewer learning components. It is important to note that learning and communication components are not a zero-sum game; in fact, they are positively correlated at *r* = .65. The reasons for these unanticipated findings are unclear, and we do not have sufficient data to probe them further. We must leave it up to future research to ascertain the process through which these findings were produced, presuming they can be replicated in other samples.

Our expectations regarding indirect effects of educational context variables on socialization outcomes through news media use and interpersonal political discussion went largely unsupported. There was no evidence for an influence of school context on any of the communication variables. There were significant variations in newspaper use by the class environment, but these differences were not affected by the two curriculum variables and the between-class environment variation was completely accounted for by the individual-level demographic controls. There were also significant variations across courses for newspaper use and political discussion, but these variations do not appear to be related to the curriculum variables and are largely accounted for by the individual-level demographic controls as well.

Given these findings, it is highly unlikely that educational context effects are mediated through communication variables as we had expected. This does not mean, however, that

communication variables were unimportant. In fact, Table 3 reveals that communication variables likely play a central role in important socialization outcomes. Political discussion is a significant and positive predictor of six of the seven outcomes after controlling for demographics, other communication variables, and between-course variation. Newspaper use and television news use both account for significant increments in variance in two of the seven outcomes. Thus, communication outside the classroom should not be ignored as an important source of political socialization outcomes.

Syvertsen, Flanagan, and Stout (2007) found primarily positive effects of classroom activities on democratic outcomes, although like us they also found fewer significant relationships than expected. One potential reason for the unexpected results is that the measure of civic content exposure was reported by the teacher rather that the student, which is the more common strategy (McDevitt & Kiousis, 2006; Meirick & Wackman, 2004). There are strengths and weaknesses of our approach. On the one hand, by having the teacher report the activities instead of the students, we avoid results being spurious due to the positive correlation between a student remembering a classroom activity and being affected by that activity. That is, with student self-reports it is possible (and likely) that two students in the same class at the same time will report experiencing somewhat different environments. This may be due to variations in absences, variations in attention to the content, or ability to recall. Each of these factors is a confound in the measure if the measure is taken from students, and thus a true "context" effect is not being observed, but instead an individual effect.

On the other hand, neither are the teacher reports infallible. It is possible that teacher reports are confounded by a social desirability response bias or recall as well. That is, some teachers may have overreported the number of the activities they actually employ because they wanted to appear to be better teachers than they were; or, they merely may have misremembered.

Hutchens & Eveland

However, Syvertsen et al. (2007) also utilized teacher reported activities and did not find the same negative effects of civic information on socialization outcomes as we did. The use of teacher reports instead of student reports could be accounting for the smaller and non-significant findings that were found in both studies, but it cannot account for our negative findings.

Another potential explanation, and also where we differed from much prior research, is our sample. As we have already noted, the students in the CPS district represent only a subset of the population that is typical for socialization studies. Consequently, the schools were also quite different. Although the graduation rate of the schools was never a significant predictor of the dependent variables, we examined the relationship between graduation rate and the number of classroom activities that were reported. The analysis revealed that schools with lower graduation rates (which we would expect to produce weaker socialization outcomes) employed more classroom activities (which we would expect to produce stronger socialization outcomes). Together, each variable (unfortunately at different levels of analysis) could be suppressing the other. If such were the case, this could account for some of our findings because students who were in the weakest schools, for which we would expect the weakest effects of teaching, were also experiencing the most activities in their classroom. It is possible that teachers in poorly performing schools were in a sense trying (unsuccessfully) to compensate for the school environment. If so, then to conclude that exposure to more communication-related curriculum components was harming political socialization would be the equivalent of concluding that aspirin causes headaches because most instances of someone taking aspirin involves someone experiencing a headache. Ideally we would be able to tease out the interactive relationships between classroom environment and school factors, but our sample sizes at this level of analysis are inadequate to do so.

In conclusion, this project reinforces the importance of examining the context in which information is presented, whether it is communication-based or knowledge-based. Although

questions still remain regarding the nature of the relationship between socialization outcomes and civics curricula programs, this project provides evidence that some samples may respond differently than what has previously been observed. Hopefully our findings can encourage researchers to continue to probe this issue and to implement multi-level modeling when asking questions about school effects.

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Appendix A
Correlation Table for Dependent, Mediating and Control Variables

	1	2	3	4	5	6	7	8	9	10	11	12
(1) Factual Knowledge												
(2) KSD	.062#											
(3) Internal Efficacy	.259**	.152**										
(4) Participation	.218**	.100**	.195**									
(5) Cynicism	-.020	.096**	-.059	-.026								
(6) News Elaboration	.128**	.262**	.279**	.184**	-.041							
(7) Discussion Elaboration	.071*	.227**	.234**	.162**	.018	.699**						
(8) Local TV viewing	.142**	.140**	.245**	.122**	.019	.155**	.124**					
(9) Newspaper reading	.161**	.043	.262**	.162**	-.063#	.202**	.142**	.183**				
(10) Discussion frequency	.232**	.212**	.269**	.231**	.032	.287**	.288**	.275**	.300**			
(11) Age	.071*	.035	-.045	.003	.119**	-.008	.023	.021	.058*	.100**		
(12) Gender Female = high	-.120**	.083*	-.017	.037	.013	.054	.025	-.046	-.079*	.036	-.042	
(13) White	.017	-.088*	-.005	.007	-.144**	-.054	-.001	.015	-.056	.048	-.056	-.034

** = $p<.01$, * = $p<.05$, # = $p <.10$

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Appendix B

Summary of Intraclass Correlations (ICC) and Significance of Level of Variance Accounted for in Random Effects (Empty) HLM Models

Dependent Variable	School		Classroom Environment		Course	
	ICC	*p*-value	ICC	*p*-value	ICC	*p*-value
Local TV News Use	.09%	>.500	.16%	>.500	.01%	>.500
Newspaper Use	.64%	.294	4.53%	.016	10.57%	.000
Discussion Frequency	.08%	>.500	.72%	.323	7.69%	.000
Factual Knowledge	6.25%	.000	15.47%	.000	18.09%	.000
Knowledge Structure Density	.01%	>.500	3.63%	.037	.01%	>.500
Participation	1.59%	.095	1.52%	.085	3.13%	.015
Internal Efficacy	.59%	.228	.18%	>.500	.91%	.234
Cynicism	3.99%	.000	5.73%	.001	.74%	.178
News Elaboration	.01%	>.500	.11%	>.500	1.77%	.298
Discussion Elaboration	.02%	>.500	.02%	>.500	3.00%	.021

Note: *p*-value refers to whether or not there is significant variance in the dependent variable based on the Level 2 group.

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Appendix C

School Contextual Model for Factual Political Knowledge

Fixed Effects	Coefficient (SE)	t (df)	p
Model for (β_0)			
Intercept (γ_{00})	8.76 (3.27)	2.68 (9)	.026
Percent white (γ_{01})	-.02(.007)	-3.33 (9)	.010
Percent econ. Disadvantaged (γ_{02})	-.06(.02)	-3.62 (9)	.006
Graduation rate (γ_{03})	-.01(.01)	-.58 (9)	.574
Model for (β_1)			
Age (γ_{10})	.07 (.17)	.39 (12)	.700
Model for (β_2)			
Gender (γ_{20})	-.67 (.21)	-3.20 (12)	.008
Model for (β_3)			
White/non-white (γ_{30})	.68 (.39)	1.73 (11)	.111
Percent white (γ_{31})	-.01 (.01)	-1.43 (11)	.180

Random Effects (Var. Components)	Variance	df	Chi-square
Var. between schools (τ_{00})	59.22	7	28.20 (p = .000)
Var. in age (τ_{11})	.22	10	27.363 (p = .003)
Var. in gender (τ_{22})	.17	10	6.578 (p > .500)
Var. in white/non-white (τ_{33})	.11	9	10.024 (p = .335)
Var. within schools (σ^2)	7.88		

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Appendix D

School Contextual Model for Civic Participation

Fixed Effects	Coefficient (SE)	t (df)	p
Model for (β_0)			
Intercept (γ_{00})	.747 (.22)	3.45 (9)	.008
Percent white (γ_{01})	-.002(.001)	-2.97 (9)	.016
Percent econ. Disadvantaged (γ_{02})	-.005(.001)	-3.28(9)	.010
Graduation rate (γ_{03})	-.001(.001)	-1.02 (9)	.335
Model for (β_1)			
Age (γ_{10})	-.004 (.012)	-.35 (12)	.750
Model for (β_2)			
Gender (γ_{20})	.024 (.023)	1.05 (12)	.375
Model for (β_3)			
White/non-white (γ_{30})	-.019 (.055)	-.34 (11)	.769
Percent white (γ_{31})	.0007 (.001)	.697 (11)	.568

Random Effects (Var. Components)	Variance	df	Chi-square
Var. between schools (τ_{00})	.194	7	14.964 (p = .036)
Var. in age (τ_{11})	.001	10	16.858 (p = .077)
Var. in gender (τ_{22})	.003	10	12.321 (p = .263)
Var. in white/non-white (τ_{33})	.001	9	5.962 (p > .500)
Var. within schools (σ^2)	.061		

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Appendix E

School Contextual Model for Cynicism

Fixed Effects	Coefficient (SE)	t (df)	p
Model for (β_o)			
Intercept (γ_{00})	2.080 (.54)	3.83 (9)	.005
Percent white (γ_{01})	-.005(.002)	-2.32 (9)	.045
Percent econ. Disadvantaged (γ_{02})	.008(.004)	2.11 (9)	.064
Graduation rate (γ_{03})	.004(.004)	1.40 (9)	.197
Model for (β_1)			
Age (γ_{10})	.045 (.02)	2.48 (12)	.029
Model for (β_2)			
Gender (γ_{20})	.069 (.07)	.93 (12)	.372
Model for (β_3)			
White/non-white (γ_{30})	-.430 (.13)	-3.41 (11)	.006
Percent white (γ_{31})	.008 (.003)	2.56 (11)	.027

Random Effects (Var. Components)	Variance	df	Chi-square
Var. between schools (τ_{oo})	.040	7	7.484 (_p_ = .380)
Var. in age (τ_{11})	.0002	10	5.648 (_p_ >.500)
Var. in gender (τ_{22})	.026	10	16.870 (_p_ = .077)
Var. in white/non-white (τ_{33})	.004	9	6.024 (_p_ > .500)
Var. within schools (σ^2)	.539		

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Appendix F

Classroom Environment Contextual Model for Newspaper Use

Fixed Effects	_Coefficient (SE)_	_t (df)_	_p_
Model for (β_0)			
Intercept (γ_{00})	.368 (1.15)	.32 (91)	.750
Communication Score (γ_{01})	-.085 (.06)	-1.34 (91)	.183
Learning Score (γ_{02})	-.003 (.06)	-.05 (91)	.965
Model for (β_1)			
Age (γ_{10})	.166 (.07)	2.34 (93)	.022
Model for (β_2)			
Gender (γ_{20})	-.361 (.17)	-2.19 (93)	.031
Model for (β_3)			
White/non-white (γ_{30})	-.144 (.18)	-.80 (93)	.427

Random Effects (Var. Components)	_Variance_	_df_	_Chi-square_
Var. between environments (τ_{00})	3.321	37	37.777 (_p_ = .434)
Var. in age (τ_{11})	.015	39	39.114 (_p_ = .465)
Var. in gender (τ_{22})	.047	39	37.239 (_p_ > .500)
Var. in white/non-white (τ_{33})	.086	39	30.372 (_p_ > .500)
Var. within environments (σ^2)	4.199		

Appendix G

Classroom Environment Contextual Model for Factual Political Knowledge

Fixed Effects	Coefficient (SE)	t (df)	p
Model for (β_o)			
Intercept (γ_{00})	.978 (1.84)	.53 (91)	.596
Communication Score (γ_{01})	-.110 (.12)	-.90 (91)	.368
Learning Score (γ_{02})	-.083 (.11)	-.75 (91)	.457
Model for (β_1)			
Age (γ_{10})	.295 (.11)	2.64 (93)	.010
Model for (β_2)			
Gender (γ_{20})	-.518 (.22)	-2.32 (93)	.022
Model for (β_3)			
White/non-white (γ_{30})	-.029 (.28)	-.105 (93)	.917

Random Effects (Var. Components)	Variance	df	Chi-square
Var. between environments (τ_{oo})	11.957	37	42.115 (p = .259)
Var. in age (τ_{11})	.044	39	42.731 (p = .314)
Var. in gender (τ_{22})	.328	39	35.974 (p > .500)
Var. in white/non-white (τ_{33})	.840	39	48.122 (p = .150)
Var. within environments (σ^2)	7.350		

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Appendix H

Classroom Environment Contextual Model for Knowledge Structure Density

Fixed Effects	*Coefficient (SE)*	*t (df)*	*p*
Model for (β_o)			
Intercept (γ_{00})	3.165 (.38)	8.304 (91)	.000
Communication Score (γ_{01})	-.011 (.02)	-.52 (91)	.606
Learning Score (γ_{02})	.007 (.02)	.43 (91)	.668
Model for (β_1)			
Age (γ_{10})	.009 (.02)	.39 (93)	.699
Model for (β_2)			
Gender (γ_{20})	.110 (.06)	1.99 (93)	.049
Model for (β_3)			
White/non-white (γ_{30})	-.080 (.05)	-1.49 (93)	.140

Random Effects (Var. Components)	*Variance*	*df*	*Chi-square*
Var. between environments (τ_{oo})	.371	37	32.573 (*p* > .500)
Var. in age (τ_{11})	.001	39	32.539 (*p* > .500)
Var. in gender (τ_{22})	.027	39	45.402 (*p* = .222)
Var. in white/non-white (τ_{33})	.011	39	31.595 (*p* > .500)
Var. within environments (σ^2)	.413		

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Appendix I

Classroom Environment Contextual Model for Civic Participation

Fixed Effects	_Coefficient (SE)_	_t (df)_	_p_
Model for (β_o)			
Intercept (γ_{00})	.084 (.13)	.64 (91)	.521
Communication Score (γ_{01})	.002 (.01)	.46 (91)	.646
Learning Score (γ_{02})	-.018 (.01)	-3.20 (91)	.002
Model for (β_1)			
Age (γ_{10})	.014 (.01)	1.67 (93)	.099
Model for (β_2)			
Gender (γ_{20})	.015 (.02)	.74 (93)	.461
Model for (β_3)			
White/non-white (γ_{30})	-.016 (.02)	-.75 (93)	.456

Random Effects (Var. Components)	_Variance_	_df_	_Chi-square_
Var. between environments (τ_{oo})	.09	37	34.688 ($p > .500$)
Var. in age (τ_{11})	.001	39	33.629 ($p > .500$)
Var. in gender (τ_{22})	.004	39	44. 180 ($p = .262$)
Var. in white/non-white (τ_{33})	.0001	39	37.342 ($p > .500$)
Var. within environments (σ^2)	.062		

Appendix J

Classroom Environment Contextual Model for Cynicism

Fixed Effects	Coefficient (SE)	t (df)	p
Model for (β_o)			
Intercept (γ_{00})	2.806 (.40)	7.02 (91)	.000
Communication Score (γ_{01})	.067 (.02)	2.91 (91)	.005
Learning Score (γ_{02})	-.054 (.02)	-2.48 (91)	.015
Model for (β_1)			
Age (γ_{10})	.048 (.02)	1.96 (93)	.053
Model for (β_2)			
Gender (γ_{20})	.055 (.06)	.862 (93)	.391
Model for (β_3)			
White/non-white (γ_{30})	-.200 (.07)	-3.01 (93)	.004

Random Effects (Var. Components)	Variance	df	Chi-square
Var. between environments (τ_{oo})	.404	37	35.007 ($p > .500$)
Var. in age (τ_{11})	.001	39	36.434 ($p > .500$)
Var. in gender (τ_{22})	.054	39	40.167 ($p = .418$)
Var. in white/non-white (τ_{33})	.022	39	42.601 ($p = .318$)
Var. within environments (σ^2)	.502		

Appendix K

Course Contextual Model for Newspaper Use

Fixed Effects	Coefficient (SE)	t (df)	p
Model for (β_o)			
Intercept (γ_{00})	-1.070 (1.67)	-.64 (11)	.534
Communication score (γ_{01})	-.175 (.21)	-.82 (11)	.430
Learning score (γ_{02})	.052 (.12)	.43 (11)	.678
Model for (β_1)			
Age (γ_{10})	.294 (.11)	2.60 (13)	.022
Model for (β_2)			
Gender (γ_{20})	-.502 (.19)	-2.66 (13)	.020
Model for (β_3)			
White/non-white (γ_{30})	-.097 (.09)	-1.04 (13)	.318

Random Effects (Var. Components)	Variance	df	Chi-square
Var. between courses (τ_{oo})	.771	5	9.427 (p = .092)
Var. in age (τ_{11})	.012	7	9.889 (p = .194)
Var. in gender (τ_{22})	.107	7	9.465 (p = .220)
Var. in white/non-white (τ_{33})	.014	7	2.677 (p > .500)
Var. within courses (σ^2)	4.336		

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Appendix L

Course Contextual Model for Discussion Frequency

Fixed Effects	Coefficient (SE)	t (df)	p
Model for (β_o)			
Intercept (γ_{00})	.421 (1.53)	.28 (11)	.789
Communication Score (γ_{01})	-.151 (.21)	-.71 (11)	.491
Learning Score (γ_{02})	.059 (.15)	.40 (11)	.695
Model for (β_1)			
Age (γ_{10})	.235 (.10)	2.432 (13)	.030
Model for (β_2)			
Gender (γ_{20})	-.135 (.20)	-.673 (13)	.513
Model for (β_3)			
White/non-white (γ_{30})	.325 (.05)	7.116 (13)	.000

Random Effects (Var. Components)	Variance	df	Chi-square
Var. between courses (τ_{oo})	2.068	5	11.665 (p = .039)
Var. in age (τ_{11})	.003	7	11.831 (p = .106)
Var. in gender (τ_{22})	.191	7	9.795 (p = .200)
Var. in white/non-white (τ_{33})	.002	7	3.876 (p > .500)
Var. within courses (σ^2)	4.037		

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Appendix M

Course Contextual Model for Factual Political Knowledge

Fixed Effects	Coefficient (SE)	t (df)	p
Model for (β_o)			
Intercept (γ_{00})	-8.839 (6.10)	-1.45 (11)	.175
Communication Score (γ_{01})	.140 (.25)	.55 (11)	.593
Learning Score (γ_{02})	-.395 (.14)	-2.73 (11)	.020
Model for (β_1)			
Age (γ_{10})	.960 (.37)	2.60 (13)	.041
Model for (β_2)			
Gender (γ_{20})	-.852 (.29)	-2.99 (13)	.040
Model for (β_3)			
White/non-white (γ_{30})	.788 (.26)	3.09 (13)	.061

Random Effects (Var. Components)	Variance	df	Chi-square
Var. between courses (τ_{oo})	269.025	5	21.206 (p = .001)
Var. in age (τ_{11})	1.020	7	25.197 (p = .001)
Var. in gender (τ_{22})	.408	7	13.499 (p = .060)
Var. in white/non-white (τ_{33})	.434	7	10.921 (p = .141)
Var. within courses (σ^2)	8.634		

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Appendix N

Course Contextual Model for Civic Participation

Fixed Effects	Coefficient (SE)	t (df)	p
Model for (β_o)			
Intercept (γ_{00})	.060 (.12)	.49 (11)	.637
Communication Score (γ_{01})	-.027 (.04)	-.70 (11)	.497
Learning Score (γ_{02})	-.014 (.03)	-.49 (11)	.633
Model for (β_1)			
Age (γ_{10})	.025 (.01)	2.56 (13)	.024
Model for (β_2)			
Gender (γ_{20})	-.020 (.02)	-.927 (13)	.491
Model for (β_3)			
White/non-white (γ_{30})	-.047 (.04)	-1.19 (13)	.339

Random Effects (Var. Components)	Variance	df	Chi-square
Var. between courses (τ_{00})	.016	5	7.225 (*p* = .203)
Var. in age (τ_{11})	.0001	7	7.317 (*p* = .397)
Var. in gender (τ_{22})	.001	7	5.294 (*p* > .500)
Var. in white/non-white (τ_{33})	.013	7	10.379 (*p* = .167)
Var. within courses (σ^2)	.062		

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Appendix O

Course Contextual Model for Discussion Elaboration

Fixed Effects	Coefficient (SE)	t (df)	p
Model for (β_o)			
Intercept (γ_{00})	7.138 (1.33)	5.35 (11)	.000
Communication Score (γ_{01})	-.027 (.24)	-.12 (11)	.908
Learning Score (γ_{02})	-.014 (.18)	-.47 (11)	.650
Model for (β_1)			
Age (γ_{10})	.025 (.08)	.18 (13)	.861
Model for (β_2)			
Gender (γ_{20})	-.020 (.13)	-.479 (13)	.649
Model for (β_3)			
White/non-white (γ_{30})	-.047 (.12)	-.93 (13)	.369

Random Effects (Var. Components)	Variance	df	Chi-square
Var. between courses (τ_{oo})	.013	5	4.112 (p > .500)
Var. in age (τ_{11})	.001	7	4.082 (p > .500)
Var. in gender (τ_{22})	.038	7	5.760 (p > .500)
Var. in white/non-white (τ_{33})	.040	7	5.435 (p > .500)
Var. within courses (σ^2)	3.779		

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