# Differences in Instructional Quality between High and Low Value Added Schools

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The National Center on Scaling Up Effective Schools (NCSU) is a national research and development center that focuses on identifying the combination of essential components and the programs, practices, processes and policies that make some high schools in large urban districts particularly effective with low income students, minority students, and English language learners. The Center's goal is to develop, implement, and test new processes that other districts will be able to use to scale up effective practices within the context of their own goals and unique circumstances. Led by Vanderbilt University's Peabody College, our partners include The University of North Carolina at Chapel Hill, Florida State University, the University of Wisconsin-Madison, Georgia State University, and the Education Development Center.

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# Differences in Instructional Quality

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More than a quarter-century has passed since A Nation at Risk raised concerns about the "rising tide of mediocrity" in American education (U.S. National Commission on Excellence in Education, 1983). Despite the ambitious reforms that followed, high schools today continue to have low rates of student retention and learning, particularly for students from traditionally low-performing subgroups (Becker and Luthar, 2002; Cook & Evans, 2000; Davison et al., 2004; Lee, 2002, 2004). While racial and ethnic gaps in reading and mathematics achievement between both 17-year-old white and black students and white and Hispanic students narrowed between 1978 and the early 1990s, these gaps have remained stagnant over the last two decades. Currently, gaps between black and Hispanic 17-year-olds and their white counterparts range from two to more than three years of learning (Rampey, Dion, & Donahue, 2009). Gaps are even wider in the senior year of high school between native English speakers and English language learners. Differential drop-out rates, wherein low-income students, minorities, and English language learners leave school at higher rates than other students, only compound the problem (see Kaufman & Chapman, 2004; Snyder, Dillow, & Hoffman, 2009).

There is a growing consensus among practitioners and researchers around the "essential components" of successful schooling that have emerged from years of research. These components include a rigorous and aligned curriculum, quality instruction, personalized learning connections, a culture of learning and professional behavior, connections to external communities, systematic use of data, systemic performance accountability, and learner-centered leadership (Goldring, Porter, Murphy, Elliott, & Cravens, 2009). While the components are recognizable in practice, far less is known about the ways in which educators develop, implement, integrate, and sustain them. This paper examines how one of these components, quality instruction, plays out across two high value-added (HVA) high schools (ones making above average achievement gains and maintaining below average dropout rates for students from traditionally low performing groups) and two low value-added (LVA) high schools in the same large urban district. While resent research is clear on the impact of teachers on student achievements (Nye, Konstantopoulos, & Hedges, 2004; Rivkin, Hanushek, & Kain, 2005; Rockoff, Jacob, Kane, Staiger, 2008), it is less clear exactly what teachers in HVA schools are doing differently from teachers in LVA schools that might be leading to differences in learning rates. This paper explores these differences by asking:

- To what extent do HVA high schools have higher levels of instructional quality than LVA high schools?

- To what extent do HVA schools push more students into advanced courses? Are the instructional quality gaps between advanced and regular courses narrower in the HVA schools?

- To what extent do differences in teachers' perceptions of what is necessary to improve student learning and/ or quality instruction explain differences in observed instructional quality across HVA and LVA schools?

- To what extent do differences in the level of instructional supports provided outside the classroom explain differences in observed instructional quality across schools?

**Defining Quality Instruction**

While there are many ways to define quality instruction, our review of the literature on what makes instruction effective at the high school level leads us to focus on the following aspects: meeting the individual needs of their students, using collaborative learning strategies, practicing authentic pedagogy that relates to students' lived experiences, and presenting rigorous, challenging content in their classrooms.

*Individualizing instruction*. Much of the extant research (Easton, Ponisciak, & Luppescu, 2008; Marzano, 2003; Wenglinsky, 2002; Von Secker, 2002; Darling-Hammond, 2002) on effective instructional practice supports the notion that effective teachers understand and meet the individual needs of their students. This individualized and adaptive pedagogy takes many forms in the classroom environment. Marzano (2003), for instance, underscores the importance of including students in goal-setting and the creation of personalized instructional objectives. Dewey (1938) and Wenglinsky (2002) highlight the need to incorporate students' personal experiences and prior knowledge in the learning process. For example, Wenglinsky's (2002) analysis of NAEP scores found that students whose teachers received professional development in learning how to teach different groups of students substantially outperformed other students. Darling-Hammond's (2002) analysis of school reform in New York yielded similar results; observing that in successful schools, "teachers consciously use multiple instructional strategies to give students various entry points to the material under discussion" (Darling-Hammond, et. al., 2002, p. 659).

*Collaborative Learning Strategies*. A number of researchers (Johnson & Johnson, 2009; Allensworth, Correa, & Ponisciak, 2008; Wenglinsky, 2002; Darling-Hammond, 2002; Marzano, 2001; Cohen & Hill, 2000) agree that effective teachers provide opportunities for students to learn from each other. Johnson & Johnson (2009), citing several decades worth of research on the subject, assert that "the application of social interdependence theory to education has become one of the most successful and widespread applications of social and educational psychology to practice" (Johnson & Johnson, 2009, p. 365). Reflecting on the results of their meta-analysis, they conclude that "cooperation, when compared with competitive and individualistic efforts, tends to promote greater long-term retention, higher intrinsic motivation and expectations for success, more creative thinking, greater transfer of learning, and more positive attitudes toward the task and school" (Johnson & Johnson, 2009, p. 371). Marzano (2001), in his meta-research on effective instruction, agrees; he notes that students whose teachers relied on cooperative learning practices averaged a .73 standard deviation increase in performance when compared to their peers. Allensworth, Correa, & Ponisciak found similar results in their examination of Chicago students' ACT scores, noting that "English subject test scores were particularly high in classrooms where students regularly improve a piece of writing as a class or in partners" (Allensworth, Correa,& Posnisciak, 2008, p. 50).

*Authentic Pedagogy*. Several researchers (Allensworth, Correa, & Ponisciak, 2008; Wenglinsky, 2004; Wenglinsky, 2002; Darling-Hammond, 2002; Von Secker, 2002; Frome, 2001; Dewey, 1938) argue that effective instruction incorporates activities which are real, relevant, and active. In her investigation of effective school reorganization in New York, Darling-Hammond (2002) highlights the importance of "'authentic pedagogy' – instruction focused on active learning calling for higher-order thinking, extended writing, and an audience for student work" (Darling-Hammond, et. al, 2002, p.642). In further describing this "authentic" pedagogy, she notes that practitioners "often incorporate real-life applications. Teachers reported that this helped to sustain student interest and involvement in difficult tasks" (Darling-

Hammond, et. al., 2002, p. 660). Allensworth, Correa, & Ponisciak (2008) underscore the importance of making instruction relevant to students, asserting that "one way of getting students to engage in their course work is to help them see that the work they do in school will prepare them for their future goals" (Allensworth, Correa, & Posnisciak, 2008, p. 60). In practice, this "authentic" pedagogy requires instructors to incorporate short and long-term projects into their instruction and assessment plans. Put succinctly, "the more students do real-world problems, the better the school performs" (Wenglinsky, 2004, p. 6).

*Emphasis on Higher-Order Thinking Skills*. Finally, research (Allensworth, Correa, & Ponisciak, 2008; Easton, Ponisciak, & Luppescu, 2008; Marzano, 2003; Darling-Hammond, 2002; Von Secker, 2002; Wenglinsky, 2002; Frome, 2001; Cohen & Hill, 2000) suggests that effective instructors foster the development of "higher-order" thinking skills in their students and embrace rigorous, challenging content in their classrooms. In their exploration of ACT score trends in Chicago, Allensworth, Correa, & Ponisciak (2008) found that test scores were higher for students in schools with a "future orientation," where students were being pushed toward a college track, and teachers had "expectations for most students to go to college" and the curriculum was focused as such (Allensworth, Correa, & Posnisciak, 2008, p. 50). Cohen & Hill's (2000) investigation into the implementation of "progressive" math instruction in California produced similar findings; the authors observed that effective math teachers placed "much more emphasis on mathematical reasoning and explanation rather than the mechanics of mathematical facts and skills" (Cohen & Hill, 2000). Wenglinsky (2002) notes that effective teachers are transmitting these skills by "not so much conveying information as conveying understanding"; to do so, teachers tasked students with "applying concepts to problems (applications) or…providing examples or concrete versions of the concept (simulations)" (Wenglinsky, 2002, p.5). The incorporation of metacognitive skill development in instruction also appears to be an important facet of fostering "higher-order" thinking. Darling-Hammond's (2002) description of effective schools found that they implemented a "curriculum that explicitly teaches students how to study, how to approach academic tasks, what criteria will be applied, and how to evaluate their own and others' work" (Darling-Hammond, 2002, p. 658).

**Methods**

Broward County, Florida, was selected using a simple value-added achievement model (VAM) to estimate the relative performance of the state's high schools. The school district serves large proportions of traditionally underperforming student subgroups, including low-income, minority, and English language learners (ELL). The student population during the 2010-11 school year was 38% African American, 28% Hispanic, 27% White, and 7% other. In the district, 48% of students are eligible for free or reduced price lunches and 10 percent are classified as ELL. Four high schools in the district - two higher performing and two lower performing - were selected for case study on the basis of findings from the VAM analysis (the schools are described below). Researchers collected data during three weeklong visits to each of four case study high schools during the fall, winter and spring of the 2010-12 school year. Data collection consisted of classroom observations, semi-structured interviews, focus groups, student shadowing, observations of selected administrative and professional development meetings, and artifact collection.

**The Four Case Study Schools**

*School 104*

School 104 was one of the two HVA schools and enrolled between 2600 and 3000 students during the 2010-2011 school year. Of those students, between 30-40% qualified for free and reduced priced lunch. Students of minority status comprised 50-60% of the student population and 5-10% of its students were classified as English Language Learners. The school grade has changed from an "A" to a "B" over the past several years. Its Differentiated Accountability status was Correct II.

*School 103*

School 103 was the second HVA school and had approximately 2000-2400 students during the 2010-2011 school year. Students eligible for free and reduced priced lunches represented 45-55% of the student population. The majority of the student body was minority in nature, comprising between 65-75% of those enrolled. Between 5-10% of students were English language learners. School 103's school grade has been an 'A' over the last several years and is categorized as a Correct I status of the state's accountability program due to the school's success in meeting AYP. School 103 was the only case study school to fall into this category. One other characteristic that set School 103 apart from the other case study schools was that enrollment to the school was based on a lottery system in which performance criteria were not required for admission and enrollments have to match the demographics of the district at large.

*School 102*

School 102 was one of the LVA schools. During the 2010-2011 school year, School 102 had between 1600 and 2000 students. Students qualifying for free and reduced priced lunch comprised approximately 60-70% of enrollments. Between 55-65% of the population was of minority status and 10-15% of its students were classified as English language learners. The school grade has moved between a "C" and a "D" over the last several years, and its Differentiated Accountability status was Correct II.

*School 101*

School 101 was the second LVA school and had between 1900 and 2300 students in 2010. Students qualifying for free and reduced priced lunch made up 45-55% of the student body. Approximately 55-65% of the population was minority and 5-10% of its students were classified as English language learners. Its school grade has fluctuated from As to Bs over the last several years. During the 2010-2011 academic year, it was in Correct II status by the state of Florida.


**Measuring Quality Instruction**

We investigated quality of instruction in two ways: through observation of classroom instruction and coding of interviews with school administrators, teachers, and students regarding how schools are explicitly or implicitly organizing for improving instruction.

*Classroom observations*. We targeted 10th grade English/language arts, mathematics, and science classes in fall, winter, and spring of the 2010-2011 school year. Seventy-three teachers were observed, with

between 2 and 17 twenty minute segments coded for each teacher (for a total of 685 segments). As research on tracking in high schools suggests that higher track classes tend to have higher quality instruction than lower track classes, we wanted to assess whether this was occurring in our case study schools, as well as whether HVA schools "compressed" (i.e., reduced the differences in) the instructional quality between their higher and lower track classes more than LVA schools. To increase the number of honors (and above) classes observed in each school, a small number of additional honors classes were sampled in 9th, 10th, and 12th grade. For example, we asked to observe a higher track course taught by the same 10th grade teacher whom we may have already observed teaching a regular track course and vice versa.

These classroom observations were coded using the Classroom Assessment Scoring System – Secondary (CLASS-S), developed by Pianta, Hamre, Hayes, Mintz, and LaParo. The CLASS was originally designed to measure preschool and early elementary teachers' instructional practices. CLASS assesses the quality of teachers' social and instructional interactions with students as well as the intentionality and productivity evident in classroom settings. The focus of the CLASS is on what teachers do with the materials they have and on their interactions with students, rather than on a particular curriculum, lesson format, or the physical setup of the classroom.

The coding scheme is designed for raters to use while watching either live or video classroom instruction for 20 minute segments while taking notes on the CLASS-S indicators. Then they take 10-15 minutes to review their coding manual and assign scores to each of eleven dimensions. CLASS-S scoring is completed immediately after each observation cycle. Coders rate each dimension as low (1, 2), mid (3, 4, 5), and high (6, 7). While the CLASS-S manual provides general scoring guidelines (see Table 1), it notes that "observers should view the dimensions as holistic descriptions of classrooms that fall in the low, mid, or high range." Prior research has found that students in classrooms with higher CLASS-S scores make greater academic and social gains than those in classrooms with lower CLASS-S scores, though most of this comes from studies conducted at the preschool and elementary level. Positive correlations have been found between algebra end-of-course exams (EOCs) and the CLASS-S domains, with the highest correlation being with Classroom Organization and the lowest being Emotional Support (Bell, Gitomer, McCaffrey, Hamre, & Pianta, 2011).

**CLASS-S Domains and Our Analytic Strategy**

The CLASS-S has been designed to measure middle and secondary teachers' practices and instructional quality across content areas in three broad domains: (a) Emotional Support, (b) Organizational Support, and (c) Instructional Support. Each domain is organized into multiple dimensions, and each dimension consists of several indicators (see Table 2). Graphs showing the school average differences across each domain are shown below. Higher track classes (honors and above) tended to receive higher ratings across all dimensions than did lower track classrooms (regular and below). Graphs comparing scores for honors and regular classes separately across each CLASS-S dimension are also shown. We used multilevel statistical models, which adjust for the clustering of observation segments within teachers, to test whether the differences between schools or the differences between honors and regular were statistically significant. Although courses predominantly enrolling 10th graders were targeted, a small number of 9th, 11th, and 12th grade classrooms were observed and included in the analysis. Grade level, subject level

(English/Language Arts, Mathematics, or Science), and course track were controlled for in the multilevel statistical models.

## Analysis of Interview Data

In all, 175 interviews, 24 focus groups, and 20 observations were conducted in two HVA and two schools LVA. Initially, we coded these data using directed content analysis (Patton, 2002), enabling us to start with the eight essential components of our framework while allowing themes to emerge from the data inductively (Miles and Huberman, 1994). We coded transcripts of interviews with participants from several stakeholder groups (i.e., teachers, administrators, students, counselors) using an a priori framework developed around key elements of quality instruction. We coded any references to the nature of typical instruction at the school and/or references to the participant's vision of what high quality instruction entails. We also engaged in summative content analysis (Hsieh & Shannon, 2005) wherein we assigned numerical rubric scores to indicate the degree and intensity of evidence for a particular construct in participants' responses.

Later, based on an original sample of 72 teachers across the four schools, data that had been collected and transcribed from 67 teacher interviews were coded inductively for teachers' answers to several key questions in transcripts on quality instruction. Specifically, we coded for specific instructional practices; and teachers' responses to the following questions: What are the major challenges for improving student learning?; What are you doing to address these challenges? What are you doing to improve the quality of your instruction in your classroom? Using NVivo 9 software (Edhlund, 2011; QSR International, 2009; Bazeley, 2007), the teacher interview data were coded relying on emergent, inductive methods (Charmaz, 2006; Strauss & Corbin, 1990) to code data for teachers' answers and perceptions of quality instruction. Our initial coding efforts (Summer 2011) centered on elements of quality instruction that emerged as important in the literature. These included: individualized pedagogy, collaborative learning strategies, authentic pedagogy, and higher order thinking skills. Our original coding framework had not included all of the dimensions and indicators of CLASS-S domains. As a result, after initial emergent, inductive coding was undertaken, the data were reduced (Patton, 2001) and recoded using a detailed framework structured around the CLASS-S domains and their corresponding dimensions as follows: i. Emotional Support: positive climate, negative climate, teacher sensitivity, regard for adolescent perspectives; ii. Classroom Organization: behavior management, productivity, instructional learning formats; iii. Instructional Support: content understanding, analysis and problem solving, quality of feedback, instructional dialogue. The fourth CLASS-S domain, student engagement, was not considered as it is an outcome of instructional practices. Further, we analyzed themes that cut across these different CLASS domains and dimensions. During the data reduction process, any emergent themes that did not fit into the CLASS-S framework were coded as "other". This emergent category was then analyzed for patterns and themes.

## Findings

RQ1: To what extent do HVA high schools have higher levels of instructional quality than LVA high schools?

Both HVA and LVA schools had CLASS-S dimension scores in the middle range of the seven point scale (Emotional Support ranging from 5.0-5.4; Organizational Support ranging from 4.7 to 5.3; Instructional Support from 3.7 to 4.6, and Student Engagement from 4.6 to 5.2). Contrary to expectations, B104, an HVA school, tended to be on the lower end of these distributions, while B103, the other HVA school, tended to be at the upper end. Across all four schools, advanced/honors courses had higher average scores than regular classes (with differences of about a half a point). Differences by domain are detailed below.

*Emotional Support*

The CLASS-S Emotional Support domain includes Positive Climate, Negative Climate, Teacher Sensitivity, and Regard for Adolescent Perspectives. There were no statistically significant differences across the four schools (Model 1, chi sq=4.23, p=.237) controlling for track grade level, subject, and time of year of the observation, although the average gap between honors and regular classes was narrower on the Emotional Support domain in B103 (HVA) than B101 (LVA) (Model 2, B=.86, p=.005) when an interaction between track and school is added (suggesting that Emotional Support in regular classes is particularly problematic in B101). Differences in the Positive Climate domain are illustrative of these overall differences. For example, while there are no statistically significant difference across the 4 schools in average positive climate (Model 1, chi sq=5.21, p=.157) the adding of an interaction term between school and track shows that B101 has the lowest average Positive Climate score in regular classes and the largest gap between its regular and honors classes (compared to B103 and B104). These differences are all less than a point on the CLASS-S scoring rubric, however, suggesting that all four schools have mid-level Positive Climate in both honors and regular classes. An example of a classroom behavior that would result in a mid-level score on positive climate might be "the teacher and some students appear generally supportive and interested in one another, but these interactions are muted or not representative of the majority of students in the class."[1] Scores across the schools on the domain Regard for Adolescent Perspectives were similar, with scores in the mid-range and no statistically significant differences between the four schools for regular classes, but a wider gap between honors and regular in B101 compared to B103. An example of a mid-range score in regard of adolescent perspectives might be "material is sometimes connected to the current experiences of adolescents and sometimes makes salient how or why the material is of value to students".

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[1] Examples are taken from Pianta, R. C., Hamre, B. K., Haynes, N. J., Mintz, S. L., & LaParo, K. M. (2007). *Classroom Assessment Scoring System – Secondary Manual*. Charlottesville, VA: University of Virginia.

Figure 1: Predicted Emotional Support Score, by School and Track
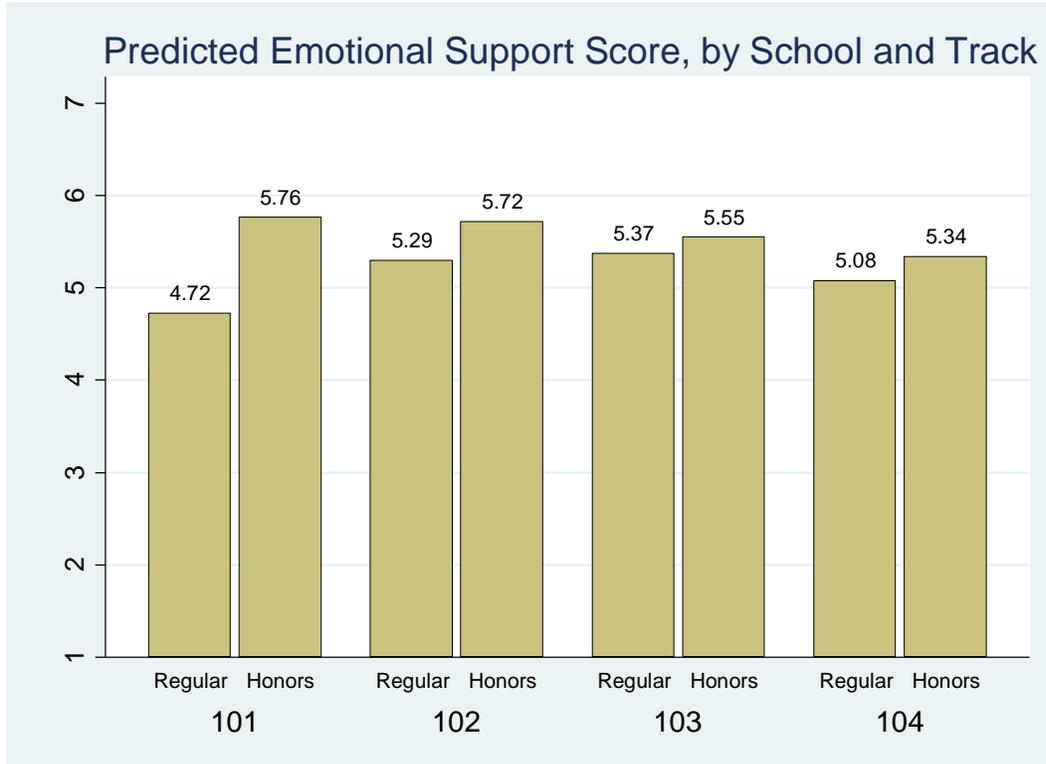


Classroom Organization

The Classroom Organization dimension includes the domains of Behavior Management, Productivity, and Instructional Learning Formats. While the two HVA schools did not show systematically better Classroom Organization scores than the LVA schools, B103 (HVA) had a higher average Classroom Organization Score than B104—the other HVA (Model 1, B= -.593, p= 0.042)—controlling for track, grade level, subject, and time of year of the observation. As was the case with Emotional Support, the average gap between honors and regular classes was narrower on the Classroom Organization domain in B103 (HVA) than B101 (LVA) (Model 2, B=.56, p=.042). Classroom organization in the mid-range might reflect observations where "most of the time there are tasks for students, but learning time is sometimes limited by disruption and/or inefficient completion of management tasks."

Figure 2: Predicted Classroom Organization Score by School

## Predicted Classroom Organization Score by school

| | Regular | Honors | | Regular | Honors | | Regular | Honors | | Regular | Honors |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | 4.71 | 5.57 | 102 | 4.97 | 5.21 | 103 | 5.33 | 5.62 | 104 | 4.74 | 5.10 |
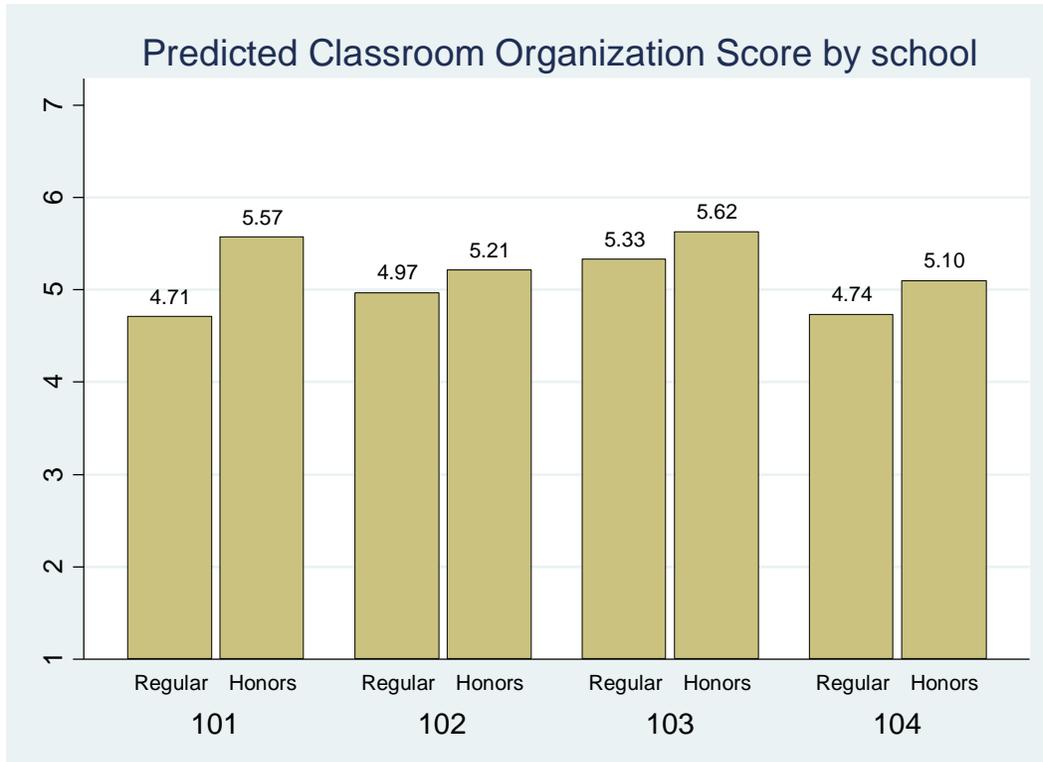
*Instructional Support*

The Instructional Support domain consists of Content Understanding, Analysis and Problem Solving, and Quality of Feedback. As with Organizational support, the widest gaps were between two HVA schools, B103 and B104 (B=.85, p=.001). This gap in scores between the two HVA schools held for each of the domains of Content Understanding (Model 1, B= -.7603, p= 0.005), Analysis and Problem Solving (Model 1, B= -1.23, p<.0001), and Quality of Feedback (Model 1, B= -.597, p=,038). A mid-level score on content understanding could be reflective of cases where "class discussion and materials communicate a few of the essential attributes of concepts/procedures but examples are limited in scope or not consistently provided." A classroom scoring in the mid-range on analysis and problem solving might reflective observations where "students occasionally engage in higher-order thinking through inquiry and analysis, but these episodes are brief or limited in depth."

Figure 3:  Predicted Instructional Support Score

Predicted Instructional Support Score
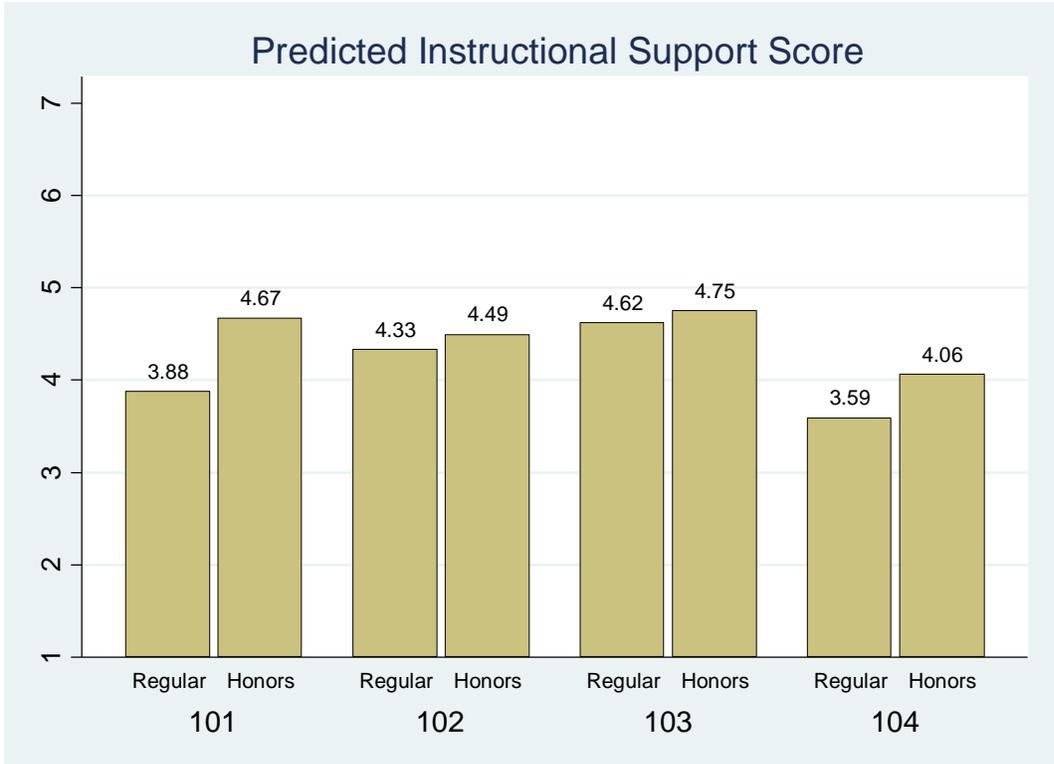
Finally, in the area of Student Engagement, B104 (HVA), again, had the lowest score for regular classes (difference between B104 and B103= .77, p=.014: Model2), controlling for grade, subject, and time of year of the observation. The gaps in between honors and regular were wider in B101 (B= .806, p=.014) and B104 (B=.546, p=.069), than in B103 (.198, p=3.54).

Figure 4: Predicted Student Engagement Score

## Predicted Student Engagement Score

| | Regular | Honors | Regular | Honors | Regular | Honors | Regular | Honors |
|---|---|---|---|---|---|---|---|---|
| | 4.75 | 5.75 | 5.01 | 5.52 | 5.22 | 5.42 | 4.45 | 5.19 |
| | 101 | | 102 | | 103 | | 104 | |
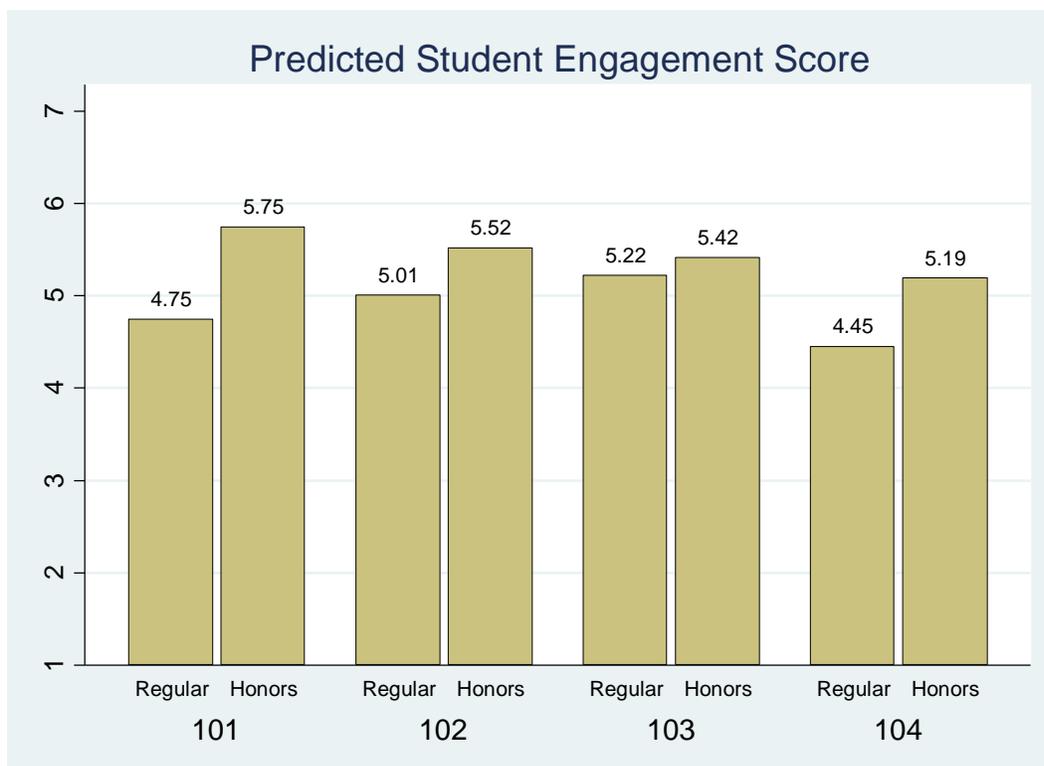
In summary, rather than there being a clear distinction across the dimensions of instructional quality between HVA and LVA schools, school-level averages across all four schools tended to be in the middle to low middle range (around 3 or 4 on the 1-7 point scales) with the largest gaps tending to be between schools 103 and 104—the two HVA schools. Students enrolled in advanced courses were also more likely to receive higher quality instruction across all of the categories, with the gap often widest at B101 and narrowest at B103, emphasizing the importance of examining the distribution of students enrolled in honors and regular class across the four schools.

RQ2: To what extent do higher valued added schools push more students into advanced courses? Are the instructional quality gaps between advanced and regular courses narrower in the HVA schools?

Chart 1 shows the proportion of courses offered in core subjects that are classified as advanced (including honors, gifted, dual enrollment, and Advanced Placement). Courses and counts were obtained through analysis of the four case study schools' master schedules. The high value added (HVA) schools have a higher ratio of advanced courses than the low value added schools (LVA), particularly in the areas of math and science. School 103, a HVA school, offers the largest proportion of honors courses in math, science, and social studies. Although school 102, a LVA school, offers the smallest proportion of courses at the advanced level, 101, the other LVA school, has a ratio of advanced courses that rivals that of school 104, a HVA school, in both social studies and language arts (56% to 57% and 63% to 62%, respectively) and 103 in language arts (63% to 63%). Distributions across course levels by school were similar for courses that were predominantly taken by 10th graders.

This distribution of course offerings complements the CLASS-S scores—HVA school 103 had a

greater proportion of students in AP and honors courses, while HVA school 104 had generally similar proportions of students in AP or honors courses as the two LVA schools (See Figure 4 and Tables 3 and 4).

Chart 1: Proportion of courses offered that are honors or advanced placement, by school and subject



**Proportion of courses offered that are honors or advanced placement, by school and subject**
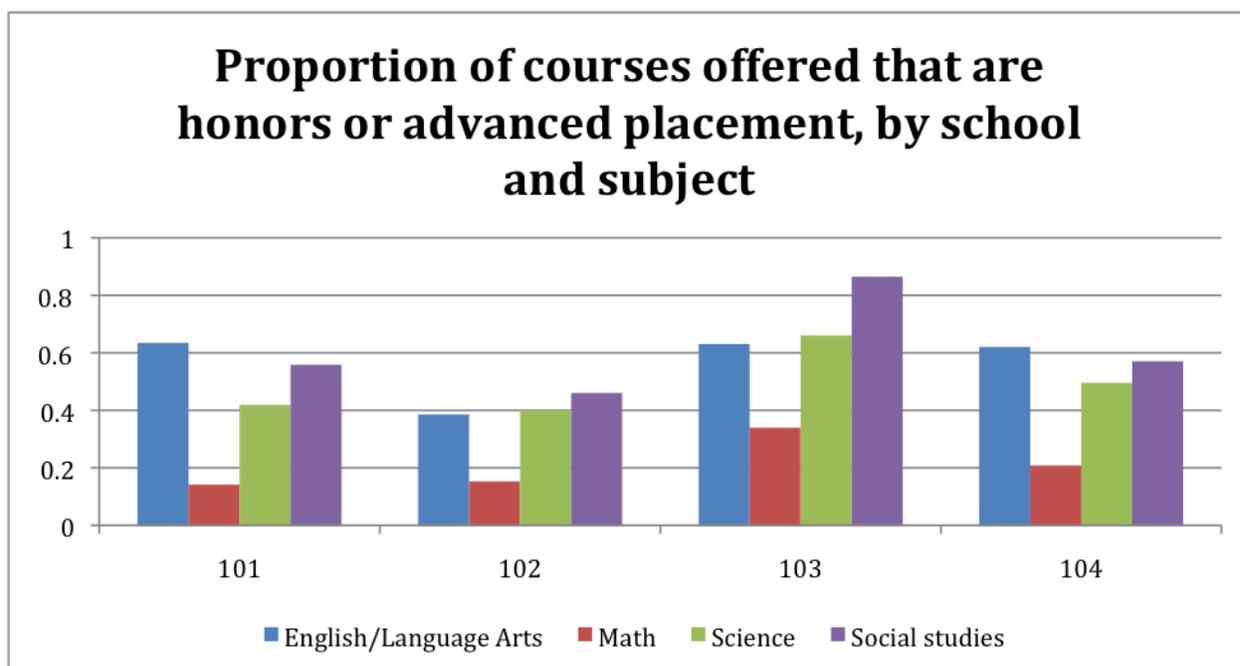
RQ3: To what extent do differences in teachers' perceptions of what is necessary to improve student learning and/ or quality instruction explain differences in observed instructional quality across schools?

While we hypothesized that HVA schools would provide higher quality instruction than LVA schools, this was not the pattern that we found. While school 103, an HVA, often had among the higher average scores across CLASS-S dimensions, the other HVA, 104 tended to have among the lowest scores across the CLASS-S dimensions. Thus, we look to the interview data (which were coded without knowing the outcomes on the CLASS-S) to try and understand why instructional quality did not vary markedly between the high and low VA schools, as well as why the instructional quality in school 104 was lower than the other three schools. We were also interested in why the largest gap between advanced and regular courses in instructional quality was in B101 while the gaps for B102, the other LVA, were not measurably different from HVA schools in most cases. As noted above, most of the information on teachers' instructional practices came from the following questions/themes: a. Are there specific instructional practices encouraged by your school?; b. What are the major challenges for improving student learning?; c. What are you doing to address these challenges?  d. What are you doing to improve the quality of your instruction in your classroom? The following themes were the most salient across teachers, and other school participants, in the interviews:

*Emotional Support*. Although teachers in both HVA and LVA schools mentioned the importance of providing emotional support, there was more talk of specific strategies for support in the HVA schools. Specifically, the discussions of teachers in HVA schools converged around four areas of emotional support (real world connections, a culture of respect, building relationships with students, and

collaboration) while there is no such convergence in LVA schools. Further, among the teachers in LVA schools who brought up specific themes related to emotional support, a number discussed specific challenges in providing the sort of emotional support that the CLASS-S coding framework rewards. For example, one teacher in an LVA mentioned that the school does not want teacher-centered instruction, but it is at times necessary because students lack necessary background knowledge. Another teacher comments that the school encourages group work, but it is difficult to implement because of the low academic level of some students; group work is much easier with Honors students. A third teacher echoes this sentiment, noting that though the school encourages group work, it is difficult to implement. In high value-added schools, such difficulties were not evident. However, at school 104 (LVA, lower CLASS-S scores), a number of teachers discuss the importance of building respectful relationships with their students, but remark that building respectful relationships is difficult. *Behavior Management*. The challenges across LVA and HVA schools described by teachers are similar: student misbehavior, distractions, lack of respect. Participants in LVA schools, however, described problems that were more severe including cheating on homework that had become so widespread that was accepted as the norm. Participants at HVA schools described problems as less serious and discussed addressing behavior issues proactively, instructing students on the expectations for behavior. We also found some evidence from across the teacher interviews that student misbehavior broke norms of high expectations in the HVA schools, while poor behavior had come to be expected in the LVAs. The story is similar regarding how teachers described their students' motivation. Multiple teachers in all schools mention lack of student motivation as their primary challenge in improving their instruction. Among teachers in LVA schools, that mentioned student motivation, however, few provided any detail regarding how they tackle this challenge. In high value-added schools, teachers that mention student motivation as a challenge also tended to provide specific example or strategy for addressing students' lack of motivation and engaging them in instruction, although this happens more in B103 than in B104.

*Adapt lesson or curriculum for students' needs*. The theme of adapting the lesson to students' needs also emerged in the teacher data. In the LVA schools, several teachers sought to improve the quality of their instruction by researching different models on the internet, adapting what they are doing to the students' proficiency and by responding to the different modalities and strategies that students use. The challenges of adapting instruction to students were described as ever shifting and more challenging because the students are not proficient. By contrast in HVA schools, more teachers (6, as compared to 2 in the LVA schools) described adapting their lessons and instruction to student learning needs by observing and collaborating with other teachers and staying abreast of the latest instructional strategies. More teachers in HVA schools reported striving for excellence, for the sake of improving the quality of instruction. A variety of modalities, strategies and materials aimed at engaging students' interests were evident in the data from HVA schools. Similarly, when teachers in LVA schools discuss differentiating instruction, they just mention that the school encourages it, without providing any detail or examples of how they actually practice differentiation in their classrooms. In contrast, when teachers in the HVA schools discuss differentiating instruction, they also mention that it is encouraged practice and often a challenge, but they were also more likely to provide examples and strategies of how they put differentiation to work in their classrooms.

*Making vocabulary visible*. All 7 mentions of word walls (a district initiative) came from HVA schools and all 10 mentions of school-wide use of the "word of the day" came from B103. While vocabulary development was evident at all four schools, B103 took an active rather than passive approach. This

reflected broader evidence across all of the interviews conducted, suggesting that B103 had more instructional routines in place. While teachers at all schools reported that they are required to have an agenda and/or learning objectives posted in the classroom, teachers at B103 consistently report the existence of school-level expectations for implementation of additional routines as a regular part of instructional practice (word of the day, silent reading program, "Do Nows"). There was also evidence that these routines were instituted and supported long term by the leadership at B103—consistent reports across those interviewed that the principal cares strongly about bell-to-bell (i.e., providing student with instructional activities throughout the entire class period)  instruction and other productivity-maximizing expected routines (e.g., ensuring that students have an opening activity to complete in the first five to ten minutes of class), and follows up on whether teachers are implementing them.

*Emphasis on higher order thinking skills.* In LVA schools, rigor is espoused as means to high quality instruction, although there was little evidence in the interviews regarding whether or how this is enacted. Consistent with the slightly higher scores on the analysis and problem solving domain of the CLASS-S, the majority of concrete examples of teaching higher order thinking skills came exclusively from teachers in B103, including descriptions of using open-ended questions and Socratic methods. This suggests that students at B103 are carrying a greater amount of the cognitive load. Similarly, while teachers across all four schools mentioned the value of student collaboration in class, we found evidence that this practice was encouraged across all classes in B103, honors and advanced classes in 104, received little mention in B101, and elicited negative responses in B102.

In sum, the teacher interview data evidence differences between HVA and LVA schools in key indicators of quality of instruction, namely emotional support, behavior management, instructional routines, and strategies for differentiating instruction. Teachers at HVA schools evidenced four areas of emotional support (e.g., real world connections, a culture of respect, building relationships with students, and collaboration) while at LVA schools there was no such convergence of evidence.

Behavior management differed as well; student misbehavior broke norms of high expectations in the HVA schools, while teachers had come to expect poor behavior in the LVAs. Teachers' descriptions of students' motivation paralleled the differences in emotional support and behavior management. Teachers reported that students are more highly motivated in HVA schools than in LVA ones. Finally, teachers in HVA schools described differentiating instruction as a challenging practice, but one that is encouraged. They provided concrete examples of- and strategies for differentiating instruction.  Such evidence was absent in interviews with teachers at LVA schools.

**Discussion**

We went into this analysis hoping to identify aspects of instruction that were present and supported in HVA schools that might be absent or more variable in LVA schools. If the HVA schools were succeeding in implementing particular instructional domains for which LVA schools continued to struggle, we would have had the basis for designing an instructional intervention to improve LVA schools. What we found, however, was that the average differences in instructional quality, as measured by the CLASS-S, were not very wide across our four case study schools and that the biggest differences were among the two HVA schools! While this could be interpreted as suggesting that instructional quality has little association with

student achievement gains, we chose to view these results differently. We suspect that certain aspects of the district context, such as a curriculum frameworks and pacing guides that are utilized with fidelity by most teachers lay the groundwork for students' exposure to the curriculum—a minimum standard for opportunity to learn. We also found that the HVA schools tend to offer more advanced courses, although this was the case more in 103 than 104, and that advanced courses tended to score higher on all domains of the CLASS-S. While this suggests that pushing students into more rigorous courses could lead to greater learning, further analysis is necessary to determine the degree to which variation in the offering of advanced courses is related to differences across schools in the prior achievement profiles of their students or in the attitudes of teachers and administrators that all students can succeeds.

Our interview data also suggest that there may be more of a "no excuses" stand taken in the HVA schools, where a student's background is not an acceptable reason for poor performance but more a motivation for trying new strategies and working to engage students in both academic and social aspects of the schools (Rutledge et al., working paper). Our interview data suggest that teachers in the two HVA schools are more proactive about providing emotional support, preventing behavioral problems, and attending to content and engaging students in higher order thinking. While these data support the findings from the CLASS-S coding of classroom instruction, this aligned more with what we saw in 103 than in 104.

The lack of variation in classroom instructional practice across schools suggests the need to attend to the ways that schools support academic learning outside of the classroom. For example, in the 2010-2011 school year, B104 implemented a new instructional coaching framework, tapping one of the school's instructional coaches to assemble a team of teacher leaders from across the academic departments tasked with directing the school's instructional reform efforts. In this role, the "lead instructional coach" is reported to coordinate a variety of activities, including:  reading pull-out programs, the school's Saturday FCAT camp, integration of reading strategies across departments, organizing the school's professional learning communities (PLCs) and the monitoring and collective analysis of student performance data (Cohen-Vogel & Harrison, 2012). Acknowledging both the importance of instructional leadership and the pressures on administrators' time from other areas (e.g., discipline, safety, facilities, operations, community partners), the school's principal articulated a need in his school for a team focused squarely on instruction, sharing that "I wanted to make sure that I had someone that I trust that was going to kind of lead the way, someone I could pick-up the phone at any time of the day, any part of the week, pick-up the phone and we could discuss curriculum if I needed to." While the impact of this form of instructional alignment may take time to show up in classroom instruction, it may lead to a more coherent approach to supplementary services.

While our findings have only suggested ways in which HVA schools differ in their instructional support form LVA schools, these findings suggest that the quality of classroom instruction, as measured by the CLASS-S, is not the only critical input to students' learning gains. The alignment of instructional supports, quantity and quality of supplementary services, as well as teachers taking a "no excuses" attitude toward student learning, are all aspects of schooling that deserve more focused scrutiny.

**Table 1. CLASS-S General Scoring Guidelines**

| Low | | Mid | | | High | |
|-----|-----|-----|-----|-----|-----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The low range description fits the classroom/ teacher very well. All, or almost all, relevant indicators in the low range are present. | The low range description mostly fits the classroom/ teacher but there are one or two indicators that are in the mid range. | The mid range description mostly fits the classroom/ teacher, but there are one or two indicators in the low range. | The mid range description mostly fits the classroom/ teacher very well. All, or almost all, relevant indicators in the mid range are present. | The mid range description mostly fits the classroom/ teacher, but there are one or two indicators in the high range. | The high range description mostly fits the classroom/ teacher, but there are one or two indicators in the mid range. | The high rang description fits the classroom/ teacher very well. All, or almost all, relevant indicators in the high range are present. |

From CLASS-Secondary Manual (Pianta et al., 2007)

**Table 2. Overview of 2007 CLASS-S Dimensions, Domains, and Indicators**

| Dimension | Domain | Indicators |
|---|---|---|
| Emotional Support | Positive Climate | • Relationships<br>• Positive affect<br>• Positive communications<br>• Respect |
| | Negative Climate | • Negative affect<br>• Punitive control<br>• Disrespect |
| | Teacher Sensitivity | • Awareness<br>• Responsiveness to academic & social/emotional needs and cues<br>• Effectiveness in addressing problems<br>• Student comfort |
| | Regard for Adolescent Perspective | • Support for student autonomy & leadership<br>• Connections to current lift<br>• Student ideas and opinions<br>• Meaningful peer interactions<br>• Flexibility |
| Classroom Organization | Behavior Management | • Clear expectations<br>• Proactive<br>• Effective redirection of misbehavior<br>• Student behavior |
| | Productivity | • Maximizing learning time<br>• Routines<br>• Transitions |

| | Instructional Learning Formats | <ul><li>Learning targets/organization</li><li>Variety of modalities, strategies, and materials</li><li>Active facilitation</li><li>Effective engagement</li></ul> |
| --- | --- | --- |
| Instructional Support | Content Understanding | <ul><li>Depth of understanding</li><li>Communication of concepts and procedures</li><li>Background knowledge and misconceptions</li><li>Transmission of content knowledge and procedures</li></ul> |
| | Analysis and Problem Solving | <ul><li>Opportunities for higher level thinking</li><li>Problem solving</li><li>Metacognition</li></ul> |
| | Quality of Feedback | <ul><li>Feedback loops</li><li>Prompting thought processes</li><li>Scaffolding</li><li>Providing information</li><li>Encouragement and affirmation</li></ul> |
| Student Engagement | | <ul><li>Active engagement</li><li>Sustained engagement</li></ul> |

**Table 3. Total course offerings and enrollment by school.[a]**

| | Social Studies AP | Social Studies Hon+ | Soc Studies Total | Math AP | Math Hon+ | Math Total | Science AP | Science Hon+ | Science Total | Lang. Arts AP | Lang. Arts Hon+ | Lang. Arts Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | 19 | 62 | 111 | 4 | 15 | 106 | 6 | 39 | 93 | 11 | 59 | 93 |
| Student Total | 475 | 1550 | 2775 | 100 | 375 | 2650 | 150 | 975 | 2325 | 275 | 1475 | 2325 |
| 102 | 10 | 29 | 63 | 3 | 13 | 85 | 3 | 28 | 70 | 5 | 27 | 70 |
| Student Total | 250 | 725 | 1575 | 75 | 325 | 2125 | 75 | 700 | 1750 | 125 | 675 | 1750 |
| | | | | | | | | | | | | |
| 103 | 40 | 83 | 96 | 6 | 35 | 103 | 12 | 68 | 103 | 11 | 58 | 92 |
| Student Total | 1000 | 2075 | 2400 | 150 | 875 | 2575 | 300 | 1700 | 2575 | 275 | 1450 | 2300 |
| 104 | 33 | 76 | 136 | 3 | 26 | 125 | 5 | 56 | 113 | 13 | 67 | 108 |
| Student Total | 825 | 1925 | 3375 | 75 | 650 | 3125 | 125 | 1400 | 2825 | 325 | 1675 | 2700 |

[a] Totals assume 25 students per class based on the mandates of Florida's Class Size Reduction Amendment.

**Table 4. Core Courses Used for Tabulating School Offerings**

| Social Studies | Math | Science | Language Arts |
|---|---|---|---|
| American Government | Liberal Arts Math | Chemistry | English I/II/III/IV |
| American History | Business Math | Physics | English Language |
| World History | Geometry | Marine Science | English Literature and Composition |
| Geography | Informal Geometry | Biology | Dual Enrollment Intro to Shakespeare |
| Economics (Macro/Micro) | Algebra 1A/1B | Integrated Science | |
| Human Geography | Algebra I/II | Anatomy and Physiology | |

| | | |
|---|---|---|
| Psychology | Integrated Math I/II/III | Medical Skills |
| International Relations | Intensive Math | Environmental Science |
| Philosophy | Probability Statistics | Genetics |
| American Mosaic | Statistics | Zoology |
| Philosophy | Pre-Calculus | Physical Science |
| | Calculus | Earth Space Science |
| | Analysis of Function | Forensic Science |
| | College Readiness Math | |
| | Math Analysis | |
| | Trigonometry | |

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