Knowledge in Action

Project-Based Learning in AP Courses

AP U.S. Government and Politics:
Findings from the 2009-10 School Year

Technical Report

Prepared for the George Lucas Educational Foundation and the Bellevue Schools Foundation

December 2010

The LIFE Center

an NSF Science of Learning Center

University of Washington

Susan Mosborg, Ph.D., Project Director and Co-Principal Investigator
John D. Bransford, Ph.D., Principal Investigator
Robert D. Abbott, Ph.D.
Nancy Vye, Ph.D.
UW College of Education

Walter C. Parker, Ph.D., Co-Principal Investigator
UW College of Education & UW Political Science

John D. Wilkerson, Ph.D.
UW Political Science

with the Bellevue School District

John Brill, M.Ed.
Curriculum & Instruction, Social Studies

Research sponsored by the George Lucas Educational Foundation

Learning in Informal & Formal Environments
LIFE-SLC.ORG

Contents

Executive Summary

College readiness initiatives have become central to large-scale efforts to boost educational outcomes. Few dispute the need for universal education. But much work remains to be done to enable all students to have access to great courses. Ultimately, high quality, *challenging* courses serve learners two ways. They help students experience school as meaningful in the present, not just for their future, and they expand students' views of what they are capable of as learners—especially when they work collaboratively and make wise use of technology to accelerate their success.

The Knowledge in Action project is asking the research question: Can rigorous project-based learning (PBL) applied to high school AP courses improve student learning?

Specifically, is it possible to get:

1 More students to pass the AP Test with a well-designed PBL course?

2 Deeper learning than that measured by the AP Test—with a measure of *knowledge in action* indicative of deep understanding?

3 Deeper engagement in the course and in related activities outside of the classroom?

Project Goals

- ✓ ***Same or higher scores on the AP Test***
- ✓ ***Accomplishment that's more valuable***
  - ***Deep conceptual learning***
  - ***Capacity for principled, adaptive reasoning***
- ✓ ***Engagement that's greater; appeal and success for more students***
- ✓ ***A course that's sustainable and scalable by design***

In this technical report, we present research findings from the 2009-10 school year.

Students were 299 high school students from 12 classes in four schools, located in two school districts matched for district type. Outcomes from a PBL AP course were compared to those from a traditionally-taught AP course. The site of the PBL AP classes was the Bellevue School District near Seattle, Washington, where

the course was being implemented for the second year in a row. The course implementation and research are in the "design experiment" tradition (e.g., Brown 1992) whereby courses are intentionally designed, tried out, refined, and tried again in successive iterations. (For results from the first year implementation, during the 2008-09 school year, see our technical report of December 2009.) The site of the traditionally-taught AP classes which served as the 2009-10 control was a California school district near a large city. Both the PBL and control district were suburban/mid-sized city school districts. All participating schools were comprehensive high schools.

For comparability purposes, we report our findings for the 2009-10 school year as two studies:

Study 1 compared PBL AP students from a historically high-achieving school (School A) in the Bellevue (WA) School District to traditionally-taught AP students from two moderate-achieving schools (School C and D) in the California control district. Three classes comprised the PBL AP condition, and 6 classes comprised the traditionally-taught AP condition. For comparability between the PBL and control groups, our analyses took into account (i.e., adjusted for) the individual students' prior achievement, that is, their high school grade point average (GPA), their score on all prior AP tests they had taken, and/or their score on the AP U.S. History test, which most of the students had taken one year earlier.

Study 2 compared PBL AP students from a historically moderate-achieving school (School B) in the Bellevue (WA) School District to traditionally-taught AP students from the same two moderate-achieving schools (School C and D) in the California district of Study 1. Three classes comprised the PBL AP condition, and 6 classes comprised the traditionally-taught AP condition. Although in this case the PBL and control groups were already quite well matched for prior achievement and student socioeconomic status, our analyses also adjusted for the participating students' prior achievement as in Study 1.

Measures addressed student learning and engagement. Specifically, we asked: Will the PBL AP students perform as well on the standard AP Test, but higher on an assessment of knowledge in action indicative of deep learning? Will PBL AP students report higher engagement in their AP class?

Study Findings

- ***The PBL AP students scored significantly higher on the AP Test (Study 1 and Study 2).***
- ***The PBL AP students scored the same (Study 2) or significantly higher (Study 1) on all 4 dimensions of the Knowledge in Action Test.***
- ***The PBL AP students rated their engagement the same (Study 2) or significantly higher (Study 1) on 4 out of 4 dimensions of classroom community.***
- ***These results held true even after adjusting for students' prior achievement.***
- ***The exception: Although the PBL AP students in Study 2 scored significantly higher on the AP Test on average than their traditionally-taught counterparts, with a greater proportion scoring 4 or 5, there was no significant difference in the proportion that "passed" the AP Test with a score of 3 or higher. (Note, however, that a smaller proportion of students in the traditionally-taught AP course took the AP Test; although scores were adjusted for prior achievement, it may be that students least prepared by the course opted out of the test in greater numbers).***

Background

Advanced Placement (AP) courses are widely seen as one of the best ways to deliver high quality, rigorous curriculum to more high school students. Among high school graduates of 2006, 24.2% had taken an AP Exam, up from 15.9 percent in 2000 and growing (College Board, 2007). Yet the dominant method of teaching AP courses has changed little in the 50 years since the program began.

A major National Academy of Sciences report in 2002 found that "existing programs for advanced study are frequently inconsistent with the results of research on cognition and learning" (National Research Council, p. 2). In the press for acceleration, Advanced Placement programs frequently resort to "coverage" of tested content as their primary aim, while deep conceptual learning and student engagement fall to the wayside. In contrast, deep understanding of the content and unifying concepts of a discipline is needed, research has shown, for accelerated *future* learning as well as for innovative and integrative solutions across subject matter specialties (National Research Council, 2000; Darling-Hammond, Bransford, LePage, Hammerness, & Duffy, 2005).

Admirably, AP curricula are developed collaboratively by scholars and teachers working together with the College Board. These courses are not the product of a single teacher working in isolation "behind the classroom door" (Goodlad & Klein, 1970); course syllabi are the product of a kind of democratic deliberation, which opens them up to public inspection both during and after development—public inspection being the cornerstone of both science and democracy (Dewey, 1910). AP has this critically important "public" advantage over many curricular contenders. Its achilles' heel, however, lies in the gap between a *curriculum* and a *course*. With AP, there is often too much curriculum for the course; hence, a great stuffing of topics into a space temporally too small and pedagogically too meager to manage them meaningfully. Before us lies the possibility of tackling the breadth/depth dilemma so that students achieve robust working knowledge of a subject as a result.

Research Goals

With these issues and opportunities in mind, and through the support of the George Lucas Education Foundation, researchers from the University of Washington in collaboration with teachers and leaders in the Bellevue School District (BSD), Bellevue, WA undertook a research project investigating whether a new AP U.S. Government and Politics course, reformulated using principles of *How People Learn* (National Research Council, 2000) and project-based learning (e.g., Darling Hammond et al., 2008) would improve student learning compared to a traditionally-taught AP course.

The research sought answers to the following questions:

Is it possible to get:

1. More students to pass the AP Test with a well-designed PBL course?
2. Deeper learning than that measured by the AP Test—with a measure of *knowledge in action* indicative of deep understanding?
3. Deeper engagement in the course and in related activities outside of the classroom?

This Technical Report describes findings from the research.

Rationale for a Project-Based Approach to Advanced Placement Courses

While the dominant approach to AP instruction has changed little in last half century, tremendous strides have been made in understanding how to engage students to achieve advanced learning aims. Good summaries of this research can be found in volumes including *How People Learn* (National Research Council, 2000); *How Students Learn* (National Research Council, 2005); *Powerful Learning* (Darling-Hammond et al., 2008); *and Surpassing Ourselves* (Bereiter & Scardamalia, 1993). The National Academy of Sciences report on AP (see p. 1) pointed to seven principles of human learning as key: principled conceptual knowledge, prior knowledge, metacognition, differences among learners, motivation, learning communities, and situated learning.

The good news, the National Academy of Sciences report on AP concluded: "Although AP programs . . . currently are not well aligned with learning principles, they can be revised with this research in mind. The resulting transformations are likely to make the programs more successful in enhancing deep conceptual learning and make them more accessible to additional students" (p. 9). We agree. Further, we conjecture that project-based learning is a productive means for improving advanced study in this direction.

In a 2006 report,* "The Silent Epidemic: Perspectives of High School Dropouts" (Bridgeland, DiIulio Jr., and Morison) *the top reason U.S. dropouts gave for leaving school was that "classes were not interesting."

The promise of research on project-based AP lies in its potential to help more students find more meaning in challenging studies, inspiring the kinds of learner identities on which well-being depends.

In project-based learning, students, working together, learn knowledge and skills through an extended inquiry process structured around complex, authentic challenges and carefully designed products and tasks (Ravitz, 2009). By captivating students' attention in the moment, PBL prepares students for the future. It targets "the more complex knowledge and skills needed in the 21st century—skills needed for framing problems, seeking and organizing information and resources, and working strategically with others to manage and address dilemmas and create new products" for a better world (Darling-Hammond et al., p. 2).

In project-based learning, well done, students have multiple opportunities to bridge their own prior, informal, and local knowledge with the world's academic, formal, more broadly vetted knowledge.

Through project activities – and the recurring phases of project anticipation, execution, and reflection – students have meaningful opportunities to try out their current levels of understanding and ultimately deepen them.

Currently in AP, however, projects are most often treated as add-ons—valuable activities, but only *after* the "real" reading and remembering has been done. Indeed, it is surprising how few projects take place in high school AP courses today. A 2005 College Board survey of AP biology and AP U.S. history teachers (Paek, Ponte, Sigel, Braun, & Powers, 2005) found that asking students to design and conduct science projects, and participating in various competitions, were the two activities students were *least* frequently asked to do. Less than 1% of teachers reported using these activities more than once or twice a week. Similarly, the predominant instructional methods self-reportedly used by the history teachers were lecturing and teacher-led whole-group discussions; the researchers found that "teachers do not make frequent use of presentations by students and independent research/projects by students to assess their students' progress." Only 6% and 4% of the history teachers, respectively, reported using these evaluation methods at least once a week.

What well-designed project-based courses do is invert this course organization so that the integrative elements do not get left out. Projects provide the spine for a course, a strong core from which robust content coverage can be supported and learners' new knowledge can be developed, strengthened, and flexed. The spine provides a "keystone" for continual evaluation of progress. This is different from project-based courses that provide end-of-course capstones that do not necessarily help connections throughout the course.

Research Methodology

Participants

In total, 299 high school students took part in the research, representing 12 classes at four high schools (6 PBL AP classes in Washington State's Bellevue School District, and 6 traditionally-taught AP classes in a California school district matched for district type). Table 1 contains the numbers of students, classes and teachers in each school/research group.[1]

Table 1. Number of Students, Classes, & Teachers by School & Research Condition

		Total Number of Students		Classes	Teachers
Study 1	**High achieving school** (School A)	89	PBL AP course	3	1
Study 2	**Moderate achieving schools** (School C, School D)	119	Traditional AP course	6	2
Study 2	**Moderate achieving school** (School B)	91	PBL AP course	3	2
		299		**12**	**5**

Teacher Characteristics

All five teachers (PBL and traditional-course) were certified teachers. Each had a Master's in Teaching or teaching credential earned from a university teacher education program. Each teacher also had a bachelor's degree in political science or a related field, and 2 or more years of classroom teaching experience. (The traditional-course teachers had the most years teaching experience, over 10 years each.)

Each PBL AP teacher was provided .2 FTE release time (for 2 semesters) to participate in collaborative course design and reflection on results. One of the three teachers continued to teach a full course load and was allotted the .2 FTE as overage.

Class Characteristics

For comparability, all classes were year-long AP U.S. Government and Politics. Class sizes were roughly equivalent. The mean number of students per class was 29.8 (range 26-35 students) in the PBL AP classes, and 31.0 (range 24-37 students) in the traditionally-taught AP classes. Within each school, all of the year-long AP U.S. Government and Politics courses were the same type (i.e., PBL AP or traditional).

[1] Appendix A contains information on the demographics of the Bellevue School District, the control school district, and each school.

Research Design

We used a non-randomized *interventional study design*.

The research consists of two studies, Study 1 and Study 2. In each study, outcomes from a PBL AP course were compared to those for a traditionally-taught course.

Studies 1 and 2 differed in terms of the achievement levels of the participating students; Study 1 PBL AP students were higher achieving on average than the PBL AP students in Study 2.

Study 1 compared the results for students in traditionally-taught AP at moderate-achieving schools (Schools C and D) to the results for students in PBL AP at a high-achieving school (School A). The three schools were matched for type of school (suburban/mid-sized city, comprehensive high school) but not historical level of achievement. For comparability, statistical analyses adjusted for the individual students' prior achievement, that is, their high school grade point average (GPA), their score on all prior AP tests they had taken, and/or their score on the AP U.S. History test, which most of the students had taken one year earlier. In Study 1, results for students in 6 traditionally-taught AP classes were compared with the results for students in 3 PBL AP classes.[2]

Study 2 compared the results for students in traditionally-taught AP at moderate-achieving schools (Schools C and D) to the results for students in PBL AP at a similarly moderate-achieving school (School B). That is, the three schools were matched for type of school (suburban/mid-sized city, comprehensive high school) and historical level of achievement. Although in Study 2 the PBL and control groups were already quite well matched for prior achievement and student SES, our analyses also adjusted for the participating students' prior achievement as in Study 1. Results for students in 6 traditionally-taught AP classes (the same 6 classes as in Study 1) were compared with the results for students in 3 PBL AP classes.[3]

School & Teacher Selection Process

The two intervention schools and 3 PBL AP teachers were in their second year of implementing the course and participating in the research. At the project's inception, the district's first choice and recommendation for the intervention school was a high-achieving school that had switched to a year-long AP U.S. Government and Politics course the year before. Of the five district high schools, it is one of the two highest achieving and has a track record of strong performance on AP exams. For these reasons, the school seemed well poised to offer a rigorous implementation of PBL AP to students, their school and families.

We were also interested in including a school where we could test the intervention with a less advantaged student population. Given resource constraints and the desire to develop the intervention

[2] Assignment of students and teachers to classes was non-random. Hierarchical Linear (random coefficient) models were used to compare the results taking into account the students nesting within classrooms, student-level prior achievement, and the treatment condition.
[3] Ibid.

in small trials at first, we settled on a moderately achieving school. Of the schools in the district with an AP U.S. Government and Politics course, this was the school whose student population was least advantaged compared to our first intervention school, although certainly not disadvantaged by national standards.

As the control schools (for the site of the traditional AP classes), we sought schools outside the intervention district, in contrast to our study of the 2008-09 school year, where our control school was a high-achieving school and the only viable control site within the district, that is, the only school with a year-long U.S. Government and Politics course besides our two intervention schools. For the 2009-10 study we sought a control site where the schools would more closely match the historically lower-achieving of our two intervention schools. With the assistance of the College Board, we identified school districts nationally that were "like Bellevue (WA)" in terms of number of AP U.S. Government and Politics exams taken in 2008-09, specifically districts in which over 50 students had taken the exam. From there we looked for the closest matches by district type and student SES. We actively explored potential study participation with 3 school districts and chose the intervention district we judged was the closest match on the criteria: (1) length of course (full-year), (2) number of class sections per school, and (3) district and teacher interest in participating in the study.

Due to the small number of teachers at each school, we could not control for teacher's years of experience or "effectiveness"—in either the PBL AP or control sites. All of the teachers had taught year-long AP U.S. Government and Politics before, and all five teachers were reputed to be good teachers. (See also Teacher Characteristics on p. 7.)

The Project-Based Learning AP Course

In the AP+ U.S. Government and Politics course, students move together through project cycles that address the six AP topics specified by the College Board for the course.

Figure 1. 2009-10 Course

The 6 Project Cycles

- *Government in Action*. Students are new House members in the U.S. Congress interacting with other branches of government to resolve a major issue facing the nation.
- *Town Hall.* Students are citizens leading fellow citizens in town hall meetings, deliberating policy alternatives in four key areas (economic, environment and healthcare, foreign policy, social welfare).
- *111th Congress.* (LegSim). Students are legislators in the U.S. Congress, writing legislation and working to pass it, on matters of personal and shared concern, consistent with the interests of their state or district.
- *Election 2008.* Students are campaign consultants developing and executing strategies for two campaigns aiming for victory on election day.
- *Supreme Court.* Students are Supreme Court justices, petitioners, or respondents, interacting together in court proceedings, in a landmark case involving questions of constitutionality, precedent, and compelling government interest.
- *Taking it Global.* Students take a stand on the international stage.

The 6 AP Topics (College Board)

- Constitutional underpinnings
- Political beliefs and behaviors
- Political parties, interest groups and mass media
- Institutions of national government (Congress, Presidency, bureaucracy, Federal Courts)
- Public policy
- Civil rights and civil liberties

The project cycles are united by a driving question (What *is* the proper role of government in a democracy?). Each project cycle is conceived as a "learning and action cycle" where students alternate between two modes—learning to act and acting to learn. Loosely speaking, "learning to act" here is when students are in traditional AP mode (textbook/test driven) and "acting to learn" is when they are in complex projects with real-world goals. The anticipation of one mode helps motivate and drive the other. As students move through the five project cycles, they loop back on the driving question to reflect on what they gleaned from the prior project cycles that is worth carrying forward into the next. Through this looping, knowledge and activity deepens.

Teachers as Co-Designers. A strength of our course design is that it puts the teacher in the position of being curriculum maker—always working to integrate two well developed components in the larger educational system: (1) the "gold standard" curriculum of AP or whatever it may change to in the future, and (2) a set of ''best of the best" projects, selected from projects developed by other creative nodes in the system. To do this, teachers (and all of us learning to integrate components 1 and 2) need to gain a firm grasp of how to create course activity that loops effectively from one project cycle to the next; teachers (and we) need to get practiced at weaving together AP content and routines with project content and routines so that deep knowledge and engagement can build across the course.

Research Measures

To address our 3 research questions, measures of student learning and engagement were collected at various points during the 2009-2010 school year. In this report, we discuss the results from the following measures: the College Board-administered AP Test, *Knowledge in Action* deep learning assessment, and "Sense of Classroom Community" survey.[4]

Table 2 lists the measures and the schedule by which they were administered (i.e., at pretest and/or at posttest).

Table 2. Student Learning & Engagement Measures

	Pre-	Post-
AP Test		✔
***Knowledge in Action* Test** *our deep learning assessment*	✔ PBL AP only	✔
"Sense of Classroom Community" Survey *"How My Class Works"*	✔ PBL AP only	✔

[4] Appendix B contains a list of the full set of measures collected in the research.

College Board-Administered AP Test

The AP U.S. Government and Politics exam was administered in May, 2010.

Knowledge in Action Test ™

The *Knowledge in Action* (deep learning) assessment (see Appendix C and D) is a paper-and-pencil test that uses a real-world problem of politics and government to assess students' learning in the course. Whereas the AP Test primarily measures students' ability to identify and describe the structures and functions of government and change in them over time, the *Knowledge in Action* Test assesses how well students can apply that knowledge to a particular scenario where their charge is to monitor and influence public policy — specifically, to formulate a plan for well-informed, smart political action on a controversial issue that's heating up.

This *Knowledge in Action* Test is intended to complement the AP Test as a measure of "deep learning" in the subject – our overarching learning goal for the PBL AP course. Key features of the *Knowledge in Action* Test include:

- Places students in the role of adviser in a scenario.
- In the scenario, students must create a draft action plan to present to their "client."
- Students are told their client will want to decide for themselves so they need to justify their recommendations.
- The scenario centers on a controversial issue, one the students are not expected to be expert in (facts are provided within the scenario), so students' deep conceptual knowledge is mobilized, ideally conceptual knowledge that spans several project cycles of the course.
- The topic is one from current news headlines but students are told "While some of the facts and materials of the case are made up, others are real, notably (e.g. news article, statement from government agency)."

Whereas the AP Test is given once, at course end, the *Knowledge in Action* Test was given as a pretest/posttest in the PBL AP classes, once during Week 3 of the course and again after the AP Test of May 3rd, on May 18th. It was given as a posttest in the traditionally-taught classes May 12th-13th. Both the pretest and posttest were complex scenario tests, of the form described above, but on different controversial issues. The difference in topics and the several months between pretest and posttest help control against learning effects from the pretest confounding the posttest results in the PBL AP condition. Regretfully we were unable to also pretest the control group because it took longer than anticipated to identify and recruit suitable controls, which joined the study second rather than first semester.

Students did not receive a grade on the *Knowledge in Action* test. However, after the posttest we engaged 10 of the 12 classes, those where time allowed, in a 15-minute whole-class debrief discussion of what they noticed about the assessment compared to the AP test. We also asked how the assessment might be improved for students like them in the future. Additionally, in the PBL AP classes

we gave students the opportunity to compare their pre- and posttest answers and asked them what they noticed about how their response had changed.

The *Knowledge in Action* Test was a one-day (50-minute class period) paper and pencil assessment. Students in the PBL AP condition also participated in a subsequent, Day 2 assessment (50-minutes of a 90-minute class period) that consisted of teamwork (sharing and further developing individuals' responses from Day 1) culminating in a 5-minute team presentation that each team spoke into an audio recorder (such that the teams were presenting simultaneously). The results presented in this technical report are for the Day 1, paper-and-pencil portion of the test only—that portion of the test amenable to analysis at the individual student level.

Scoring Rubric for the *Knowledge in Action* Test. Students' written responses to the *Knowledge in Action* Test were scored using a rubric developed by the UW research team, in consultation with BSD Curriculum Developer John Brill of the PBL AP Project team. The scoring rubric and sample student responses are contained in Appendix D. Rubric development was based on consideration of (1) the *Knowledge in Action* task, (2) the team's own expert knowledge of the subject matter (political science)—both John Wilkerson and Walter Parker of our team are faculty in the UW Political Science Department, (3) the course goals for student learning and performance, and (4) a scan of responses from 20 UW freshmen who took a pilot version of the 2008-09 pretest.

Training Raters to Score the *Knowledge in Action* Test. Responses were scored by graduate students in Political Science after training by a senior research scientist on our team (Susan Mosborg). Nine raters participated in the scoring of the post-assessment. The following day, six of these raters scored the pre-assessment. The raters were paid for their time.

"Sense of Classroom Community" engagement survey

The "Sense of Classroom Community" survey measures students' perceptions of their AP Government class as a learning community. We used the Brief Sense of Community Scale (BSCS) by Peterson, Speer, & McMillan (2008). Following the sense of community model originated by McMillan and Chavis' (1986), a group functions as a community when group members, in this case students, feel: (1) belonging or a sense of personal interrelatedness in the group (Membership); (2) attachment or bonding rooted in members' shared history, place, or experience (Emotional Connection); (3) that one matters or can make a difference in the community, and that the community matters to its members (Influence); and (4) that members' needs will be met by the community (Needs Fulfillment). The Sense of Classroom Community survey we used (see Appendix E) consisted of 9 statements students rated on a 4-point scale. We added a ninth item to the eight items of the BSCS and changed "community" to "classroom community" throughout. Students took the survey at both pretest and posttest (PBL AP condition) or at posttest only (traditionally-taught AP condition), in class or as homework, as part of their regular course activity.

Research Results

In this section, we present the key results from Study 1 and Study 2, respectively, as they relate to our 3 guiding research questions:

Is it possible to get:

1. More students to pass the AP Test with a well-designed PBL course?
2. Deeper learning than that measured by the AP Test—with a measure of *knowledge in action* indicative of deep understanding?
3. Deeper engagement in the course and in related activities outside of the classroom?

A detailed technical analysis of Study 1 and 2 results is contained in Appendix F.

Results of Study 1

Study 1 compared PBL AP students from a historically high-achieving school (School A) to traditionally-taught AP students from two moderate-achieving schools (School C and D). The results for students in 6 traditionally-taught AP classes were compared with the results for students in 3 PBL AP classes.[5]

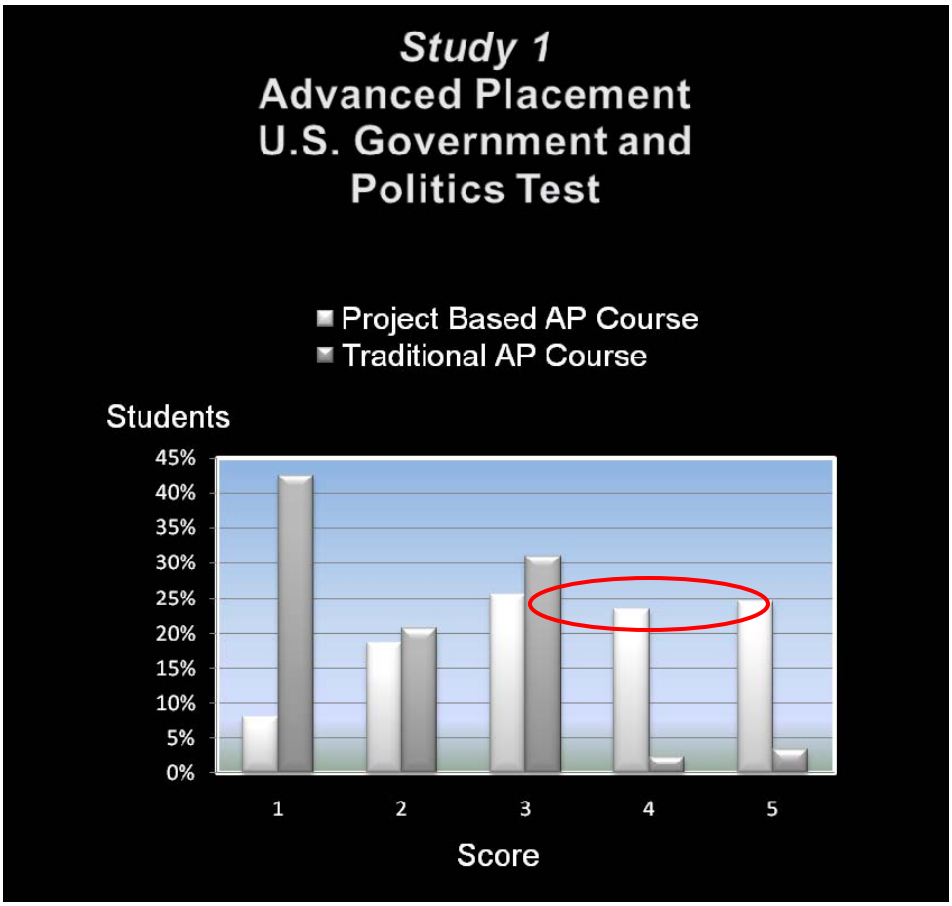
For comparability between the PBL and control groups, our analyses took into account (i.e., adjusted for) the individual students' prior achievement, that is, their high school grade point average (GPA), their scores on all prior AP tests they had taken, and/or their prior score on the AP U.S. History test.

Is It Possible to Get More Students to Pass the AP Test with a Well-Designed PBL Course?

The results indicate that it is possible to get more students to pass the AP Test with a PBL course. Figure 2 shows the percent of PBL AP and traditionally-taught AP students earning scores of 1 through 5 on the AP Test (5 is the highest score on the test). Note these are raw scores, without adjusting for prior achievement.

[5] Hierarchical Linear (random coefficient) models were used to compare the results taking into account the students' nesting within classrooms, student-level prior achievement, and the treatment condition.

Figure 2. Percent of Students Achieving AP Test Scores



After adjusting for prior achievement, PBL AP students still scored significantly higher ($p<.05$) on the AP Test on average than the traditionally-taught AP students.[6] (See Appendix F p. 52.)

Since many colleges assign college credit for AP scores of 3 or more, we also conducted an analysis in which we looked at "passing" scores of 3 or more on the AP Test. When analyzed in this way, the results showed that more PBL AP students (73.3% of PBL AP) achieved a passing score on the test than traditionally-taught AP students (36.7% of traditionally-taught AP). After adjusting for prior achievement, still, students in the PBL AP classes were significantly more likely to pass the AP Test (3 or higher) than students in the traditional AP classes.

[6] Figure 1 does not adjust for students' prior achievement; however, when students' AP Test scores were adjusted using prior GPA and prior AP U.S. History Test scores, or GPA and all prior AP Test Scores, respectively, the PBL students still scored significantly higher than the traditionally-taught students.

Is it Possible to Get Deeper Learning than that Measured by the AP Test—with a Measure of "Knowledge in Action" Indicative of Deep Understanding?

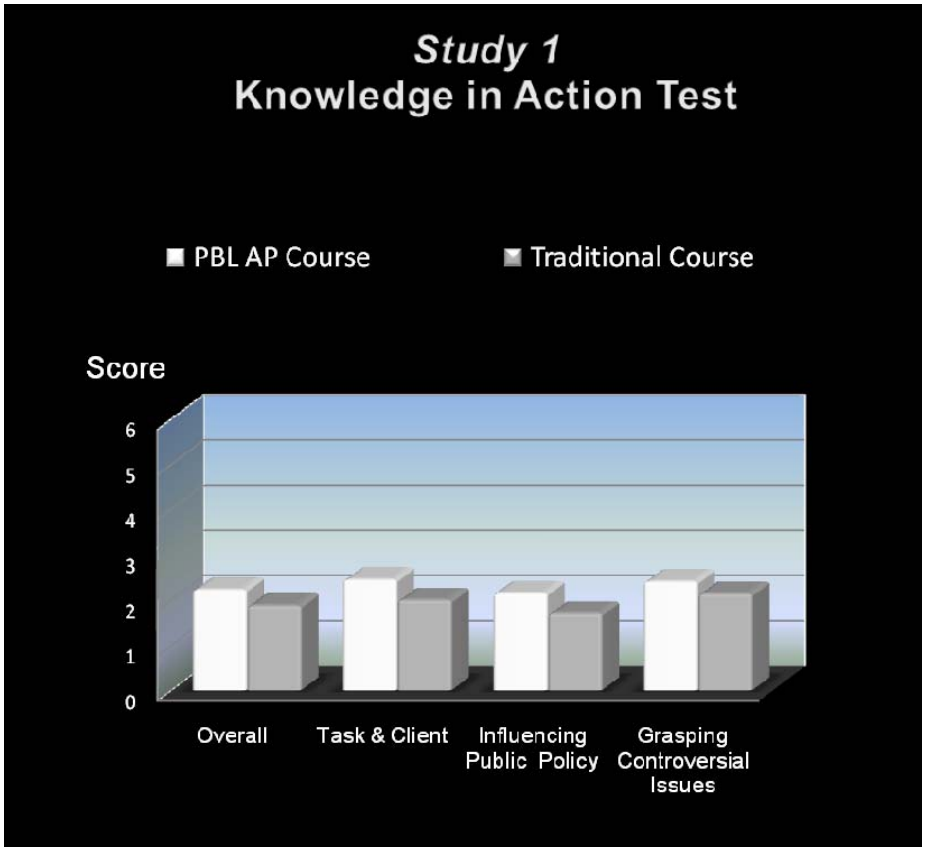
We designed the *Knowledge in Action* Test to measure students' deeper understanding of course content. The AP Test primarily measures students' ability to identify and describe the structures and functions of government and change in them over time. The *Knowledge in Action* Test looks at how well students can apply what they learned; students are given a real-world problem solve and asked to formulate a plan for well-informed, smart political action on a controversial issue.

Students' written answers to the *Knowledge in Action* Test were scored on 4 dimensions and the quality of the student's answer related to each dimension was assigned a score ranging from 1 to 6 (6=highest quality answer). The dimensions were:

1. **Overall Quality -** Gives a high quality response overall.
2. **Task & "Client" (Legislator) -** Directs advice to the particular congressperson or citizen group (*appropriate to, e.g. Congressperson X or citizen group Y).*
3. **Influencing Public Policy -** Gives an informed political process account *(using political process concepts & terminology).*
4. **Grasping Controversial Issue(s) -** Analyzes the public policy issue at stake and what makes it controversial.

Figure 3 shows average scores for PBL and Traditional students on the 4 dimensions of the test. Note these are raw scores, without adjusting for prior achievement.

Figure 3. PBL and Traditional Groups' Average Scores on The 4 Dimensions of the *Knowledge in Action* Test



After adjusting for prior achievement, data analyses indicate that PBL AP students scored significantly higher on all 4 dimensions of the *Knowledge in Action* Test as compared with students in the traditionally-taught AP course.[7] (See Appendix F p. 54.) These findings suggest that PBL students more deeply understood the AP content to where they were able to apply it to solve a complex problem.

Is It Possible to Get Deeper Engagement in the Course and in Related Activities Outside of the Classroom?

The final research question relates to students' engagement in AP course and related outside activities. We used 2 measures to address students' engagement: We used the "Sense of Classroom Community" survey to measure students' engagement in course activities, and the "Politics and Me" survey as a measure of students' engagement in civic and political activities outside of class. Only results of the Sense of Classroom Community are presented in this technical report. The Politics and Me results will be included in a subsequent update once they are analyzed.

[7] In these analyses, scores on the *Knowledge in Action* Test were adjusted for prior achievement using the student's prior GPA.

Analysis of the "Sense of Classroom Community" survey showed that at the end of the school year PBL AP students had higher ratings on 4 of the 4 dimensions of classroom community than students in the traditionally-taught AP course.[8] PBL AP students rated themselves as feeling greater membership, having a greater emotional connection to their class, feeling greater mutual influence among class members, and having greater needs fulfillment in class. In this way, the results demonstrate that PBL AP students' engagement with their classmates and teacher was greater overall than that of students in the traditionally-taught AP course.

Results of Study 2

Study 2 compared PBL AP students from a historically moderate-achieving school (School B) to traditionally-taught AP students from two moderate-achieving schools (School C and D). The results for students in 6 traditionally-taught AP classes were compared with the results for students in 3 PBL AP classes[9]

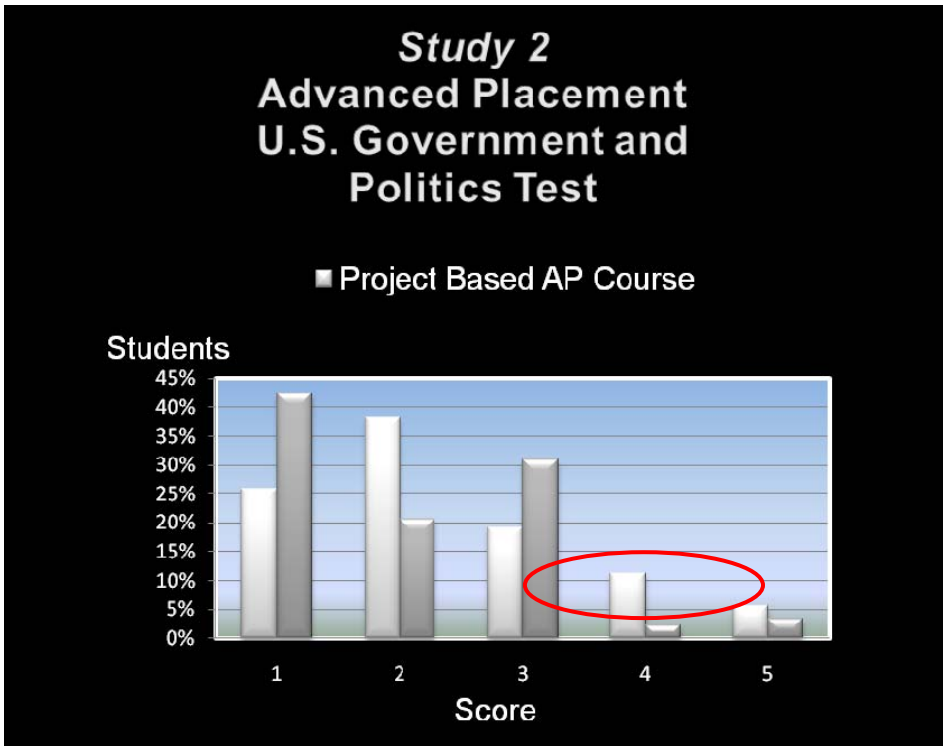
Although in this case the PBL and control groups were already quite well matched for prior achievement and student socioeconomic status, our analyses also adjusted for the participating students' prior achievement as in Study 1.

Is It Possible to Get More Students to Pass the AP Test with a Well-Designed PBL Course?

As in Study 1, the results indicate that it is possible to get more students to pass the AP Test with a PBL course. Figure 4 shows the percent of PBL AP and traditionally-taught AP students earning scores of 1 through 5 on the AP Test. Note these are raw scores, without adjusting for prior achievement.

[8] In these analyses, students' ratings on the survey were adjusted for prior achievement using prior GPA.
[9] Hierarchical Linear (random coefficient) models were used to compare the results taking into account the students' nesting within classrooms, student-level prior achievement, and the treatment condition.

Figure 4. Percent of Students Achieving AP Test Scores



After adjusting for prior achievement, PBL AP students scored significantly higher ($p<.05$) on the AP Test on average than the traditionally-taught AP students.[10] (See Appendix F p. 57.)

A greater percentage of PBL AP students achieved scores of 4 or 5 on the AP test. Yet, a somewhat smaller percentage of PBL AP students (35.9%) achieved a passing score (3 or higher) on the test than traditionally-taught AP students (36.7%). However, after adjusting for prior achievement, there was no significant difference in the likelihood of students in the PBL AP classes passing the AP Test (scoring 3 or higher) than students in the traditional AP classes.

It is notable that a smaller percentage of students in the traditionally-taught AP classes (76.1%) took the AP Test than students in the PBL AP classes (97.8%). It may be it may be that students least prepared by the course opted out of the test in greater numbers; indeed, the distribution of scores in the PBL AP condition was shifted toward higher scores than the distribution of scores in the traditional AP classes even though a broader range of students took the AP Test in the PBL classes (see Appendix F p. 56 for the distribution of scores).

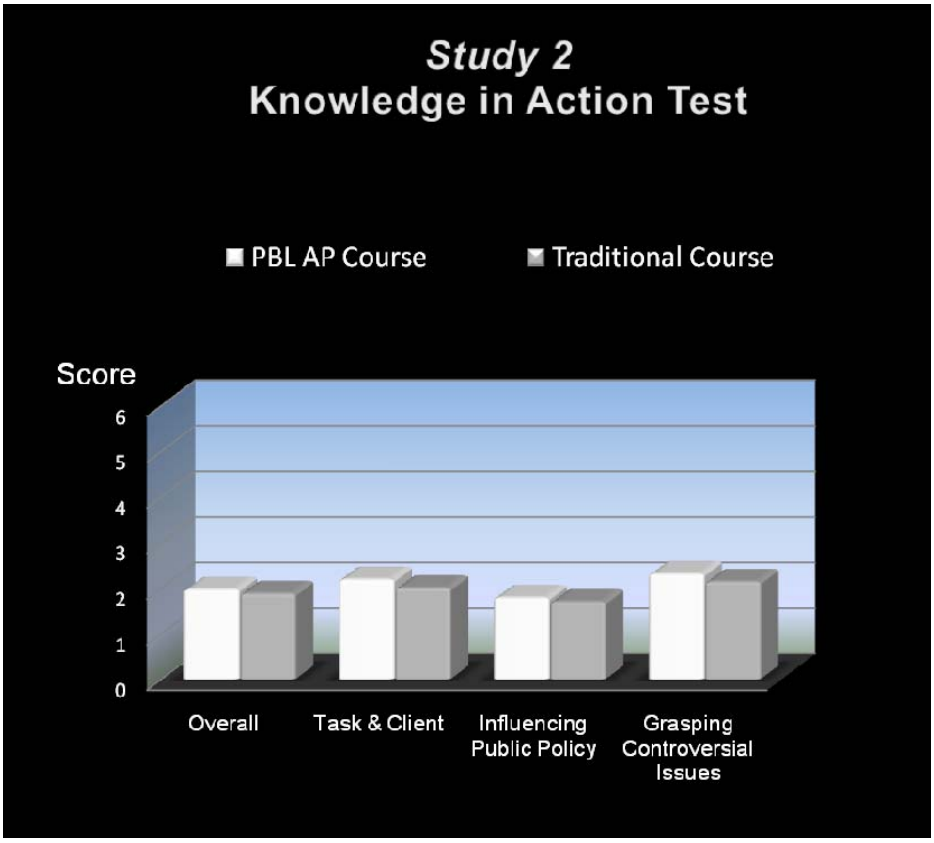
[10] Figure 5 does not adjust for students' prior achievement; however, when students' AP Test scores were adjusted using prior GPA and prior AP U.S. History Test scores, or GPA and all prior AP Test Scores, respectively, the PBL students still scored significantly higher than the traditionally-taught students.

Is it Possible to Get Deeper Learning than that Measured by the AP Test by Designing Measures of "Knowledge in Action" Indicative of Deep Understanding?

As discussed previously, we designed the *Knowledge in Action* Test to measure students' deeper understanding of course content. In Study 2, students written answers to the *Knowledge in Action* Test were scored on 4 dimensions (Overall Quality, Task & Client, Influencing Public Policy, and Grasping Controversial Issues) and the quality of the student's answer related to each dimension was assigned a score ranging from 1 to 4 (4 being the highest quality answer).

Figure 5 shows average scores for PBL and Traditional students on the 4 dimensions of the test.

Figure 5. PBL and Traditional Groups' Average Scores on the 4 Dimensions of the *Knowledge in Action* Test



Data analyses indicate that the PBL AP students scored the same on all 4 dimensions of the *Knowledge in Action* Test as the traditionally-taught AP students; that is, there was no significant difference in the mean scores of the PBL AP students as compared to the traditionally-taught AP students. [11] Unlike the results of Study 1, these findings suggest that PBL AP students may not have more deeply understood the AP content to where they were able to apply it to solve a complex problem. An alternative

[11] In these analyses, scores on the *Knowledge in Action* Test were adjusted for prior achievement using the student's prior GPA.

explanation is that the *Knowledge in Action* test did not detect a difference between the two groups because all groups scored so low on the test (on a scale of 1-6). The Knowledge in Action test requires proficient reading and writing skills and is given in a relatively short amount of time, so that is one possible reason for the lack of differences. In addition our scoring rubric may yet be pegged too high for the typical range of high school students' performance, inducing a floor effect where far more students score 1s or 2s than 4s, 5s, or 6s.

Is It Possible to Get Deeper Engagement in the Course and in Related Activities Outside of the Classroom?

In contrast to Study 1, analyses of the "Sense of Classroom Community" survey results did not reveal any significant differences in favor of the PBL AP students; however, PBL AP students rated their class the same as the traditionally-taught students on all 4 dimensions of classroom community.[12]

[12] Students' ratings on the Sense of Classroom Community survey were adjusted for prior achievement using the student's prior GPA.

Concluding Thoughts

Our research experiment found that an AP course reformulated using principles from contemporary research on how people learn and project-based learning yielded higher scores on the AP Test than a traditionally-taught AP course, while also yielding the same or better performance on a *knowledge in action* (deep learning) assessment. We found we could improve student learning for a broad range of students by using projects to drive delivery of the 6 AP topics specified by the College Board for the course—projects as keystone rather than capstone. These findings are consistent with the findings from our 2008-09 PBL AP implementation and research, and further support the merit of helping teachers work deliberately to integrate two well developed components in the larger educational system: (1) the "gold standard" curriculum of AP or whatever "gold standard" may arise, and (2) a set of ''best of the best" projects.

The research and course design are proceeding iteratively. With support from the Bill and Melinda Gates Foundation and the George Lucas Educational Foundation we are currently expanding the work in three respects: (1) from our first subject (political science) to the STEM disciplines, beginning with the redesign of AP Environmental Science; (2) from an advantaged student population (Bellevue School District in WA) to relatively underserved ones (3 high schools in Seattle Public Schools and the four high schools of the Envision Schools charter network in California); and (3) from teachers who co-designed a PBL AP course to teachers who are taking it up for the first time. We seek to refine and strengthen our student learning and engagement measures as well.

Ultimately, we want to be able to show not only *what* works, but how to get what works to work—providing a powerful school program component for college readiness, while contributing to learning theory.

References

Beaumont, E. (2004, September). Beyond Civics 101: Promoting Political Engagement and Participation. Paper presented at the annual meeting of the American Political Science Association, Chicago.

Bereiter, C., & Scardamalia, M. (1993). *Surpassing ourselves: An inquiry into the nature and implications of expertise*. Chicago: Open Court.

Bridgeland, J. M., DiIulio, J. J., & Morison, K. B. (2006). *The silent epidemic: Perspectives of high school dropouts*. Washington, DC: Civic Enterprises & Peter D. Hart Research Associates.

Brown, A. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *Journal of the Learning Sciences, 2*, 141-178.

College Board. (2006). *AP Program summary report 2006*. New York: College Board.

College Board. (2007). *Advanced Placement report to the nation*. New York: College Board.

Darling-Hammond, L., Barron, B., Pearson, P. D., Schoenfeld, A. H., Stage, E. K., Zimmerman, T. D., et al. (2008). *Powerful learning: What we know about teaching for understanding*. San Francisco: Jossey-Bass, with the George Lucas Educational Foundation.

Darling-Hammond, L., Bransford, J., LePage, P., Hammerness, K., & Duffy, H. (Eds.). (2005). *Preparing teachers for a changing world: What teachers should learn and be able to do*. San Francisco: Jossey-Bass.

Dewey, J. (1910). *How we think*. Boston: D. C. Heath and Co.

Goodlad, J. I., & Klein, F. M. (1970). *Behind the classroom door*. Worthington, OH: C. A. Jones.

Hektner, J. M., Schmidt, J. A., & Csikszentmihalyi, M. (2007). *Experience sampling method: Measuring the quality of everyday life*. Thousand Oaks, CA: Sage.

Hidi, S., & Renninger, K. A. (2006). The four-phase model of interest development. *Educational Psychologist, 41*(2), 111-127.

Kahne, J. E., & Sporte, S. E. (2008). Developing citizens: The impact of civic learning opportunities on students' commitment to civic participation. *American Educational Research Journal, 45*(3), pp. 738-766.

McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology, 14*, 6-23.

National Research Council. (2000). *How people learn: Brain, mind, experience, and school* (expanded ed.). Washington, DC: National Academy Press.

National Research Council. (2002). *Learning and understanding: Improving advanced study of mathematics and science in U.S. high schools*. Washington, DC: National Academy Press.

National Research Council. (2005). *How students learn: History, mathematics, and science in the classroom: A targeted report for teachers*. Washington, DC: National Academies Press.

Paek, P. L., Ponte, E., Sigel, I., Braun, H., & Powers, D. (2005). *A portrait of Advanced Placement teachers' practices* (No. Research Report No. 2005-7). New York: College Board.

Peterson, N. A., Speer, P. W., & McMillan, D. W. (2008). Validation of a brief sense of community scale: Confirmation of the principal theory of sense of community. *Journal of Community Psychology, 36*(1), 61-73.

Ravitz, J. (2009). Summarizing findings and looking ahead to a new generation of PBL research. *The Interdisciplinary Journal of Problem-based Learning, 3*(1), 4-11.

Appendix A: Schools' Demographics and Prior AP Test Scores

Student Population (State/District data)											AP US Gov Examination (College Board data)											
															Number of students by score					Percentage of students by score				
	Total count (as of Oct)	F/R lunch %	ELL % (WA, 'transtl biling'; CA, 'LEP')	Spec Ed %	% Asian / Filipino	% Black	% Hisp	% Multiple / No Re-sponse / Other	% White	% of Stu Pop taking AP US Gov test	Total count taking AP US Gov test	Mean Score	*SD*	% scoring 3 or higher	1	2	3	4	5	1	2	3	4	5
Bellevue School District (K-12)																								
2009-2010	17,578	20.6%	9.5%	10.5%	27.2%	3.0%	9.0%	9.6%	51.2%															
2008-2009	17,249	17.7%	9.3%	8.7%	26.9%	2.6%	7.9%	9.6%	53.0%	2.6%	445	3.14	*1.31*	65.4%	51	103	118	77	96	11.5%	23.1%	26.5%	17.3%	21.6%
Control School District (K-12)																								
2009-2010	26,574	37.0%	42.2%	7.3%	19.3%	1.3%	22.2%	1.1%	56.1%															
2008-2009	26,744	41.6%	52.2%	8.7%	19.2%	1.3%	21.3%	3.1%	55.1%	0.9%	241	2.46	*1.13*	44.0%	52	83	62	30	14	21.6%	34.4%	25.7%	12.4%	5.8%
School A: *high achieving school, PBL AP condition, Bellevue SD*																								
2009-2010	1,300	11.6%	5.4%	8.4%	25.6%	2.6%	3.4%	6.6%	61.8%															
2008-2009	1,338	9.9%	4.4%	8.3%	25.6%	1.9%	2.5%	5.9%	64.1%	7.8%	104	3.45	*1.20*	76.0%	4	21	32	18	29	3.8%	20.2%	30.8%	17.3%	27.9%
School B: *moderate achieving school, PBL AP condition, Bellevue SD*																								
2009-2010	971	32.7%	11.4%	11.5%	20.6%	4.5%	14.0%	8.5%	52.4%															
2008-2009	1,019	28.7%	9.6%	14.9%	19.9%	4.3%	13.6%	7.1%	55.1%	9.9%	101	2.39	*1.19*	38.6%	26	36	21	10	8	25.7%	35.6%	20.8%	9.9%	7.9%
School C: *moderate achieving school, traditionally-taught AP condition, control SD*																								
2009-2010	2,967	49.8%	46.8%	7.2%	16.5%	1.7%	31.0%	0.5%	50.3%															
2008-2009	3,051	56.8%	59.5%	8.9%	16.4%	1.6%	30.3%	1.2%	50.5%	2.9%	90	2.31	*1.07*	38.9%	22	33	24	7	4	24.4%	36.7%	26.7%	7.8%	4.4%
School D: *moderate achieving school, traditionally-taught AP condition, control SD*																								
2009-2010	2,097	47.8%	50.0%	5.2%	14.6%	1.4%	25.1%	1.5%	57.4%															
2008-2009	2,128	52.5%	62.5%	8.2%	14.9%	2.2%	23.3%	1.1%	58.5%	3.7%	78	2.33	*1.06*	37.2%	18	31	16	11	2	23.1%	39.7%	20.5%	14.1%	2.6%

Sources:
Washington State Office of the Superintendent of Public Instruction: http://reportcard.ospi.k12.wa.us/summary
California Department of Education: http://dq.cde.ca.gov/dataquest

Appendix B: Research Measures & Other Data Collected

Student Learning & Engagement Measures

	Pre-	During Course	Post-
AP Test			✔
Knowledge in Action Test *our deep learning assessment*	✔ PBL AP		✔
"Sense of Classroom Community" Survey *"How My Class Works"*	✔ PBL AP		✔
Subject Matter Engagement Survey *"Politics & Me"*	✔ PBL AP		✔
Student Project Cycle Evaluation & Experience Survey *student questionnaire*		✔ PBL AP approximately 6 times / class	
Student Course Evaluation *includes questions about AP Test interest / motivation*			✔
Course Master Question *student writing sample*		✔ PBL AP various, 2-7 times per class	

Indicates measures that are the focus of this Technical Report.

Interviews, Classroom Observations, and Group Debriefs

	Pre-	During Course	Post-
Teacher Interviews *all teachers*	✔ PBL AP		✔
Classroom Observations		✔ PBL AP, approximately weekly	
15-50 min Project Cycle Debrief with students (Researchers asking the class questions) *all re-designed course classes*		✔ PBL AP various, 2-3 times per class	✔
15-50 min Course Debrief with students (PBL AP Steering Team members asking the class questions) *all re-designed course classes* *and 3 of the 6 control classes*			✔
15-min *Knowledge in Action* Test Debrief with students (Researchers asking the class questions) *all re-designed course classes* *and 3 of the 6 control classes*			✔
Teacher Team Course Debriefs *2 total*		✔ PBL AP	✔ PBL AP

Student Background Measures

all individual-student level data

From school district:	
AP Exam Scores (if any) to date	✔
State assessment of student learning scores: Reading, Writing, Math (middle school and/or high school)	✔
GPA (cumulative, at course entry)	✔
Pre-SAT Score	✔ PBL AP
F/R Lunch	✔
Race/Ethnicity	✔
Gender	✔
Country Student Born In	✔
English Language Learner (designated)	✔
Special Ed / IEP	✔
From student self-report : *. . . on "Politics & Me" survey*	
Mother's Education	✔
Family Income	✔
US Citizen	✔
Parents Born in the US or in Another Country	✔
Post-Secondary Education - Intended	✔
. . . on Course Evaluation	
Career / Field of Study - Intended	✔

Other Data

The 2009-10 school year data includes about 30 hours of classroom video shot by the Bellevue School District video staff in the PBL AP classes over the course of the year, as well as several hours of "flip cam" video snippets shot on occasion by the researchers during classroom observations. In addition we have a handful of short video vignettes, produced by students in the classes who were given flip cams in exchange for serving as "course journalists" in the study. The video data are intended to help us contextualize the study findings and document salient aspects of the course experience for the future (e.g., for use in tools that could help others uptake the curriculum), rather than for close video analysis by the researchers.

Appendix C: Sample *Knowledge in Action* Test

Dear AP students,

This task uses a simulated real-world problem of politics and government to assess your learning in the course. The AP test looked primarily at your ability to identify and describe the structures and functions of government and change in them over time. In this task by contrast, we are interested how well you can apply that knowledge to a particular scenario where your charge is to monitor and influence public policy — specifically, to formulate a plan for well-informed, smart political action on a controversial issue that's heating up.

The scenario places you in the role of an adviser to one of the key-most players in U.S. politics — a Congressperson. (You're a staff member to a Representative from Washington State.) In this role, your advice matters; it has the power to shape not only public policy but individuals' political futures and prospects.

While some of the facts and materials in the scenario are made up, others are real – notably the Real ID Act of 2005, the newspaper article included as reference, and the quote by Secretary Napolitano. For the purpose of the assessment, treat all of the facts you read in the scenario as real. Where you feel information is lacking, use the knowledge you *do* have – both from the scenario and from your own knowledge of politics and government – to note what, ideally, you would like to know more about, and to make well-grounded assumptions and inferences that will help you solve the challenge.

Try to solve the challenge to the very best of your ability. Don't worry about things like spelling. We're more interested in your ideas and how you think about things. Please try to explain them as fully as possible. Thank you and have fun!

RFID "Enhanced Driver's Licences": Road to "Big Brother" Surveillance, or Secure ID?

You are a staff analyst to Congressman X, who narrowly won re-election to the U.S. House of Representatives in November. Last fall, Congressman X asked you to advise him on a bill known as "Secure ID." Introduced as part of the "War on Terror," the bill would have required that all U.S. citizens at birth have implanted somewhere on their body a radio frequency identification (RFID) chip that could be read by a special scanner. Proponents argued it would be a more secure and trustworthy form of identification, harder to fake than traditional drivers' licenses and other state ID cards which the 9/11 hijackers had been able to obtain, and therefore an important tool for preventing similar acts of terror.

Specifically, Congressman X asked you to brief him on the bill and the political issues at stake; he asked you to create a plan for a one-day meeting that would help him understand the range of possible actions, before deciding whether to support, oppose or amend the Secure ID bill. At

the time, the Secure ID bill had just been introduced in both houses of Congress at the request of the Secretary of the Department of Homeland Security (DHS).

As it happened, the Secure ID bill languished in committee in both chambers of Congress and never became law. However, just today the RFID issue re-emerged in a new form, and just a few hours ago, Congressman X emailed you saying he wants to take decisive political action in response. As you've learned from various sources:

New "Enhanced Driver's License" rule issued today by DHS

This morning, the new Secretary of Homeland Security Janet Napolitano issued a rule that changes how provisions of the Real ID Act of 2005 will be implemented.

Background. The Real ID Act of 2005 does not require implantation of body chips on persons. But, like the failed "Secure ID" bill, it is intended to keep better track of people coming into the country; it does so by seeking greater uniformity in what it takes to obtain a driver's license from state to state. It sets federal standards for state-issued driver's licenses which will be required in the future to board airplanes. As described on the DHS website (accessed May 10, 2009):

REAL ID is a nationwide effort to improve the integrity and security of state-issued driver's licenses and identification cards, which in turn will help fight terrorism and reduce fraud.

The 9/11 Commission recommended that the U.S. improve its system for issuing identification documents, urging the federal government to set standards for the issuance of sources of identification. The REAL ID Act of 2005 was Congress' response to this key recommendation.

REAL ID-compliant licenses and ID cards must meet minimum standards which include

- information and security features that must be incorporated into each card
- applicant's proof of identity and lawful status
- verification of the applicant's source documents
- security standards for issuance of licenses and identification cards

Why We Need REAL ID
Raising the standards of state-issued identification is an important step toward enhancing national security. Because a driver's license serves so many purposes (access to federal buildings, nuclear power plants, boarding aircraft, etc.), terrorists actively seek fraudulent state-issued identification. The REAL ID rules will make it more difficult for them, while making it easier for law enforcement to detect falsified documents.

The Real ID law has proved controversial. Several states including Washington have enacted laws blocking compliance, reacting to cost, technical, and privacy concerns.

The new rule. Today's new rule makes it easier for states to comply with the Real ID law by making it optional for a state to use RFID Enhanced Driver's Licenses to meet all requirements of Real ID, rather than the separate list of benchmark requirements DHS initially specified for compliance with the Real ID law. "Enhanced driver's licenses give confidence that the person holding the card is the person who is supposed to be holding the card, and it's less elaborate than Real ID," Secretary Napolitano told *The Washington Times* (Feb. 20, 2009).

Congressman X's position

In his email to you this morning, Congressman X made it clear that he vehemently opposes the new RFID "Enhanced Driver's License" rule issued by DHS, on the grounds that it infringes on constitutional rights to liberty and privacy. His rationale?: Even if the only data on an RFID "Enhanced Drivers license" is a single number, and safeguards are in place so that only very limited information is conveyed from any database to federal agents whenever an RFID-enabled license is checked, there is no way to ensure that in the future various databases will not be linked together by governments or corporations. In fact, the trend is toward greater linkages and integration across various databases. It is only a matter of time before the "enhanced driver's license" number becomes traceable by people who, lawfully or unlawfully, want to access highly personal information about citizens, tracking and profiling their movement, political association, buying, and voting patterns. RFID is commonly linked to biometric data such as digital photos, fingerprints, or iris scans. Clever people will be able to compile the information in ways that are personally identifying. As Congressman X writes in his email to you:

> "Big problem – and an incredibly short-sighted solution to border control. Effectively creates a 'national ID' card, something Congress deliberately tried to avoid when we passed Real ID back in '05, even thought the 911 Commission had recommended it. Brings in national ID cards through the back door and we need to stop it. See attached Seattle Times article."

While national security was a major issue in the 2008 presidential election, President Obama has not spoken out publicly for or against using RFID technology for identification purposes, and, as a Senator, Obama was absent from the Real ID vote in '05.

What now?

In short, DHS has issued a new rule under the broad authority Congress provided to protect the nation's security, and Congressman X knows what he wants: States should not be required to issue licenses that include RFID tags. Now Congressman X needs your analysis and advice. He wants you to lay out his options for political action and recommend the most promising strategy.

As he put it, “Think big first: What are the possible options for me and others across the nation opposed to the new rule? After you analyze the options, develop for me a concrete political strategy for my consideration.”

Congressman X wants more than a vague strategy; he wants details so he can act on the plan without delay. “Tell me the plan,” he said, “and also particulars. For example: Whose support needs to be cultivated? How can I win this support? What do I need to do first, next, etc. to maximize prospects for success? What makes this the best option?”

Congressman X is a moderately conservative Representative from a moderately liberal district in Washington State—U.S. Congressional District #N. Becoming known as a leader who “does his homework” but is not afraid to think outside the box is very important to Congressman X. So is getting re-elected to Congress. He wants to make a difference on this issue, though he’s not wedded to a legislative solution.

Your Task:

Describe to Congressman X his options for political action, broadly speaking, and recommend to Congressman X a course of political action. Recommend where in the political process Congressman X should focus his energies, where he should turn for political support (and how), who the key players are, and what to find out from them. Convince the Congressman that you have explored the options as fully as possible under the circumstances, and recommend to him what else you'd want to know to guide further development of the plan.

Please write your response in a memo to Congressman X (on the next page). Be sure to describe your plan in detail so he can understand it and will be convinced.

Feel free to use the space below (and extra sheets of paper) to jot ideas first.

GO TO NEXT PAGE

Before you begin, take a moment to write down your initial thoughts about the following questions. (The fuller you can tell us your ideas, the better. Continue on additional sheets if needed.)

1. Who might have an interest in this new rule – and why?

2. What are some examples of the social, economic, legal, or political concerns they might have?

3. How can the different branches of government have influence over this power (i.e., the new rule just issued)?

Please write your response here.

MEMO
To: Congressman X
From: Staff Analyst
Re: New DHS rule: Real ID / RFID

MEMO
To: **Staff Analyst**
From: **Congressman X**
Re: **New DHS rule: Real ID / RFID**

I'm travelling and in meetings all day today so won't have time to talk – but I want to move forward on this ASAP. I received recommendations, including yours, back from all of the analysts on staff. Lots of good ideas to build on.

Please attend a 1-hour meeting first thing today (my administrative assistant will contact you shortly with the exact time and place). Review the ideas you've all put forward. Then, as a team, hammer out a single, well-crafted plan for my review. I'll need something as fine-tuned as possible.

Although I can't be there in person or by phone, I'd still like an oral briefing. At the end of your meeting, as a team, create for me a 5-minute (max) audio recording presenting and explaining the plan.

My administrative assistant will upload the recording afterward so I can listen to it. The assistant will record the whole meeting, but I'll only be listening to your final 5-min briefing. (Feel free to rehearse as many times as you wish before then.) The assistant will cue you when it's time for the official recording of the briefing (the last 5-minutes of the meeting).

I look forward to hearing your plan,

Best,

Appendix D: *Knowledge in Action* Test Scoring Rubric and Sample Student Answers

	1	2	3	4	5	6
1 Task & Client *Directs advice to the particular congressperson or citizen group (appropriate to, e.g. Congressperson X or citizen group Y).*	Does not direct advice to the particular congressperson or citizen group NO ADVICE DIRECTED	Advice is unrealistic & out of step with the political (e.g., legislative) process PROBLEMATIC ADVICE OR WEAK GRASP	Advice is somewhat realistic but is not geared to the congressperson/citizen group/ "client" and lacks details. OK BUT GENERIC ADVICE	Advice is realistic and somewhat tailored to the congressperson/citizen group/"client" but lacks details or includes some erroneous inferences. OK TAILORED ADVICE	Meeting plan is realistic, tailored to the congressperson/citizen group/"client," and includes some pertinent details and/or sound inferences. GOOD TAILORED ADVICE	Meeting plan is geared to the congressperson/citizen group/"client," anticipating his or her concerns and/or advising on what should be some of his or her concerns, given what is stated in the problem about this particular legislator and where he or she sits in the political landscape (i.e., type of district, party affiliation, personal aims): Meeting plan is forward thinking, tailored to the legislator, and based on several sound inferences. INSIGHTFUL TAILORED ADVICE
2 Influencing Public Policy *Gives an informed political process account (using political process concepts & terminology)*	Discusses pros and cons of the policy/bill generally, or gives an argument for or against the policy/bill, or gives a list of issues that should be considered and discussed -- without specifying with whom these things should be discussed and hammered out, at what stage, or to what end. NO POLITICAL PROCESS	Plan conveys a political process account that is unrealistic and out of step with the legislative process and the broader policy making process. Uses erroneous facts and/or makes unsound inferences when specifying what should be discussed and hammered out with whom, at what stage, or to what end. PROBLEMATIC POLITICAL PROCESS OR WEAK GRASP	Plan conveys a political process account that is somewhat realistic, but it uses only generic concepts and terminology to describe meeting, discussion, negotiation, agreement, adoption, implementation, and enforcement of policy. GENERIC POLITICAL PROCESS	Plan conveys a political process account that is somewhat realistic, and it uses specific concepts and terminology to describe meeting, discussion, negotiation, agreement, adoption, implementation, and/or enforcement of policy. But the political process account lacks details or includes some erroenous inferences. OK POLITICAL PROCESS	Plan conveys a political process account that is somewhat realistic, and it uses specific concepts and terminology to describe meeting, discussion, negotiation, agreement, adoption, implementation, and/or enforcement of policy. The political process account includes some pertinent details and/or sound inferences relevant to power sharing arrangements in U.S. federalism historically, satisfying various constituencies, or criteria for good public policy. The specific concepts and terminology used are generally used to good effect. GOOD POLITICAL PROCESS	Plan conveys a political process logic: what should be discussed, advocated, or hammered out by whom, when, using what political tools and institutions, and with what consequence for satisfying various constituencies and criteria for good public policy. Takes into account power sharing arrangements in U.S. federalism historically (e.g., distribution of formal and informal powers across the various branches, institutions, and levels of government, and conflicting and common interests among them). Demonstrates understanding and appreciation of how in the U.S. political system legislation is crafted, gains momentum, is enacted, and is upheld as legitimate. Discusses specific political agents (roles, institutions, constituencies) and/or public policy tools/levers. INSIGHTFUL POLITICAL PROCESS
3 Grasping Controversial Issue(s) *Analyzes the public policy issue at stake and what makes it controversial*	Does not name or frame any controversial issue(s). NO CONTROVERSIAL ISSUE FRAMED	The controversial issue(s) named and framed are off base & out of step with what is stated in the problem and the facts of the U.S. political scene. PROBLEMATIC ISSUE FRAMING OR WEAK GRASP	The controversial issue(s) named and framed are somewhat realisitc, but described only in very general terms. The situation is not analyzed in terms of types of issues raised (e.g., constitutional, legal, political), or the generic categories used (e.g., economic, social, political) are used to weak effect. Describes issue(s) in terms of why people generally would or wouldn't like the measure proposed, or generally what would be good and bad about it (or why it would be good or bad). GENERIC ISSUE FRAMING & ANALYSIS	The controversial issue(s) named and framed are somewhat realistic, and the situation is analyzed in terms of types of issues raised (e.g., constitutional, legal, political). But the analysis lacks depth, details or includes some erroneous inferences. OK ISSUE FRAMING & ANALYSIS	The controversial issue(s) named and framed are somewhat realistic, and the situation is analyzed in terms of types of issues raised (e.g., constitutional, legal, political). The analysis includes some depth, pertinent details and sound inferences. GOOD ISSUE FRAMING & ANALYSIS	Conveys strong grasp of the controversial issue(s) at stake. Relates the current controversy/issues to fundamental political precepts and/or perennial issues/tradeoffs (e.g., security vs. liberty). Contextualizes it as a constitutional issue or otherwise describes the history of the issue (or the history of the discourse about the issue). Discusses subordinate issues. The situation is analyzed in terms of types of issues raised (e.g., constitutional, legal, political) to good effect. INSIGHTFUL ISSUE FRAMING & ANALYSIS
4 Overall *Performance holistically; high rating also given for outstanding "peak" performance on single dimension(s)*	**1**	**2**	**3**	**4**	**5**	**6**

Knowledge in Action Posttest: Sample Scoring

Task and Client

Score 1

Who might have an interest in this new rule – and why?

The government especially homeland security because they are responsible for protecting the privacy and safety of citizens and to prevent ID fraud, they will help protect citizens not only from terrorism but also from getting their identities stolen.

What are some examples of the social, economic, legal, or political concerns they might have?

How to get citizens to agree to participate, would it be a violation to first amendment rights?
How secure are the personal information on the RFIDs? Over time, will it be easy for ID thieves to steal your identity as easily as it is now?
How much will this cost to implement into our social system?

How can the different branches of government have influence over this power (i.e., the new rule just issued)?

The executive branch will use it to its full potential to try and stop the threat of terrorism. The legislative will use the new rule to customize bills to fit with the people's preferences.

Memo

Dear Congressman X,
Having the option of possessing Enhanced ID cards is better than implementing RFID chips. This is because it is more convenient to have enhanced licenses which are less likely to invade privacy. By giving citizens the option to comply with the Real ID rule [it] also doesn't infringe on their first amendment rights. By voting for Real IDs its new rules, there will be a better chance of progressing towards the age of better security that we are currently seeking.

Score 3

Who might have an interest in this new rule – and why?

People who are mostly concerned with issues of national security are going to be most interested in this new rule. It adds another layer of protection that people are looking to add so that attacks like 9/11 are going to be less likely.

What are some examples of the social, economic, legal, or political concerns they might have?

Social - some may be concerned with citizens' feeling that their privacy is being exploited and that information they dont wish to come out will.
Economic - the economic possibility of reinstalling a system for driver's licenses is astounding and may cost too much to do it.
Legal/Political - may be illegal and unconstitutional to have information showed like this.

How can the different branches of government have influence over this power (i.e., the new rule just issued)?

Judaical - can rule on how constitutional it is
Legislative - can pass/amend the bill into law
Executive - able to write bill into law a veto

Memo

The issue at hand is a controversial one and as such, it is important that you tread lightly when approaching this issue. While I know you oppose this new rule, we must also be aware of the upcoming election. Because the difference in party is evident in our district through not dominant, we have to convey your beliefs so that many will be convinced.

One of the biggest things that you can hit when addressing this issue is the issue of privacy. As a mostly democratic state and more importantly, a moderately democratic district, it would be wise to say that the new rule for driver's licenses invades too much privacy in individual lives and as such, that is why you're opposing it. By addressing the issue in this manner, you're saying to your constituents that their rights are most important to you and as a result, require your attention and protection.

The best place we can influence this issue is at the beginning. What you need to do is find other Washington representatives who have similar beliefs about this issue. Figure out a way to send a message to congress about this issue. A whole state's opposition to this rule is greater than one congressman's.

Score 5

Who might have an interest in this new rule – and why?

The individual states might have an interest in the new rule, since it is easier to comply with and would not cause quite as much of an uproar as Real ID. It also would hold the interest of citizens, who might have had privacy concerns over the RFID chips being used in the licenses. The DHS might be concerned because they might see the noncompliance with RFID as a weak point in national security.

What are some examples of the social, economic, legal, or political concerns they might have?

Socially, citizens might be concerned that the government is tracking them too closely, and that it might have adverse effects on their lives.
Economically, states should be worried about the cost of the technology. They also should be concerned about potential lawsuits for invading the privacy of citizens. Politicians should be wary of the issue, as it might cause a backlash that would hurt them in the next election.

How can the different branches of government have influence over this power (i.e., the new rule just issued)?

The legislative branch is responsible for oversight and making sure that it is being upheld as written and for its original purpose. The executive branch is responsible for enforcing he law, specifically under the DHS. The judicial branch is responsible for judging the constitutionality of the act if any potential litigation arises.

Memo

Given your vehement opposition to the new rule regarding the Enhanced Drivers Licenses, there are a few options for you to take to rally support against the measure. First of all, you should drum up support among various interest groups, including the ACLU and other organizations devoted to protecting the privacy of citizens. Urge them to pressure other congressmen to redirect the new rule or revise it. Short of a change in the law, there are other key measure that can be taken. In Washington State, you should urge the state legislators to pass legislation to oppose the Enhanced Drivers License. Rally up support for state's rights advocates and make it known that such a law is an absolute invasion of privacy, with too much potential for government interference in our lives. Also, you could file an injunction in the courts to try to block the measure from being enforced and by testing the constitutionality of it in the judicial system.

Influencing Public Policy

Score 1

Who might have an interest in this new rule – and why?

Anybody who is an adamant supporter of the "right to privacy" or anybody who feels like sacrificing liberty for safety. Those are the people on either side of the issue who care the most.

What are some examples of the social, economic, legal, or political concerns they might have?

Public safety, cost, national security, ID fraud, privacy, civil liberties.

How can the different branches of government have influence over this power (i.e., the new rule just issued)?

Congress and the President can both make it a law, and the supreme court can justify it or refute it.

Memo

Congressman:

Here is what you need to do. Go back to your district, find the political activism groups in your area. Ask them what they think about the RFID and how it should be used, because they obviously genuinely care about the politcal process more than the lobbyists trying to sway you. When you gather their opinions, do what you were elected to do and represent them.

I say focus all of your energy on this, you should already be doing this though, it's how democracy works. They are your big players, and the people who will re-elect you when/if youcome up with a viable solution that tries to represent all of their opinions without your personal bias (or, similarly, the bias of politcs).

If you have a good enough plan, it will go through to congress.

Great success.

Score 3

Who might have an interest in this new rule – and why?

People who frequently travel across the border from Canada to the US.

- Could make it easier, faster.

Republicans (?) because it seems like and expansion of government and infringement on their privacy.

Conspiracy theorists- because it's obvious it's a conspiracy.

What are some examples of the social, economic, legal, or political concerns they might have?

Social - Possible to track people—parents tracking kids, because they are guardians?

- targeted advertising

Legal - Could be used to locate people at the time of a crime-bad in terms of privacy but good in terms of prosecuting people.

Economy - Manufacturers of RFID chips.

How can the different branches of government have influence over this power (i.e., the new rule just issued)?

If someone brings a suit, Supreme Court could call on right to privacy and strike it down, but that would take a long time to happen.

Legislative - there are probably committees or organizations for oversight and they can call hearing and look at this.

- also funding

Executive can tell the Secretary that he approves or disapproves this

Memo

Focus on legislative - push for greater protection on info form RFID. Republican party should oppose it - aim for unity.

Congressional oversight - if there are hearings, can pull in compelling witnesses..

Score 5

Who might have an interest in this new rule – and why?

Police/border patrol - prevent illegals/watch criminals.

Advertisers - reach customers.

Parents - track children to keep out of trouble.

Travelers - make travel faster or harder if illegal.

State dept. licensing - costs $ to implement.

Citizens - potential tracking by govt / illegal or corrupt misuse of information

What are some examples of the social, economic, legal, or political concerns they might have?

Protect the border / prevent terrorism.

Misuse of govt/ overstepping bounds ➔ police state

More spending, increased consumerism.

Increased ease of social networking.

Tourism down from harder travel?.

How can the different branches of government have influence over this power (i.e., the new rule just issued)?

Congress can amend it/ pass new law.

President can help implement it - pass on jurisdiction to specific bureaucracies, offer to give grants to states to follow it, etc.

S.C. can void or change the law if someone sues if they think it is used illegally..

Memo

Well, your first option is to try and block the rule on Constitutional grounds. This process will involve backing an interest group that backs someone suing the DHS. The individual suing will have to have their case taken to the Supreme Court, whose Justices can ultimately decide whether the rule can be upheld or not. This is a tricky process, and not your best option as it is a lengthy and risky was to change laws.

Another choice is to go through the State legislature and try to block the federal demands by limiting the rules of the DHS. You will need to gain the support of the Governor and State Legislatures. You can perhaps modify the requirements of the rule by only implementing readers near the border or something.

Lastly, you can fight the bill through Congress. You will need to buddy up to all your allies in the house (moderates + conservatives) and try and get the support of a committee concerned with such issues.Yah, do this.

Grasping Controversial Issue(s)

Score 1

Who might have an interest in this new rule – and why?
The public because they might one day be trackable at all times by a computer chip.
People who wrote these chips because they could get a lot more money.
Illegal immigrants because it would be harder for them to live in the USA without being caught.
What are some examples of the social, economic, legal, or political concerns they might have?
Social - People will be divided on the ethics behind this.
Economic - Computer chip company would make a large profit.
Legal -
Political -
How can the different branches of government have influence over this power (i.e., the new rule just issued)?
The congress must pass the law and the president will then sign or veto it.

Memo
Congressman X,
Due to the highly debate ethics behind this controversial legislation, I strongly recommend that you do not support this. Supporting this controversial bill could ruin your entire career. If I were you, I would align yourself with some powerful members of congress who also plan to vote against the bill. From there, you should stand strong and not flip flop regardless of what your congressional peers do. Only vote for this legislation if the people in your district support it. Otherwise, the ethics behind this bill make it far too politically potent to support.
Best of luck,

Score 3

Who might have an interest in this new rule – and why?
People concerned about privacy and security. This is because the ability to track movements of a person. This can be a intrusion on privacy. This also can serve as a security issue as they can use this against fraud and other such criminal activities.
What are some examples of the social, economic, legal, or political concerns they might have?
Social: tracks habits, whereabout.
Economic: using habits to personalize advertising.
Legal: Constitutionality, cases on fraud,
Political: the controversy over the RFID, money, security.
How can the different branches of government have influence over this power (i.e., the new rule just issued)?
Congress has to enact the law and fund it. The executive can muster support and mobilize it. The bureaucracy will issue it, and the judicial will decide its constitutionality.

Memo
Dear Congressman X,
The RFID seems to be a retooled version of the secure ID. Political support should be gathered from the people, young and old. Targeting potential venues and how it may harm and give information to the government and corporations. Explain exactly the extent of the technology and what it does. Emphasize its ability to sense at a distance. Key players are those in the development, National Security groups, Corporations, and constituents. Information that may be helpful to further my plan and better inform yourself on is:
1.Information on the technologies abilities and vulnerabilities.
2. Legal and fraud issues.
3. Sensibility and usage of the technology in government and the economy.
this is an intrusion into privacy and makes government a bigger part of lives. Conservatives alike would likely oppose the bill, it would be best to help collaborate and earn political support.
Sincerely Staff Analyst
.

Score 5

Who might have an interest in this new rule – and why?
Groups concerned about liberty, privacy.
Congressional reps. of districts with borders or major ports.
Customs services, groups around immigration, naturalization and customs.
What are some examples of the social, economic, legal, or political concerns they might have?
Social: erodes culture of relative privacy and personal distinctiveness, makes information unnecessarily available to more people than required. Also, could connect people, + people, + government, on another dimension.
Legal: has potential to be ultimate downfall of privacy, information can be used in undesirable ways by both the [unsavory] everyman and by unscrupulous professionals. albeit could make many legal and governmental dealings faster.
Economic: could enhance commercial activity through open channels of communication, connect producers to products to people.
Political: concerns over implications for privacy that runs counter to political culture. Will constituents support?
How can the different branches of government have influence over this power (i.e., the new rule just issued)?
Executive departments and bureaucracy are responsible for implementing and devising general procedures for new rule and can influence congress as to weather and to what extent they would want to consent to exercising this power. Congress is susceptible to influences from interest groups, committee representatives themselves. Representatives may oppose the measure from a personal standpoint, and those sensitive to demands of constituents may fail to garner their support for the bill and oppose it. They may also seek to introduce checks on the new rule's capacity in the form of new bills or make amendments so that it becomes more pleasing for other branches (see below).
Supreme Court: decisions can deem the act unconstitutional if challenged in court likely, for such a contentious issue.

Memo
The way I see it, emphasis on your constitutional basis for opposition to the bill is likely your best bet in terms of placating your constituents, serving them, and preventing what you yourself consider a dangerous act of Congress. As a moderate conservative in a moderately liberal district, you surely comprehend the ongoing combat and concessions of the American people over the role and size of the government, but ideals presented by the Constitution are enshrined in the minds of the people, who would also not take kindly to the potential disappearance of privacy and liberty privileges that they daily enjoy.
Or oppose the bill, and if you cannot, place extensive amendments on it that would act as safeguards against the massive reprehensible implications it would have on our civil liberties, emphasizing your constitutional grounds all the while.
Should you choose to follow this strict adherence to Constitutional standards, support should be easy to amass among much of the American population, your constituents included. Countless interest groups partake in active scrutiny of government actions precisely to these decisions they believe to be an effort on the government's part to reclaim Americans' privacy (or just unwittingly wrest that limited amount of power they share with the people over the people, in less extreme cases), and their support could be invaluable to your cause. I am also secure in the belief that you are not the only congressperson to adopt this view on the bill, and, like support from the people, may be galvanized across the demographic board to your message. Committees on these matters understand well the implications of the technology; agencies are likewise knowledgeable and responsive, and lobbyists know how to spread the word. You will be at no loss for support on your position, thus I encourage you to pursue it.

Overall

Score 1

Who might have an interest in this new rule – and why?

Everyone, because it will affect everyone. Or government and president that is.

What are some examples of the social, economic, legal, or political concerns they might have?

Information able to be looked into, info grows, to tracking and all info until chip has total control

How can the different branches of government have influence over this power (i.e., the new rule just issued)?

By deciding if it is passed or not or amended.

Memo

I would tell him he basically has three options, he can support it, oppose it, or choose to amend it. I could then suggest that he strongly oppose it because the vast majority of Americans will choose to oppose it as well and if he wishes to be reelected then he should too. Americans like freedom, majority will not go along with this. There has been far too many bad moves about this. If he wants to get re-elected, then to oppose it.

Score 3

Who might have an interest in this new rule – and why?

Authorities that are able to more easily gain this information- like police or border security- would be very interested because it changes their day to day work significantly in terms of efficiency and improving authenticity. Moreover, government agencies that can gain new data on people's travel patterns, habits, etc would also be really interested because it offers more possibilities and ways for them to better target various groups.

What are some examples of the social, economic, legal, or political concerns they might have?

Legal - People who are being required to have this ID may have concerns over their privacy and who is able to access their info… and how it'll be used.

Political - Politicians will be concerned when it comes time to taking a position on this and seeing it implemented while thinking about constituent support for future elections.

Economic - Government agencies etc. will be concerned in terms of how this will impact what people choose to do or not do... in terms of traveling, etc. And thus the economy and what they buy/sell.

How can the different branches of government have influence over this power (i.e., the new rule just issued)?

The legislative branch will have to agree on the fine print details of this new rule, and pass it. The executive branch will have to go over the proposal and choose to sign off or veto it. If this is passed, the Judicial branch also can have a say on whether this conflicts with the constitution (eg. Bill of Rights) through their power of judicial review.

Through states, congress would also have to determine how to ensure that this is implemented everywhere.

Memo

Congressman X,

After thorough research on the full details and background of this issue, I've come up with a few possible paths of action you have the option of pursuing. As someone who is opposed to this new rule, you can garner support by beginning with your constituents and moving but through not only ad campaigns, but also conferences with people representing different sectors that would be negatively impacted and by inviting key people (in addition to voters) to attend. This would help to create a more vocal venue for the widespread dissent against RFID and perhaps even influence other congressmen when it comes to passing or not passing this. Furthermore, I believe the key players include researchers who are currently seeing the effects of the technology as well as key leaders in congress- who are in charge of how this legislation is discussed. In my opinion, I would focus my energies not so much on ad campaigns, as in talking with interest groups, lawyers, and your constituents to create a solid support base from which you can voice your opinion more strongly.

Finally, would like more information in terms of whether we can find other examples of how similar legislation has gone wrong /less than ideal.

I hope you will take my advice and thoughts into consideration when finalizing your plan of action.

Regards,

Score 5.5

Who might have an interest in this new rule – and why?

Many watchdog civil rights groups, such as the ACLU and NOW/NARAL would be very concerned over the infringement of privacy rights. This also incorporates a lot of security and national defense issues, which concerns both federal and state border security.

What are some examples of the social, economic, legal, or political concerns they might have?

Economic: short term increased costs in the form of RFID [tag], Long term job loss for customs and border patrol

Social: violation of privacy, risk of stolen identity

Legal: Are arrests made from RFID evidence considered under the exclusionary principle?

Jurisdiction: should this be monitored at a Federal level.

How can the different branches of government have influence over this power (i.e., the new rule just issued)?

Executive: Department of Homeland security-border patrol, INS-immigration and naturalization could take advantage of this to keep track of illegals.

Legislative: congress could rule that RFID's be carried around 24/7

Judicial: exclusionary principle/using RFID's to debunk alibis.

State: interference with traditionally state role in patrolling borders.

Memo

Three things are key to defeating this bill-support from interest groups, media attention, and bipartisanship.

For the first, I would recommend reaching out to groups such as the ACLU first. Watchdog civil rights groups are constantly paranoid of such measures, which are inherent, albeit passive, violations of the right to privacy. Moreover, in order to maintain the reputation of "doing your homework", I would recommend talking to policy experts from groups such as the freedom foundation, the Cato Institute, or, within our state, The Evergreen foundation. These groups are libertarian, and tend to place a strong emphasis on the civil liberties neglected by the law.

The most important arena to focus on right now is the grassroots approach, directly to the people. The public tends to be considerably less awed by the magic words "Homeland Security". In order to approach your constituency directly, you must get media attention of this subject. In order to do this, I suggest doing press conferences and interviews-many hosts, such as Sean Hannity and Jon Stewart, have a wide viewership and awareness is key to starting action.

Another resource is the bureaucracy itself. Within the government, there are many iron triangles, and if you can convince them to work in concert, it can go a long way towards getting a congressional committee to take action. For example, this issue has longterm repercussions for both the Department of Justice and the INS, since the creation of a national ID system have longterm repercussions. One of these concerns would be the use of RFID tracking data in courts-this could also catch the attention of the American Bar Association.

If this law is already passed, many groups, such as states seeking to regain jurisdiction over border control. As well as civil rights groups, could choose to present this to the supreme court on the grounds of a) not pertaining to commerce and therefore out of congressional/legislative jurisdiction, and b) a violation of due process and the right to privacy.

Another good angle is that of cyber-terrorism. Through this, you might sway Republican representatives who are national security oriented. In addition to those who oppose this bill on the grounds of state's rights and civil liberties.

Finally, an alternative plan would help clarify your position on this and add moderation to your approach.

Appendix E: "Sense of Classroom Community" Survey Subscales

Subscale	Survey Item
Membership	1. I feel like a member of this class community.
	2. I belong in this class community.
Emotional Connection	3. I feel connected to this class community.
	4. I have a good bond with others in this class community.
Influence	5. I have a say about what goes on in my class community.
	6. People in this class community are good at influencing each other.
	7. People in this class community are good at getting to know each other's expertise to learn more.
Needs Fulfillment	8. I can get what I need in this class community.
	9. This class community helps me fulfill my needs.

4-point Likert scale: 1=Never, 4=All the time.

Source: Brief Sense of Community Survey (Peterson, Speer, & McMillan, 2008). However, item 7 we added, and we changed "community" to "class community" throughout.

Appendix F: Technical Report on Analyses

Research Measures Administered to Students

College Board-Administered AP Test score

The AP U.S. Government and Politics test score was obtained from the school district files. In addition to analyzing the test score on the 1-5 scale, the score was dichotomized into category 0: scores 1 and 2 and category 1: scores 3, 4, 5 since many colleges assign college credit for AP scores of 3 or higher.

Project-Administered *Knowledge in Action* Test

The project administered an assessment to all students who had consented to participate in the project. The description of task, the rater training procedures, and the rubrics used to score the written response are described in Appendix C and D. Scores were obtained for the following dimensions: Task &Client, Influencing Public Policy, Grasping Controversial Issues, and Overall rating. The percent agreement of 2 independent raters on these dimensions were Task & Client (90%), Influencing Public Policy (90%), Grasping Controversial Issues (82%), and Overall rating (90%). When the 2 raters did not agree within 1 point, the rubric was applied by an independent third rater and the mean rating was assigned to the paper.

Classroom Community Perception Scales ("Sense of Classroom Community" Survey)

Student responded at the beginning (pretest) and end (posttest) of the school year to a self report questionnaire that produced scores on Membership (6 items, pretest α= .69; posttest α= .68), Emotional Connection (6 items, pretest α= .74; posttest α= .73), Influence (6 items, pretest α= .65; posttest α= .59), and Needs Fulfillment (6 items, pretest α= .76; posttest α= .71).

Student Background Measures

Prior AP Test Scores

Prior AP Test scores were obtained from the district files. For each individual, the mean of prior AP scores, the number of prior AP Tests taken, and the score on the AP U.S. History test were calculated.

Cumulative Grade Point Average

The cumulative grade point average (GPA) for each student was obtained from district records.

Demographic Information

The student's gender, Free/Reduced lunch status, ELL qualification, Special Education qualification, and ethnicity were obtained from district records.

Study 1 Analyses

Study 1 compared PBL AP students from a historically high-achieving school (School A) to traditionally-taught AP students from two moderate-achieving schools (School C and D).` The results for students in 6 traditionally-taught AP classes were compared with the results for students in 3 PBL AP classes. Hierarchical Linear (random coefficient) models were used to compare the results taking into account the students nesting within classrooms, student-level prior achievement, and the treatment condition.

The models took the following form:

Level 1 Model Posttest *Outcome* = β_0 + β_1 (student's pretest or prior achievement) + *r*
Level 2 Model (student nested within classroom; treatment fixed effects) $\beta_0 = \gamma_{00} + \gamma_{01}$ (Traditional vs PBL) + μ_0 $\beta_1 = \gamma_{10}$

Students Taking the AP Test

Percent of students who took the College Board AP Test

	PBL AP Classes (N=89)	Traditional AP Classes (N=119)
Did not take test	3.4%	26.9%
Took test	96.6%	73.1%

Percent of students earning AP scores in the 2 groups of classes

AP Test score	PBL AP Classes (N=86)	Traditional AP Classes (N=87)
1	8.1%	42.5%
2	18.6%	20.7%
3	25.6%	31.0%
4	23.3%	2.3%
5	24.4%	3.4%

Percent of students earning AP score of 3 or greater in the 2 groups of classes

AP Test score	PBL AP Classes (N=86)	Traditional AP Classes (N=87)
Below 3	26.7%	63.3%
3 or greater	73.3%	36.7%

Interpretation: While these tables do not adjust for prior achievement, they indicate that more students in the PBL classes earned AP Test scores above 3 and that the distribution of scores in the PBL classes is shifted toward higher scores than the distribution of scores in the traditional AP classes even though a broader range of students took the AP Test in the PBL classes.

Hierarchical Linear Modeling of AP Test Scores

The models described above that take the students nesting into classes were fit to the AP scores with the following results:

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	1.01	0.149	6.80	7	.001
Prior GPA	0.55	0.177	3.10	134	.003
U.S. History AP test	0.61	0.071	8.54	134	.001

Interpretation: These results indicate that the PBL AP adjusted condition mean was significantly greater by 1.01 points than the traditionally-taught AP mean after adjusting for the student's prior GPA and the student's prior score on the U.S. History AP exam. Only students who took the AP U.S. History exam can be included in this analysis.

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.96	0.144	6.73	7	.001
Prior GPA	0.44	0.173	2.51	156	.001
All AP tests mean	0.69	0.077	9.05	156	.013

Interpretation: These results indicate that the PBL AP condition mean was significantly greater by .96 points than the traditionally-taught AP mean after adjusting for the student's prior GPA score and the student's prior score on all AP exams they had taken. All students who had previously taken at least 1 AP exam were included.

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
Mean of Traditional	2.00	0.155	12.94	7	.001
Condition	1.37	0.234	5.84	7	.001

Interpretation: These results indicate that the PBL AP condition estimated mean (taking the nesting into classroom into account) was significantly greater (3.37) than the traditionally-taught AP mean (2.03). All students who took the AP exam in the 3 schools in Study 1 are included in this analysis.

Hierarchical Linear Modeling of Fail/Pass AP Test Scores

The models described above that take the students nesting into classes were fit to the categorized AP scores (Fail/Pass) with the following results. In these analyses the log odds of passing is modeled as a function of condition, prior GPA, and prior AP tests mean score.

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	1.82	0.657	2.78	7	.028
Prior GPA	0.27	0.285	0.94	156	.348
All AP mean	1.86	0.335	5.55	156	.001

Interpretation: These results indicate that students in the PBL AP condition were significantly more likely to pass the AP Test (3 or higher) than students in the traditional AP classes after adjusting for the student's prior GPA and their mean prior score on all AP exams they had taken. All students who had previously taken at least 1 AP exam were included.

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	1.74	0.487	3.57	7	.033
Prior GPA	0.87	0.231	3.79	165	.011

Interpretation: To test the robustness of the above finding, these results indicate that students in the PBL AP condition were significantly more likely to pass the AP Test (3 or higher) than students in the traditional AP classes after adjusting for the student's prior GPA. All students who had taken the AP U.S. Government and Politics test were included.

Means and Standard Deviations on Scores on the *Knowledge in Action* Test

	PBL Classes (N=82)			Traditional Classes (N=114)	
Measure	Mean	Stand Dev		Mean	Stand Dev
Overall	2.23	0.69		1.88	0.60
Task & Client	2.45	0.86		2.00	0.74
Influencing Public Policy	2.15	0.74		1.70	0.60
Grasping Controversial Issues	2.41	0.79		2.14	0.67

Hierarchical Linear Modeling of *Knowledge in Action* Test Scores

Overall Score

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.31	0.120	2.63	7	.034
Prior GPA	0.29	0.091	3.22	183	.002

Interpretation: These results indicate that students in the PBL AP condition had significantly higher mean overall scores on the challenge test than students in the traditional AP classes after adjusting for the student's prior GPA.

Task/client Score

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.44	0.177	3.80	7	.008
Prior GPA	0.20	0.116	1.69	183	.092

Interpretation: These results indicate that students in the PBL AP condition had significantly higher mean task/client scores on the challenge test than students in the traditional AP classes after adjusting for the student's prior GPA.

Influencing Public Policy Score

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.44	0.138	3.16	7	.017
Prior GPA	0.19	0.096	1.96	183	.050

Interpretation: These results indicate that students in the PBL AP condition had significantly higher mean Influencing Public Policy scores on the challenge test than students in the traditional AP classes after adjusting for the student's prior GPA.

Grasping Controversial Issues Score

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.24	0.110	2.22	7	.062
Prior GPA	0.17	0.105	1.60	183	.112

Interpretation: These results indicate that students in the PBL AP condition had significantly higher mean Grasping Controversial Issues scores on the challenge test than students in the traditional AP classes after adjusting for the student's prior GPA.

Means and Standard Deviations on Posttest Scores of "Sense of Classroom Community"

	PBL Classes (n=76)			Traditional Classes(n=40)	
Measure	Mean	Stand Dev		Mean	Stand Dev
Membership	4.18	0.75		3.39	0.61
Emotion Connection	3.91	0.79		3.11	0.64
Influence	3.72	0.80		3.03	0.65
Needs Fulfillment	4.14	0.70		3.34	0.64

Sense of Classroom Community: HLM Analyses

Membership

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.76	0.147	5.22	4	.002
Prior GPA	0.13	0.138	0.92	111	.362

Interpretation: These results indicate that students in the PBL AP condition had significantly higher mean Membership ratings than students in the traditional AP classes after adjusting for the student's prior GPA.

Emotional Connection

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.80	0.153	5.23	4	.002
Prior GPA	-.05	0.146	-.32	111	.750

Interpretation: These results indicate that students in the PBL AP condition had significantly higher mean Emotional Connection ratings than students in the traditional AP classes after adjusting for the student's prior GPA.

Influence

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.73	0.155	4.70	4	.008
Prior GPA	-.09	0.076	-1.13	111	.261

Interpretation: These results indicate that students in the PBL AP condition had significantly higher mean Influence ratings as compared to students in the traditional AP classes after adjusting for the student's prior GPA.

Needs Fulfillment

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.77	0.144	5.36	4	.001
Prior GPA	0.14	0.050	2.92	111	.005

Interpretation: These results indicate that students in the PBL AP condition had significantly higher mean Needs Fulfillment ratings as compared to students in the traditional AP classes after adjusting for the student's prior GPA.

Study 2 Analyses

Study 2 compared PBL AP students from a historically moderate-achieving school (School B) to traditionally-taught AP students from two moderate-achieving schools (School C and D).` The results for students in 6 traditionally-taught AP classes were compared with the results for students in 3 PBL AP classes. Hierarchical Linear (random coefficient) models were used to compare the results taking into account the students nesting within classrooms, student-level prior achievement, and the treatment condition.

The models took the following form:

Level 1 Model Posttest *Outcome* = β_0 + β_1 (student's pretest or prior achievement) + *r*
Level 2 Model (student nested within classroom; treatment fixed effects) $\beta_0 = \gamma_{00} + \gamma_{01}$ (PBL vs traditional) + μ_0 $\beta_1 = \gamma_{10}$

Students Taking the AP Test

Percent of students who took the College Board AP Test

	PBL AP Classes (N=91)	Traditional AP Classes (N=119)
Did not take test	2.2%	26.9%
Took test	97.8%	73.1%

Percent of students earning AP scores in the 2 groups of classes

AP Test score	PBL AP Classes (N=89)	Traditional AP Classes (N=87)
1	25.8%	42.5%
2	38.2%	20.7%
3	19.1%	31.0%
4	11.2%	2.3%
5	5.6%	3.4%

Percent of students earning AP score of 3 or greater in the 2 groups of classes

AP Test score	PBL AP Classes (N=86)	Traditional AP Classes (N=87)
Below 3	64.1%	63.3%
3 or greater	35.9%	36.7%

Interpretation: While these tables do not adjust for prior achievement, they indicate that more students in the PBL AP classes earned AP Test scores 4 and above and that the distribution of scores in the PBL AP classes is shifted toward higher scores than the distribution of scores in the traditional AP classes even though a broader range of students took the AP Test in the PBL classes.

Hierarchical Linear Modeling of AP Test Scores

The models described above that take the students nesting into classes were fit to the AP scores with the following results:

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.59	0.139	4.27	7	.004
Prior GPA	0.31	0.136	2.25	140	.026
US History AP test	0.68	0.071	9.56	140	.001

Interpretation: These results indicate that the PBL AP adjusted condition mean was significantly higher by 0.59 points than the traditionally-taught AP mean after adjusting for the student's prior GPA and the student's prior score on the U.S. History AP exam. Only students who took both the AP U.S. Government and Politics test and the AP U.S. History test can be included in this analysis. Note that overall only 73% (87 out of 119) of the students in the traditionally-taught AP condition took the AP U.S. Government and Politics test, compared to 98% (89 out of 91) of the students in the PBL classes. The unadjusted mean for AP scores for the PBL group was 2.33 and for the traditional group was 2.03

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.39	0.124	3.12	7	.018
Prior GPA	0.12	0.134	0.89	161	.376
Mean prior AP tests	0.77	0.073	10.58	161	.001

Interpretation: These results indicate that the PBL AP condition mean was significantly higher by 0.39 points than the traditional AP mean after adjusting for the student's prior GPA and the students' prior mean score on all AP exams they had taken. Only students who took the AP U.S. Government and Politics test and had scores on at least 1 other AP test can be included in this analysis.

Hierarchical Linear Modeling of Fail/Pass AP Test Scores

The models described above that take the students nesting into classes were fit to the categorized AP scores (Fail/Pass) with the following results. In these analyses the log odds of passing is modeled as a function of condition, prior GPA, and prior AP tests mean score.

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.37	0.578	0.63	7	.547
Prior GPA	0.34	0.462	0.74	161	.462
Mean prior AP tests	1.89	0.317	5.97	161	.001

Interpretation: These results indicate that students in the PBL AP condition were not significantly different in their likelihood of passing the AP test (3 or higher) than students in the traditional AP classes who took the AP U.S. Government and Politics test, after adjusting for the student's prior GPA and the students' prior mean score on all AP exams they had taken.

Means and Standard Deviations on Scores on Posttest *Knowledge in Action* Test

	PBL Classes (N=77)			Traditional Classes (N=114)	
Measure	Mean	Stand Dev		Mean	Stand Dev
Overall	1.97	0.78		1.88	0.60
Task & Client	2.19	0.80		2.00	0.74
Influencing Public Policy	1.79	0.71		1.70	0.60
Grasping Controversial Issues	2.31	0.89		2.14	0.67

Hierarchical Linear Modeling of Posttest *Knowledge in Action* Test Scores

Overall Score

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.11	0.100	1.14	7	.291
Prior GPA	0.27	0.090	2.98	178	.004

Interpretation: These results indicate that after adjusting for the student's prior GPA, students in the PBL AP condition did not significantly differ in mean overall scores on the challenge test as compared to students in the traditional AP classes.

Task & Client Score

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.23	0.114	2.05	7	.080
Prior GPA	0.18	0.103	1.79	178	.075

Interpretation: These results indicate that after adjusting for the student's prior GPA, students in the PBL AP condition did not significantly differ in mean Task/Client scores on the challenge test as compared students in the traditional AP classes.

Influencing Public Policy Score

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.11	0.100	1.18	7	.276
Prior GPA	0.20	0.088	2.30	178	.023

Interpretation: These results indicate that after adjusting for the student's prior GPA, students in the PBL AP condition did not significantly differ in mean Influencing Public Policy scores on the challenge test as compared students in the traditional AP classes.

Grasping Controversial Issues Score

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	0.18	0.116	1.58	7	.159
Prior GPA	0.15	0.104	1.47	178	.144

Interpretation: These results indicate that after adjusting for the student's prior GPA students in the PBL condition did not significantly differ in mean overall scores on the challenge test as compared students in the traditional AP classes.

Means and Standard Deviations on Posttest Scores of "Sense of Classroom Community"

	PBL Classes (n=78)			Traditional Classes(n=40)	
Measure	Mean	Stand Dev		Mean	Stand Dev
Membership	3.14	0.72		3.39	0.61
Emotional Connection	2.87	0.64		3.11	0.64
Influence	2.89	0.61		3.03	0.65
Needs Fulfillment	3.22	0.76		3.34	0.64

Sense of Classroom Community: HLM Analyses

Membership

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	-0.24	0.177	-1.83	4	.239
Prior GPA	-0.05	0.110	-0.43	113	.667

Interpretation: These results indicate that students in the PBL AP condition were not significantly different on their mean Membership ratings than students in the traditional AP classes after adjusting for the student's prior GPA.

Emotional Connection

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	-0.25	0.213	-1.93	4	.299
Prior GPA	-0.10	0.100	-1.05	113	.297

Interpretation: These results indicate that students in the PBL AP condition were not significantly different on their mean Emotional Connection ratings than students in the traditional AP classes after adjusting for the student's prior GPA.

Influence

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	-0.13	0.207	-0.61	4	.576
Prior GPA	-0.08	0.098	-0.84	113	.403

Interpretation: These results indicate that students in the PBL AP condition were not significantly different on their mean Influence ratings than students in the traditional AP classes after adjusting for the student's prior GPA.

Needs Fulfillment

Fixed Effect	Coefficient	Stand error	T ratio	df	p value
condition	-0.10	0.152	-0.67	4	.540
Prior GPA	0.09	0.048	1.80	113	.074

Interpretation: These results indicate that students in the PBL AP condition were not significantly different on their mean Needs Fulfillment ratings than students in the traditional AP classes after adjusting for the student's prior GPA.

Acknowledgements

Our deep appreciation and thanks to the students and teachers who contributed to this research, and to everyone in the Bellevue Schools community who made it possible—school administrators, the Bellevue Schools Foundation, families, and community members. We continue to be inspired by their spirit of innovation, and their dedication to successful ambitious learning for all. We are indebted to the College Board for their assistance. We would especially like to thank the George Lucas Educational Foundation for their generous support and leadership. The researchers are solely responsible for the findings and conclusions in this report and any errors herein.