Developing College Readiness in an Early College Model High School

Lessons from University High School of Science and Engineering (UHSSE) and the University of Hartford Partnership

Monograph prepared for the Woodrow Wilson Foundation - Fall 2011
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Acknowledgements

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Early college high school is a bold approach, based on the principle that academic rigor, combined with the opportunity to save time and money, is a powerful motivator for students to work hard and meet serious intellectual challenges. Early college schools blend high school and college in a rigorous yet supportive program, compressing the time it takes to complete a high school diploma and up to the first two years of college. The schools are designed so that low-income youth, first-generation college goers, English language learners, students of color, and other young people underrepresented in higher education can simultaneously earn a high school diploma and one to two years of transferable college credit—tuition free. Since the Early College High School Initiative was launched in 2002, 160 early college schools have opened around the country.

The initiative receives funding from the Bill & Melinda Gates Foundation, along with Carnegie Corporation of New York, the Ford Foundation, the W.K. Kellogg Foundation, and other local foundations.

Special thanks to Robert Baird, Brian Hayes, and Kristen Vogt from the Woodrow National Fellowship Foundation for their guidance, leadership, and support. We appreciate the commitment to the early college model by University of Hartford President Walter Harrison, Dean Alan Hadad, Dean Ralph O. Mueller, and the University faculty who continue to participate in our community of practice. We also wish to thank the students, families, faculty and staff of University High School of Science and Engineering, particularly founding Principal Dr. Elizabeth Colli, the administration of the Hartford Public Schools, and the many community agencies and individuals who have invested so much time and creative energy on behalf of UHSSE. We would also like to acknowledge the administrative and creative support of Phillip Weinholtz and Marlene Hall, Director of Communication and Recruitment, ENHP.
University High School of Science and Engineering
A Brief History

University High School of Science and Engineering (UHSSE), a grade 9 - 12 school with enrollment of approximately 360 students, is one of two theme-based Magnet schools located on the University of Hartford campus. The other school is a pre-k through 5 Multiple Intelligences school. Both schools serve students from the City of Hartford as well as students from the surrounding suburbs, and both are part of the State of Connecticut’s response to a Connecticut Supreme Court mandate to address the egregious educational inequities brought to light by the Sheff v. O’Neill desegregation court case filed against the state by plaintiffs from the city of Hartford.

Initial planning for UHSSE, a joint effort between the City of Hartford and the University of Hartford, was facilitated by a substantial planning grant provided by the Woodrow Wilson National Fellowship Foundation. The school opened its doors to a class of nearly 100 ninth grade students in 2004, growing in size by adding a class each year and reaching a full complement of students during the 2007-2008 academic year. UHSSE’s first location was in temporary quarters on the University of Hartford’s auxiliary campus, at the site of the former Hartford College for Women, a few miles from the University’s main campus. At the time of the school’s opening, it was hoped that a new building to house the school would be constructed on the main campus within two years. Multiple construction delays extended this timeline, however the impressive new facility was opened in the fall of 2008 on Mark Twain Drive at the University of Hartford.

The school’s first graduation ceremony was held on the University of Hartford campus in June 2008. Of the 100 students initially enrolled, 68 remained at the school for four years and constituted the first graduation class, with 66 continuing on to four or two-year colleges and two entering the military. This basic pattern of enrollment and college attendance has continued through UHSSE’s four graduating classes, with the 2011 class graduating 70 students, 68 of whom are attending four or two-year colleges, with two enlisting in the military.

Another indicator of high performance has been standardized test scores obtained by UHSSE students in the 10th grade with the mandatory Connecticut Academic Performance Test (CAPT). Among Hartford’s schools, UHSSE has consistently ranked first or second in overall CAPT scores, while outperforming many suburban school districts within the state. A snapshot profile of UHSSE is provided in Appendix A.
Seven principles of College Readiness

In his book, *College and Career Ready*, David Conley (2010) presents seven, research-based principles for promoting college and career readiness among urban and rural students less likely to come from settings reinforcing such behaviors. The strategies presented below, adopted by University High School of Science and Engineering, are organized according to these seven principles.

**Principle 1: Create and maintain a college going culture.**

As an early college high school, the administration, faculty and staff of University High School are exceptionally conscientious of maintaining a distinctive college-focused environment. Of course, this is primarily facilitated by the school’s location on the border of the east side of the University of Hartford campus. The University of Hartford was able to have a new road constructed (Mark Twain Drive) to provide not only a direct access to the UHSSE from the main artery, but also a second access to the University, that provided an inclusive traffic flow and connection to the campus. The distinctive college-focused environment is also reinforced in many other subtle and overt ways. For example, rather than following the Hartford Public Schools’ academic calendar, UHSSE maintains a calendar, including vacations and start dates, synched to that of the University of Hartford. The daily class schedule is modeled after a typical college schedule, with classes meeting on Monday, Wednesday and Friday, or on Tuesday and Thursday. All courses are one semester in length, concluding with a final exam each semester, although many courses require the student to complete first and second semester for a full year of credit. The school has been diligent about maintaining fidelity to the model, such as adhering to the final exam schedule each semester when the district put an end to semester exam weeks in the comprehensive high schools. UHSSE faculty and students receive University of Hartford ID cards, which provide them access to the university library and other university activities. The University Library is readily available to students during the school day with their teachers and for access individually for juniors and seniors after school hours. The principal is regularly invited to University functions by the President of the University and is a familiar face on the college campus.
The freshmen orientation includes a summer program on campus to promote a welcoming environment and a sense of one community. By providing UHSSE students immediate access and involvement on the campus of the University during the summer, a sense of a college-going culture is instilled from day one. Hands-on experiences in the College of Engineering, Technology and Architecture's (CETA) wind-tunnel and the College of Education, Nursing and Health Professions, Department of Physical Therapy's human performance lab, coupled with a tour of the University campus including the student center and athletic area, help students develop a comfort level at the University. They become familiar with the facilities, the environment of more independence and the opportunities available to them through seminars, college courses, activities, events, and connections to different University professors during their years at UHHSE. Other opportunities that promote two-way interaction and embed the college-going culture are University facility use for UHSSE school events, academic support from the University's Educational Main Street tutoring program, campus speakers, athletic trainers for the sports program, use of the physical therapy facilities, and scheduling classes for University secondary education students at UHSSE.

UHSSE maintains an honors curriculum requiring courses beyond those of other Hartford Public High Schools. Further details regarding the honors curriculum are provided below in the section focusing on Principle 2 - Create a core academic program aligned with college readiness. Also, early college (EC) courses, made available through the University of Hartford, the University of Connecticut, and the University of New Haven are taken by a large number of students. University professors are frequent speakers in classes, students attend content-specific seminars on campus, and students are enrolled in advanced-level courses on the campus.

Students who are taking college courses and have free periods during the regular school day are encouraged to sit in one of two internet cafes at UHSSE, where students sit on sofas or at raised tables to study, surf the internet or socialize. These students generally supervise themselves, as they are expected to do when they are on the University campus. This also provides students with an opportunity to collaborate with their classmates and develop new relationships, two very important skill sets that support the transition to the college environment. In addition, the University shuttle bus makes regularly scheduled stops at the University High School and students are expected to get back and forth to the campus using this service. This contributes to their growing sense of independence and “business as usual” as part of a college experience.
The Advisory Program at UHSSE is a formal part of the school day and is designed at each grade level to address the support and preparation for success at UHSSE and within the Early College Education Model. This includes basic study skills and the beginning stages of creating a resume at the freshmen level to completing a resume, college application, and financial aid paperwork in the senior year. It supports the students with the skills needed to be successful in high school and college. Advising at UHSSE consistently stresses the fact that students will be attending college, a point reinforced by the fact that more than 95% of University High School’s graduates have gone on to 4 year or 2 year colleges. At University High School the question is not if one will be attending college, rather it is where one will be attending college.

College tours are considered an important aspect of life at UHSSE. Students are given a detailed tour of the University of Hartford campus as freshmen as are all students who are new to UHSSE. As students progress through the years, trips to other colleges and universities within a few hours driving distance of Hartford are scheduled by the high school. Such trips have included tours of Roger Williams University, Northeastern University, Salve Regina University, Columbia University and others. Students have the opportunity to visit personally, or virtually, colleges and universities that represent a wide range of educational opportunities, sizes, admission requirements, and distances from their homes. Members of the Admissions Department at the University work directly with the guidance counselors at UHHSE and provide workshops for students in the college application and interviewing process.

UHSSE annually brings back alumni to sit on panels with other college students to discuss college life with the current high school students. The students on the panels share their perceptions of the academic demands of their college curricula as well as the challenges of adjusting to college dormitory and social life. They also field a broad array of questions from the assembled students, provide feedback and advice regarding what they would repeat if they were back in high school, and explain what they would do differently to better prepare themselves for the demands of post-secondary education. The most important piece is that the alumni are living proof for the current students that students from a variety of ethnic and socio-economic backgrounds can be and are successful in college. This is a powerful experience that pays major dividends toward students realizing the college-going culture in which they reside.

Physical symbols are also considered important at UHSSE. For example, recently the school purchased banners for each of the colleges attended by the school’s alumni. These are prominently hung in “The Commons,” the student dining area at the main entrance to the building. College pennants adorn the hallway walls, and teachers are encouraged to hang their college diplomas in their rooms. As an added touch, UHSSE and the University of Hartford share the same school colors, red and white, the same school mascot, Howie the Hawk, and the same “Hawk” logo. These symbols are displayed prominently in the school, such as on the school flag, website, uniform shirts, recruitment materials and letterhead.
A very important tradition that is a part of the college-going culture is the Class Banner Signing ceremony for the in-coming freshmen class attended by the University President, Superintendent of Hartford Public Schools, and the Mayor of Hartford. At the conclusion of the ceremony, each student is personally greeted by the President of the University, the Superintendent, the Mayor, and the Principal of UHSSE, and students share their higher-education and career goals as they go through the receiving line. A second significant tradition is the June Commencement ceremony which is held on the University of Hartford campus. With the University of Hartford President leading the procession, students symbolically follow the President to their next step into college. These two traditions strengthen the college-going culture by demonstrating to the UHSSE students the core values and beliefs that the public school and the private university share about the Early College Model.

Throughout this report direct quotations from UHSSE students and alumni are presented to illustrate their perspectives on the school.

**Students’ Voices:**

- Giving students the opportunity to take classes at the University of Hartford is the ultimate way for high school students to experience a “College-like environment.”
- UHSSE gave multiple opportunities for students to branch out, reach their full potential, and work out of their comfort zone in terms of course work and working with a diverse peer group. Teachers had high expectations of students, for the most part, and many teachers gave college-level work (when possible/applicable to the course).
• UHSSE created a college-like environment for me by giving college-level classes and a fast pace learning environment.
• The class schedule and work load at UHSSE is similar to a college schedule in how often and how much work you get and when it is due; it made the transition into college that much easier because I knew what to expect.
• From day one the expectation was clear we were going to college. The question was never if, it was where. The presence of the University President at our freshmen banner signing and leading our high school graduation procession represents the University’s belief in us.

Lessons Learned:

• Creating and maintaining a college-going culture through the establishment of an honors curriculum and opportunities to enroll in college courses is a given.
• Continuing to build the capacity for opportunities for all students to be enrolled in at least one course at the University is important.
• Establishing traditions that include the strong presence of personnel at both the school and University level instill a sense of pride that reinforces the college-going culture.
• Providing opportunities for UHSSE students to feel part of the college environment, whether it be studying in the library, attending a seminar on campus, going to a game or lecture, or riding the campus bus all contribute to a sense of belonging to the University community.
• Students need some exposure to the college/lecture format.
• Students need to take classes on the main campus.
• The biggest struggle for ECE High Schools is enrolling students in college courses while ensuring that students have sufficient academic preparation to succeed in the course.
• First generation college attendees do not fit the profile of the more traditional college student; they may be academically at risk but they often rise to the challenge of college courses if given the opportunity to enroll.
• The UHSSE academic class schedule that mirrors the college schedule (MWF; TR classes) is critical in preparing students for the college schedule.
• You’re never finished providing opportunities to integrate UHSSE students to all aspects of college and campus life.
• Weave the high school experience into the fabric of the University and never underestimate each of the small components that may impact a student.

**Principle 2: Create a core academic program aligned with and leading to college readiness by the end of twelfth grade**

University High School of Science and Engineering requires that all students complete an *honors curriculum* involving additional coursework above and beyond that required by the Hartford Public Schools. Since this is a magnet-themed school focused on science and engineering, notable innovations include two math courses taken during the
freshman year and math in each subsequent year, totaling a possible 5 credits in math upon graduation; if a student struggles in math, s/he still has the opportunity to meet the minimum 4 credit graduation requirement. This notable innovation provides struggling students with additional support, while giving advanced students the opportunity to take higher level math courses at the University earlier in their high school career. In addition, students are required to earn 3-4 credits (years) of coursework in science, plus 2-3 additional credits of engineering; every student must earn minimally 3 credits in science and 2 credits in engineering; however, they do have to choose an additional credit in either science or engineering followed by a minimum of one additional credit. Many of the students graduate with 4 credits in science and 3 or 4 credits in engineering. Therefore, most students take math, science and engineering courses through their senior year even though they have met the graduation requirements. College courses may be substituted for high school courses at any point in the curriculum, but most prominently in the junior and senior years. (A description of the college course options is provided in Principle 7 which addresses college partnerships.)

UHSSE also adopted a three year graduation requirement in world languages to meet the standard of college readiness; an added benefit is that many colleges waive the college requirement for students who have successfully completed three years in high school, thereby supporting the EC model by allowing students to focus on areas of study in college that they want to pursue. This helps to contribute to students’ perceptions that college is more doable for them. For students who want to pursue Spanish beyond the third year, opportunities are available at the University for advanced study in Spanish or also the initiation of a new language.

Capstone or senior projects are now a graduation requirement in Connecticut. While every student must earn a Capstone credit, there are innovative ways for students to meet this requirement demonstrating their ability to synthesize their knowledge and skills with focus on using 21st century skills in the process. Individual research and presentation of that research may be done through a senior capstone course at UHSSE or participating in a University course with a capstone component. Commencing with the class of 2011, opportunities have been created to involve several seniors in collaborative research or projects with a variety of teams of University students. In addition, numerous University faculty members have welcomed the opportunity to involve UHSSE seniors in their research process and/or hands-on experiences as seniors’ fields of interest are determined for their capstone project.

Overall, the curriculum at UHSSE is based on the premise that student-learning is the heart of the educational enterprise. For this reason teaching and learning at UHSSE are closely aligned. Curriculum design originates with specific student learning outcomes and is constructed to meet the learning goals of all students. UHSSE has established the following fundamental principles for courses development:

- Every course is designed to encourage students to examine and analyze content knowledge both in depth and from a variety of perspectives.
The development of inquiry and problem-solving skills is a core component of all courses.

All courses present concepts, issues, themes, and problems for diverse ethnic perspectives and points of view and emphasize global interconnectedness in the development of knowledge.

Students’ use of language, both written and oral, to communicate understandings and analyses comprise an essential element of all courses.

All courses integrate interdisciplinary ideas, examples, and methodological approaches.

All courses promote high academic expectations for all students and afford opportunities for advanced learning.

All courses provide the foundations for successful study at the collegiate level.

Statements provided by the school’s individual departments follow. Those wishing to see more specific statements of learning outcomes are available in the University High School of Science and Engineering’s Plan of Study. [www.uhsse.org](http://www.uhsse.org)

### Science

The University High School science curriculum prepares students for success in college programs and careers in the sciences and engineering. In addition to our honors curriculum, students have the opportunity to earn college credits through AP course offerings, as well as our partnerships with the University of Hartford and the University of Connecticut. A new collaborative, Pathways in Health Sciences, was initiated in the spring of 2011 which involves co-taught classes by UHSSE and University faculty. The course pathway leads directly to enrollment in Health Sciences courses at the University. In the science research course, students can design and perform independent research which can serve as their capstone graduation requirement.

### Mathematics

STEM Mathematics is a study of mathematical methods that are typically used in science, engineering, business, and industry. Students work on application problems which include trigonometry, systems of linear equations, quadratic, exponential, and logarithmic function basics to mathematically model problems and derive solutions with emphasis on the use of technology and other tools. The mathematics course sequence prepares students for college-level mathematics starting with college calculus. For students who have advanced their learning in mathematics, opportunities are available for University enrollment.
**Engineering**

As a result of the rapid expansion of scientific knowledge during the second half of the twentieth century and the concurrent advances in a wide array of new technologies, there is an ever-increasing demand for skilled professionals in the engineering and technological fields. At UHSSE, students are given the opportunity to learn about multiple career opportunities in engineering from several University professors who began their careers as engineers before moving to Higher Education as well as those who are still practicing. UHSSE students learn first-hand to develop the skills needed to successfully pursue engineering at the college level both from their UHSSE teachers, as well as on-site experiences and content-specific guest speakers from the University.

**English**

The English curriculum increases students’ powers of expression, both in written and oral communication, in all subject areas of the curriculum and in a variety of styles and situations. It also develops students’ abilities to engage in critical examination of written works, and introduces students to a wide range of literary works and literary genres, styles and context through the study of the major classics of worlds and American literature as well as range of contemporary literature. The curriculum fosters an appreciation of the rich diversity of literature from around the world and during historical time periods, and engenders in students a personal appreciation of literature as the basis for a life long enjoyment of reading and an interest in current literary developments.

**World Languages**

A global perspective has become an essential component of effectively preparing students to become life-long learners, to pursue their personal and professional development, and to contribute to our technological society. Knowledge of and the ability to use other languages is a basic tool for engaging with the expanding global arena that effects the daily life of Americans and all people around the world. UHSSE requires that students take at least three years of Spanish. Spanish is rapidly becoming a second-language throughout the United States and is particularly significant in Hartford since at least one-third of Hartford residents are native Spanish speakers or children of native Spanish speakers. Admission to most colleges and universities requires that students study at least two years of a foreign language, but three years is preferred. For this reason, it is required that all University High School students take at
least three years of Spanish. The focus of the advanced Spanish classes is the study and interpretation of Spanish literature and the development of critical analysis using the Spanish language. Students have the option of taking courses in Spanish literature at the University of Hartford.

**Social Studies**

Social studies is the integrated study of history and the social sciences to promote civic competence. The social studies program is dedicated to providing a course of study that encourages students to become informed and active citizens by engaging them in meaningful and challenging learning experiences that are connected to important social studies content and themes, as well as connections with the magnet theme of science and engineering. Students are provided with opportunities to think and communicate in ways that will enable them to develop a working knowledge of social studies content, and to identify, understand and work to solve problems in their lives and their world, with the goal to prepare students to be college ready, as well as to be active citizens in a culturally diverse, rapidly changing, and interdependent world.

**Art**

The philosophy of the UHSSE art department is to help students express themselves through art, by connecting the study of aesthetics with relevancy to science and engineering. Art stimulates the brain, allowing us to see the world from a different perspective and problem solve abstractly. The environment allows students to feel safe, to explore their own visual ideas, while giving them the skills they need to cultivate creativity and be the best artists they can be. The partnership with the University of Hartford Art School has resulted in teachers and students working together to produce a beautiful sculpture that graces the main foyer of the University High School. Opportunities for enrollment in the Hartford Art School are based on a portfolio evaluation of students’ work at UHSSE.
Performing Arts
UHSSE students are engaged in Music and Dance through courses provided by the University of Hartford’s world-renowned Hartt School. The Community Division provides a variety of classes in voice and dance taught by University faculty after the regular school day. In addition, the multiple performances given by the Hartt School throughout the year are made available to the UHSSE students and faculty.

Health and Physical Education
The school has adopted the district’s health and physical education curriculum and is enhancing it with the partnership through the University’s Health Sciences department.

Advisory
Students are involved in a grade-level advisory program three days a week. Freshmen work on transition to high school and development of “habits of mind.” Sophomores are working on college study skills and PSAT preparation. Working in collaboration with the faculty of the University’s Hillyer College, UHSSE teachers are in the process of adopting the study skills curriculum used in the University’s freshmen year for use with the UHSSE sophomores so that they are college ready for the demands and rigor of the college academic experience. Juniors are engaged in college and career planning and SAT preparation and seniors are working on college application, financial aid, and transition to college.

UHSSE GRADUATION REQUIREMENTS*

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<td>4</td>
<td>Must include Algebra I &amp; II and Geometry</td>
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<tr>
<td>English</td>
<td>4</td>
<td>Must include English I &amp; II or higher</td>
</tr>
<tr>
<td>Social Studies</td>
<td>3</td>
<td>Must include U.S. History, International Studies, Civics and Geography</td>
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<tr>
<td>Science</td>
<td>3</td>
<td>Must include Biology and Chemistry</td>
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<td>STEM</td>
<td>4</td>
<td>Engineering (2 credits) plus an additional 2 credits in any STEM subject</td>
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<td>Visual and Performing Arts</td>
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*These requirements apply to the Class of 2012 and later.
Students' Voices:

- UHSSE and University courses helped me succeed in college because they taught me how to handle a heavy load of work and how to balance my time.

- The rigor of some of the courses helped to instill time management and prepared me to get used to having to stay up later than I would like to get something for that course done.

- Taking courses at University of Hartford helped me a lot more than just taking ECE classes at UHSSE. I got a better picture of what college is like in terms of grading (having my entire grade based on only 4 exams), atmosphere (large class sizes), and independence (most of the studying done on my own time).

- The professor was able to convey course expectations better because s/he would stick to a schedule in class and cover specific material; the professor would also notify students of what they had to cover on their own.

- University courses allowed me to make the transition from a high school teacher to a college professor, by understanding a professor's ideals and the fact that there is less focus on the individual student. Students have to seek out help from the professor themselves.

- The College library is a prime tool for the students to use when studying because of access to textbooks, computers and tutors.

- One very essential academic skill students must learn is how to conduct research. Research is a major part of college course work; most writing assignments, regardless of the topic, require students to look in physical (not electronic) libraries and databases to find information that can be used in an essay or term paper.

Lessons Learned:

- Maintaining rigor of high school courses is non-negotiable.

- Providing an array of support systems for students who are struggling in any course at any time is necessary.

- Establishing a standard for high quality and quantity of writing assignments is critical.

- Students must learn that college professors don't hold their hand; they must learn to study and complete assignments independently.

- Students must learn that many college professors focus on the academic content rather than the personal needs of students. When high school students have been used to their teachers as more nurturing, students misinterpret the focus on acquisition of knowledge as professors being aloof.

- Students must learn to use a wider variety of resources including the college library.

- Integrating the research process in ECE courses benefits students' transitions to college.
Principle 3: Teach key self-management skills and academic behaviors and expect students to use them.

When UHSSE opened in 2004 there was a tendency among many teachers to base course grades, to a substantial extent, on homework and extra credit assignments. Over time, with input from college success research, this emphasis has shifted much more to focusing grades on tests, lab assignments, major papers and projects, as is the case in college. There are two major areas that contribute to students’ experiences for college readiness. One, the same time schedule is used at UHSSE and the University (MWF and TR classes that meet from 1.5 to 2 hours); and two, students receive a single syllabus at the beginning of each semester. Students are also given a planning book at the beginning of each year in which they are encouraged to record the due dates for all major assignments, which facilitates planning their work schedules across courses. There is also an increasing emphasis on submitting and self-monitoring of work online, via course blogs, tests, written assignments and grades. Thus, greater responsibility has been shifted to students for managing their time and workloads which supports their college readiness skills and mirror similar time schedules and expectations in college.

The advisory curriculum focuses on teaching techniques from Covey’s *Seven Habits of Highly Successful Teens*, especially during Grade 9, to assist students in developing college ready academic behaviors and self-management skills. In addition, the advisory curriculum at each grade level is scaffolded to present students with increasingly more sophisticated self-management skills, including study skills. These are reinforced in each academic area. For example, students are taught to use their planners for tracking their academic assignments and due dates, setting and using timelines for completing projects, such as the capstone project, or understanding the importance of a timeline for the college application process. Students are taught to plan ahead, such as planning their extra-curricular activities to maximize their high school experience while building a positive high school resume. Students are expected to schedule office hour meetings with teachers in subjects where they are struggling, and all teachers post their office hours and share these with students and parents on a regular basis.

Students’ Voices:

- One of the biggest adjustments in college is the amount of reading required and the limited number of assessments in each course to demonstrate our learning and understanding. This has been a challenge at times to balance the reading load, but more importantly to understand that while we were frequently assessed on our learning and understanding in high school (sometimes weekly), often times we are assessed in a college course with just a paper and a final.
- While being at UHSSE I learned how to manage my academic life, athletic life, and social life. I was able to manage my time well and I carried that over to college with me.
- The schedule at UHSSE teaches students to prioritize. If you get a major project in Tuesday-Thursday class, you don’t start the project Friday. You start it on Saturday and use Friday to get all your MWF homework done so you can use the
whole weekend and Monday night to get it done free of other homework
distractions. This prioritizing strategy helps a lot with classes here at school.

- I learned to study independently and do what I need to do in order to learn. I
  learned to take thorough notes during lecture and while reading the textbook.
- I used my free blocks to get work done and I prioritized my work. Assignments
due soonest had higher priority; I also often wrote brief to-do lists in my agenda
outlining ongoing assignments, projects, readings, and upcoming exams. This
kept me organized and on schedule.
- UHHSE teachers gave me valuable time management skills such as devoting the
  appropriate time to different assignments and projects to have the time to do
quality work and not be too stressed out before the deadline.
- UHHSE has taught me how to think independently, apply my knowledge across
  my courses, and seek help when I needed it.
- UHHSE taught me to keep neat and organized and how to prepare for tests and
  exams. UHS pretty much requires students to do everything that they’ll need to
do in college.
- Looking to peers for support and study groups is important.
- I always found it much easier to adjust my time and focus on the courses I had a
  lower grade in and therefore able to keep all of my grades all at an acceptable
standard.
- UHSSE did a decent job of teaching me how to take notes in class in just about
every subject.

Lessons Learned:

- Build into student expectations, a growing volume of reading throughout the
  high school experience.
- Incorporate, particularly at the senior level, less frequent assessments that carry
  more weight to better mirror the college experience.
- Support students in their understanding of self-management, including asking
  questions of the teacher, seeking feedback, and monitoring their own progress.
- Teaching students the importance of collaborative study groups and
  independent study habits.
- Teach students how to prioritize their work not only from a completion
  standpoint, but also through long range planning.
- Students should be taught how to check and be on top of their grades and
  monitor their own progress.
- Teach students how to set up and use time management systems such as
  electronic calendars, agendas, color-coded timelines for assignments, to-do lists,
  and upcoming projects and exams.
- Students must be taught effective note-taking techniques and required to use
  them throughout high school.
Principle 4: Make college real by helping students manage the complexity of preparing for and applying to postsecondary education.

At University High School of Science and Engineering, preparing students to apply to college is the task of the school’s Counseling Department. The process begins as soon as 9th grade students enter the school. Detailed instructions are posted on the school’s website for all classes, freshman through seniors, and counselors meet with individual students throughout their time at UHSSE in order to assess the students’ progress and provide guidance where necessary. As part of the Early College Model and partnership with the University of Hartford, October 12th has been designated college application day. On this day, all UHSSE seniors go to the University of Hartford campus where they are involved in a presentation by the Admissions Department, proceed to the computer labs on campus to do the online application to the University of Hartford, which is overseen by the UHSSE School Counselors, and then have a personalized tour of the campus by the University’s Red Caps (current juniors and seniors). Unlike their tour as freshmen when it was part of their induction into the UHSSE, this tour holds additional significance to the seniors as they are looking to the next year when they will be college freshmen.

Students’ Voices:

- The guidance department helped me fill out my applications, write my resume and constantly reminded me about important dates. Many teachers helped a lot with writing my college essay.
- It was the Robotics team at school that brought me to my first choice college as a result of a competition on a college campus.
- I found the College Board search engine to be very useful.
- The Guidance secretary did a wonderful job getting everything I needed out to the colleges fast.
- UHSSE should also teach students the basics of networking and communication, because meeting people is one of the most important things in college. If you are isolated as a student, it will be much more difficult to find help and have support when you need it.

Lessons Learned:

- Students benefit from taking a seminar on how to handle the stresses of college life.
- Establish a day for the entire senior class to go on campus and meet with Admissions personnel to discuss the admission application process and electronically complete the common application.
- Hold a college fair at the school every fall so that students can go from booth to booth and learn about a wide variety of colleges in a short time span.
- Make students aware of the vast array of majors that are available, as well as the specific career opportunities associated with these majors.
- Require college essays as a part of a junior English course.
- Establishing a Speakers’ Bureau contributes to students learning about potential careers and provides connections to courses of study.
• Students should have frequent and ready access to the college/university liaison when planning and scheduling college courses.
• Build the partnership by embracing the importance of using college students as tutors who then can ultimately become mentors to UHSSE students.
• Establish a time each year for alumni to return to talk to students about their college experiences, lesson learned along the way, and advice of what they would do to maximize their opportunities and experiences.
• Have students take PSATs and SATs as early as possible with opportunities to repeat taking these standardized exams.
• Students and parents need counseling on the financial planning of college and the necessity of saving and incurring some amount of debt.
• Emphasize decision-making based on carefully weighing advantages and disadvantages of enrolling in a community college and transferring to a four-year school to complete a degree with special consideration of financial needs and the high rate of completion in four-year colleges.
• Establish a balance in the college application process of guiding a student to become more independent while recognizing and acknowledging that many high school seniors require significant “hand-holding” to complete the process.

**Principle 5: Create assignments and grading policies that more closely approximate college expectations each successive year of high school.**

The academic departments at UHSSE meet in grade-level meetings, across departments, with the explicit goal of making each year successively more college-like. Many of the changes discussed under Principle 3, relating to developing student time-management skills, emerged as a result of these discussions over the years. Also, individual courses have become much more like those students will experience in college. For example, in freshman English, students are required to do a brief, 2-3 page research paper with 3 sources cited. In sophomore and junior courses, the length of the research papers is lengthened, and the number of sources is increased. By the time students embark on their capstone research project in their senior year, they are expected to produce a thorough and comprehensive paper with a list of resources cited.

Similar requirements exist in other courses, where the expectations increase throughout the four years of high school. For example, students in the initial engineering course, Introduction to Engineering Design, are introduced to the concept of making presentations to their class. They are required to do basic research on an engineering topic and create a brief PowerPoint slide presentation. As students progress through the Project Lead The Way (PLTW) curriculum, their presentations become more demanding, with more in-depth PowerPoint presentations that outline the problem set they developed, the evidence they discovered, the theory they devised, and the results of the project they created to solve the problem. Presentations are expected to be professional, and students are required to address authentic evaluators, while answering questions and defending their conclusions.
Students’ Voices:
• All my teachers at UHSSE gave assignments that were like the ones that I am required to do in college.
• Similar to college are the assignments given for essays and for lab work in science courses.
• The 1000 level physics course (at WPI) is exactly like the senior physics course I took at UHSSE except we covered material a little more quickly.
• When I came to college they wanted to enroll me straight into Calculus III, but I decided to retake Calculus II; after the first two weeks, I was back up to speed and was much more comfortable with the material because I had taken the class in high school. We covered a little more material in college, so some material was new.
• Grading polices are pretty similar here (Yale) as they were at UHSSE. I’ve had assignments graded on the letter system, numerical, and check plus and minus.
• The only thing I can think of is to shorten the time students have to complete assignments, especially projects, because with all the time given, students just use it to procrastinate.
• Less weight should be put on homework assignments, which are supposed to be for the benefit of the student in the first place. It shouldn’t matter if a student does his homework; if a student has mastered the material, s/he can display that in the exam.

Lessons Learned:
• Students need to learn that most college professors will not accept late work and unlike high school, offer no opportunities for extra credit.
• Students need to learn how to become accustomed to the short timelines, the demands of the assessments, and the pace of a college class.
• Students need to understand that the college syllabus is adhered to specifically with timelines for assessments, whereas in high school there may be more flexibility on dates depending on students’ mastery of the content and skills.
• Mandatory homework presents a dilemma. Responsible students will complete homework whether they get credit or not; other students will choose not to do homework if credit is not given. An environment must be created where students begin to assess their own progress and skill acquisition and make decisions regarding additional practice needed to master the skills.
• A gradual release of responsibility each successive year of high school, including more weight on fewer assessments, better prepares students for their transition to college.
• While the use of rubrics is common practice in high school, they are not necessarily used throughout college.

Principle 6: Make the senior year meaningful and appropriately challenging.

UHSSE faculty has committed themselves to the principle that courses during the senior year of high school will remain rigorous until the end of the year. There are no gut courses, and students are expected to run right through the finish line. Furthermore, it is
repeatedly emphasized by the teachers, counselors and administration that many scholarship opportunities are dependent on grades from the end of senior year.

The senior capstone projects also place a great deal of emphasis on the final year of high school. As the culminating efforts of their high school careers, these research projects demand a synthesis of knowledge and skills the students have developed over four years. For example, several students in the Engineering Design and Development capstone course decided to design plans for a drivetrain that was needed to run the new robot in the FIRST competition. Each student agreed to research various aspects of the drivetrain and to create a design based on this research and their knowledge of the engineering process. Each student prepared a comprehensive research portfolio, including all of the design specifications for their own drivetrain. Students then presented their plan to the entire class. After hearing all presentations, the students then selected the plan they thought best met the needs of the robotics team. The selected drive train was constructed and was used in the 2011 Team 1991 robot, which entered several regional competitions.

With the commencement of the 2011-12 academic year, capstone projects are a graduation requirement for all students. Capstone projects include research done independently, in groups, as a whole class, in collaboration with University teams, and internships.

**Students’ Voices:**

- During my senior year I took as many courses as I had time for and several of these were very challenging.
- My most challenging class/stressful academic year was my senior year because I had a full UHSSE schedule, plus an additional two courses at UHart. My senior year was meaningful to me because it helped me develop the greatest sense of independence. I also realized that I was far more capable than I thought, because I took on a heavy course load and was able to maintain good grades for the most part. My physics class was probably my most challenging class during my senior year. It required me to work a lot outside of class and apply my knowledge extensively. Physics was not my strongest area, and I had to work a lot harder to succeed.
- During my senior year I actually enjoyed challenging myself to prepare myself for when I left UHSSE and to better my college application. Courses that challenged me most that year were Physics, Architecture II, and University Calculus I. All of them better prepared me for the academy, gave me a good base in the respective subject, and taught me better time management skills as some had rather large projects at times.
- Keeping busy and engaged in my senior year helped me stay up-to-speed when college started.
- If I didn’t take Senior Physics at UHSSE before I started college, my first course would have been much harder.
- I did take one gut class, but also had college applications to fill out and I didn’t have enough time. I did take many challenging courses my senior year
(multivariable calculus, differential equations, and calculus-based physics I and II). These courses were intermediate college courses, so they were challenging.

- My senior year was meaningful because my schedule was balanced; I had three relaxed courses and five challenging courses.

**Lessons Learned:**

- Students must maintain a rigorous academic schedule their senior year.
- Students must take math in their senior year of high school because educational research has shown that students who do not take math in their senior year have a much more difficult time succeeding in their college math courses.
- Students develop a sense of confidence in their college work by maintaining a challenging schedule in their senior year.
- Students remain current in their content of courses they will be expected to take in college by having a rigorous senior academic schedule.
- Students who learned to balance the college application process while maintaining a rigorous course load are better prepared to balance the demands of the college schedule.
- Students who take college courses in their senior year develop the greatest confidence about their transition to college.
- Students maintain their “habits of mind” by staying engaged in their senior year.
- Students who take college courses in their senior year are likely to enter college with advanced standing.
- Students who enter college with advanced placement are more likely to complete their degrees.
- Students who enter college with credits earned in high school are likely to complete college in less than four years.

**Principle 7: Build partnerships with and connections to postsecondary programs and institutions.**

As indicated by its location and name, University High School of Science and Engineering’s primary partnership is with the University of Hartford. However, important links have also been established with other post-secondary institutions. Within this section, the University of Hartford partnership is explored in-depth, followed by brief summaries of connections created with other schools. We cannot stress strongly enough that the initiatives described below are ongoing and in a constant state of dynamic change to further the work of the Early College Model.

**The University of Hartford Partnership**

University of Hartford President, Dr. Walter Harrison, (right) has been the catalyst for the UHSSE and University partnership from day one. His commitment was further evidenced by the appointment of Dean of Magnet Schools,
Alan Hadad, former Dean of the College of Engineering, and a special assistant to the President, who together were charged with the task of integrating the new high school into the fabric of the University. In its infancy stages, the University provided a satellite location free of charge when the school was being developed one grade at a time (9-12). The founding principal, Dr. Elizabeth Colli, worked with the special assistant to the President on initiatives that supported the Early College culture. The special assistant and Dean of Magnet Schools arranged meetings with the founding principal and key players in the University, as well as members of Boards, hospitals, museums and other community organizations that were directly connected with the University of Hartford and aligned to the STEM theme of the school. A pivotal figure, Mr. John Carson, Vice President of University Relations, interfaced with the State Department of Education and Hartford Public Schools Building Committee to oversee building a new school facility on campus. He also brought national and state Senators, including Christopher Dodd and Joe Lieberman, to UHSSE to promote the partnership and advance the importance and credibility of the Early College partnership between a public high school and a private university. This alignment with President Harrison’s long-standing philosophy of “a private University with a public purpose” has remained a focal point in the partnership.

Dr. Joseph Voelker, Dean of the School of Arts and Sciences, embraced the partnership in its first year by holding a special event to introduce the UHSSE faculty to the College of Arts and Science. His continual support has been realized through the partnerships that have deepened among professors in the College of Arts and Sciences and the teachers at University High School. Dr. Lou Manzione, Dean of the College of Engineering, Technology and Architecture, has been extremely influential in the partnership since coming to the University. His visible presence in the school as a guest lecturer in the Introduction to Engineering Course, presenter at the Speakers’ Bureau, and a member of numerous partnership committees, can only be matched by his enthusiastic engagement in shared projects with University of Hartford students and the teachers and students at University High.

The partnership has evolved over the years in breadth and depth. A Speakers’ Bureau was organized by the founding principal, Dr. Elizabeth Colli with faculty from the University of Hartford and prominent members of the business community who have had illustrious careers in STEM-related fields. Their speeches to the high school students and faculty focused on their experiences in their careers and field of expertise and emphasized the value of the Early College Model and partnership with the
University of Hartford. The University also provided UHSSE faculty and students with University ID cards which provided admission to cultural and professional events, including speakers, events at the University's Hartt School of Music, and access to the University library (pictured below).

Upon his arrival in 2009, Dr. Ralph Mueller, newly appointed Dean of the College of Education, Nursing and Health Professions (ENHP), introduced the concept of “excellence through relevance” to further support the partnerships with service to the schools and surrounding Greater Hartford community. He further demonstrated his commitment to the partnership by naming Dr. Suzanne (Suzi) D’Annolfo as the College’s Coordinator of School Partnerships. This new position created a point person for the University High School leadership and faculty to turn to for additional opportunities and connections beyond the established dual college enrollment. The collaborative work of the Dean and members of ENHP has resulted in a chartered Institute of Translational Research where a cyclical educational and service loop has been established to inform practice, with the ultimate purpose of benefitting both University High School students as well as the students at the University of Hartford. The Institute of Translational Research (ITR) is grounded in “excellence through relevance” and focuses on the integration of Health Sciences and Education and engagement in the community. Three Centers within the Institute further identify and advance the work of the Institute: (1) Center for Learning and Professional Education; (2) Center for Public Health and Educational Policy; and (3) Center for Health Care and Well Being. Since the establishment of the Institute, formal partnerships have been signed between the University of Hartford and the Hartford Public Schools, of which UHSSE is one of the premier high achieving high schools.

Opportunities that promote the two-way interaction include University courses, co-teaching, Educational Main Street (EMS) which provides academic support for UHSSE students by University students, athletic trainers for the sports program, shared use of the University physical therapy facilities, shared facility use for school events, a shared campus bus route, and joint funding opportunities. The joint funding opportunities included a STEM grant which funded a “Get Set Program” held in the summer on campus to attract girls to science and engineering careers, as well as a grant from the University’s Womens’ Educational Leadership Fund that brought in British astrophysicist, Jocelyn Bell Burnell (above).
Burnell discovered pulsars. She spent one day at the University and one day at UHSSE to engage students in discovery and inquiry. Each of these opportunities continues to open up and expand the integration of the high school onto the University campus.

While the following list of activities provides a snapshot of the breadth and depth of the partnership between UHSSE and the University of Hartford, the establishment of the active **Community of Practice**, initiated by Dr. Suzanne (Suzi) D’Annolfo in the fall of 2010, has galvanized the integration of the Early College Model. The Community of Practice is modeled after the business world which focuses on bringing together the best thinking to produce the best product. Through the University of Hartford-University High School partnership, our Community of Practice was designed to bring the faculty from UHSSE and faculty representing six of the seven colleges at the University face to face to meet one another and work together. In our inaugural year (Fall 2010), the President of the University kicked off the event with a history of the commitment to the Early College Model. The Deans of the College of Arts and Science (A and S); Engineering, Technology and Architecture (CETA); Education, Nursing, and Health Professions (ENHP); Hartford Art School; Hillyer College; and the Hartt School [Music, Theatre and Dance]), shared their history in the partnership to date and their commitment to the Early College Model.

The next segment of the Community of Practice was the individual content-specific meetings between the faculties. One of the most important outcomes of the Community of Practice was the interaction of members of the UHSSE and University faculties organized around content. They enthusiastically reported that the knowledge and resources available to serve students held great possibilities. Equally important was learning more about the needs of UHSSE and their students and how the University and its students could assist in achieving positive outcomes for all students in the Early College Model. The professional discourse around college readiness, student learning, course sequencing, content expectations, assessment practices, and level of reading and writing expected at the college level provided a rich context for collaborative thinking and discussion.

The results of the first Community of Practice increased the opportunities for students and faculty. These included the establishment of a Seminar Series in Careers in Health Sciences which brought entire grade-level classes to campus for hands-on learning as well as freshmen orientation that included on-campus summer activities; specifically the wind tunnel in CETA and the Human Performance Lab in ENHP. Also introduced
were co-taught classes in Mathematics, Engineering, and English; the initiation of the Health Professions Career Pathways course that begins in the junior year at UHSSE followed by matriculation to the Introductory courses at the University the following semester; and lab tours and classroom visits for UHSSE students. CETA day, involving critical evaluations of UHSSE architecture and engineering projects by the University faculty was introduced as were career presentations from all the colleges; shared professional development; opportunities for advanced language study; and an open-door policy for classroom visits. Furthermore, auditing University classes, full use of the University library for all students during the day with teachers, and after school for juniors and seniors; were inaugurated along with sharing facilities for teaching and learning; after school programs in Music and Dance through the Hartt School Community Division where students can meet their fine arts requirements for graduation; and entrance into the Hartford Art School through portfolio assessment. Finally, collaboration on a sculpture between a UHSSE teacher and a University Art student yielded a sculpture now proudly displayed at the entrance of UHSSE.

The Second Annual Community of Practice was held in the fall of 2011. Provost Sharon Vasquez kicked off our 2nd Annual Community of Practice on October 10, 2011 in the University’s 1877 Club. Her enthusiastic support of the partnership was further endorsed by Deans and/or representatives of six of our seven colleges. Dean Voelker spoke about the importance of a college education over the course of one’s lifetime and our need to support the Early College Model to make a college education more accessible and realistic for all students. Dean Manzione (CETA) shared his enthusiasm for co-teaching courses and integrating the UHSSE and University learning experiences. Dean Mueller (ENHP) spoke of the partnerships in the context of “excellence through relevance” and the creation of the Institute of Translational Research. Associate Dean Bradley (Hartford Art School) extended an invitation to increase the capacity of the Art Schools involvement in the partnership, and Hilary Respass (Hartt Community Division Director) shared the great after school opportunities for UHSSE students in Music, Dance and Theatre to meet their fine arts graduation requirement. She also provided
brochures announcing many of the upcoming events in the Hartt School that are accessible to UHSSE faculty and students.

ENHP’s Coordinator of School Partnerships, Suzi D’Annolfo, who facilitated the Community of Practice, acknowledged the historical contributions of President Harrison, Associate V.P. and Dean of Magnet Schools, Alan Hadad, founding UHSSE Principal Betti Colli, and former Dean and current Chair of the Department of Educational Leadership Donn Weinholtz. Hadad provided very positive statistics on the success of UHSSE students enrolled in on-campus college courses. He noted that this Fall Semester (2011) a record number of UHSSE students are enrolled in University courses, succeeding with a mode of 4.0.

Matt Folan, in his first year as principal of UHSSE, spoke of the uniqueness of the partnership and his appreciation for the wonderful relationships that are being developed for students. UHSSE faculty member, Marilyn Jack-Ortique, Math teacher at UHSSE, was recognized by Provost Vasquez for her selection as Hartford Teacher of the Year.

For the first time, University juniors majoring in Secondary Education English or math were included in the Community of Practice. They greeted faculty members from the University and UHSSE, served as important participants in the smooth organization of the morning, and took an active part in the content discussions with University and UHSSE faculty.
The secondary education methods course, “Effective Teaching Strategies,” taught by D’Annolfo is now being held on site at UHSSE which “makes their learning come alive.” Their involvement offered an additional point of reference that reinforced the unique opportunity of University and UHSSE students working together.

Faculty members from the University and UHSSE met for two hours by content area to discuss further opportunities to build the capacity of the partnership. Two main areas of focus were building capacity of our Speakers’ Bureau on specific topics and working together with seniors at UHSSE for their required capstone projects (graduation requirement in all Connecticut High Schools.) UHSSE faculty provided their course syllabi and designated specific topics that would be enriched with presentations from University faculty and/or students in particular content areas. Dates, times, and sites were discussed and finalized. Several ideas and offers were made for involvement in capstone projects, some of which included students from the University working with high school students. It was suggested that capstone experiences be designed to utilize University mentors and resources to encourage high school students to work collaboratively on projects or research.

Outcomes from the Second Annual Community of Practice included joint participation of the University Literary magazine to include pieces from UHSSE students as well as their involvement in the production of the magazine; secondary education majors in Mathematics and English serving as mentors for UHSSE students interested in majoring in education; and the implementation of the study-skills curriculum at UHSSE with the facilitation and cooperation of the Study Skills faculty in Hillyer College as part of the college readiness and transition program. Further benefits included the increase of awareness of career paths in multiple areas beyond the theme of UHSSE (science and engineering); opportunities to enroll in languages at the University that were not offered at the UHSSE; and shared teaching in Principles of Engineering, including collaboration on material selection. Also, opportunities emerged for student and faculty study and involvement in alternative energy options; content course alignments (i.e., Digital Electronics, Pre-Calculus); planned classroom visits specifically in Algebra II and Computer Programming; integration of UHSSE students in research for Capstone projects, shared professional development; open-door classroom visits; and expansion of opportunities in Hartt Community Division and Hartford Art School. Furthermore, it became possible to partner with the Foundations curriculum at the Hartford Art School; position UHSSE freshmen and sophomores to begin portfolios for admission consideration to additional courses; initiate full implementation of Health Professions Career Pathways from UHSSE to the University; initial implementation of Freshmen English course that is composed of 50% University students and 50% UHSSE students. Also, there has been more frequent sharing of facilities; continued use of athletic trainer and physical therapy resources; introduction of capstone projects in Data Analysis and Statistics; Health Sciences career paths; interdisciplinary experiences facilitated in UHSSE Social Studies classes; Healthcare Seminars; and four year mentoring of University students with UHSSE students. University Dialogue classes were incorporated into UHSSE Senior class resources; and additional University library curriculum materials were made available at UHSSE. Finally, there has been additional focus on women in engineering and STEM; shared resources in world languages with
geography, politics and government, global environmental studies; open invitations to
speakers on the campus; and sustainable courses that will lead to UHSSE being certified
as a Green building.

D'Annolfo encouraged faculty to begin to have more direct contact with one another to
carry out collaborative ventures, discuss course content, reading requirements, and
assessments. She encouraged those present to move forward by scheduling dates for
presentations or establishing “next steps” during their discussion period.

The addition of practicum classes for secondary majors in English and math have been
added commencing in the 2011-2012 academic year. University students and UHSSE
faculty work closely together in forums of observations, practicum and ultimately in
student teaching to build capacity in their professional growth in teaching and learning.
Holding the University secondary methods class at the UHSSE further supports the
partnership and allows students to learn in an authentic environment. This
opportunity continues to expand the partnership and gets students talking to students,
students talking with faculty and faculty talking with faculty.

UHSSE hired a part-time librarian in the fall of 2011. The library at UHSSE has limited
resources; however, the collaboration with the University librarian team and use of
University library has grown over the years. Professional development has been
provided onsite by the reference librarian and UHSSE teachers are encouraged to bring
their classes to the University library during the day. Juniors and seniors at UHSSE have
access to the University library in the late afternoon and evening using their University
IDs.

Additional connections that strengthen the partnership include: UHSSE was added to
UNotes, the University’s daily, online newsletter; full involvement was arranged for the
University at all UHSSE Open Houses for the regional recruitment of students; members
of the EC graduate follow-up team met with the director of the University of Hartford
Student Success Center to learn about the programs available for new University
students; and the Student Success Center, with support from the WWF grant, held two
meetings with UHSSE graduates enrolled at the University to explain the services
offered and to elicit feedback from students regarding specific student needs.

At the core of the partnership are the relationships
that are built among and between faculty members
from UHSSE and the University. The outcome of these
relationships is the collaboration that ultimately
benefits students and informs the practice of all
involved.

A specific example of a collaborative effort between UHSSE and University of Hartford
faculty is presented below. Conducted throughout the 2010-2011 academic year it
involved the joint development of an Introduction to Health Sciences course for UHSSE students. The following comments, describing the development of this course, are from Peggy Ciarcia, Program Coordinator, Clinical Laboratory Science at the University of Hartford.

This course was developed during fall 2010 for the University of Hartford Magnet High School. During this time I assisted Sharol Wilcoxen from UHSSE, who was to teach the course, in identifying a textbook, student activity book, and instructor resources. We developed the course syllabus and identified guest speakers, which included representatives from the Hartford Medical Society Museum and the Area Health Education Coalition (AHEC). During the course, students were trained by AHEC to participate in health-related community service activities and AHEC also provided CPR and First Aid training for the students. With the assistance of a counselor from University of Hartford Career Services, students participated in the “Discover” Career Assessment Program. Faculty from the College of Education, Nursing & Health Professions visited the high school and presented information on the various health professions majors offered at the University and students visited campus various times to participate in activities related to each profession. Students also researched additional health professions and presented this information in class. Course content included other topics such as: Becoming a Health Care Worker; Health Care Safety; Legal Responsibilities of Health Care Workers; Medical Ethics; Medical Terminology, Medical Math, etc. Students were required to write reflective papers/journal entries and develop a course portfolio. Twelve students enrolled in the course during spring 2011.

This course is being offered again in the 2011-2012 school year, and plans are in place to develop a second, higher level course for UHSSE seniors who have taken the introductory course. Following the successful completion of both courses at UHSSE, seniors will be admitted into the Health Sciences pathway courses at UofH during the second semester of their senior year.

Another critically important, recent event was the acquisition by the University of Hartford’s Hillyer College Dean David Goldberg of a grant to expand the Summer Bridge Program that Hillyer operated over the last two years. Designed to foster college readiness by providing students with an academic head start in their transition to college, the program produced very encouraging results in its first two years. Dean Goldenberg recently pledged that all new UHSSE graduates planning on attending the University of Hartford will receive an invitation to participate in the Summer Bridge program. Below is a description of the 2010 Summer Bridge program taken from UNotes, the University of Hartford’s daily, online newsletter.

The program, now in its second year, brings students to campus during the summer for an intensive week that combines academic work with fun activities, such as a New Britain Rock Cats game and a show at the Goodspeed Opera House. The idea is for students to develop good habits and make the transition to college-level academics before they begin their University of Hartford careers. The students also get to know the campus, some faculty members, and each other before the start of the school year. During this year’s Summer Bridge program, the students heard a presentation from Dr. Amii Omara-Otunnu, UNESCO chair
in human rights. (UNESCO is the United Nations Educational, Scientific and Cultural Organization.) Omara-Otunnu’s visit was designed to show students the opportunities they will have in college to hear from nationally and internationally known speakers, and to encourage them to take advantage of those opportunities, said Hillyer College Dean David Goldenberg.

The first year of the Summer Bridge program in 2009 produced very positive results, Goldenberg said. Of the 21 students who participated in last summer’s program, nine made the dean’s list during their first semester at Hillyer College. The students took a combined total of 126 courses during the fall 2009 semester, and they completed 124 of them. “That is quite remarkable,” Goldenberg said.

University of Hartford Courses for UHSSE Students

Of course a critical, ongoing part of the UHSSE/University of Hartford partnership has been the availability of University courses for UHSSE students. In the early years of the partnerships, the numbers of UHSSE students taking such courses was not been very high (generally in the low to mid-twenties with a one semester exception of forty-five); those students who have taken courses have performed exceedingly well (mode of 4.0). Consequently, steps were taken to admit larger numbers of UHSSE students to University of Hartford classes.

Another major accomplishment of the partnership during the 2011-2012 academic year was the approval from the University for UHSSE students to take summer courses at the University. A number of students were approved for summer courses, and despite the late announcement of this new opportunity, several students registered and completed courses. It is anticipated that summer courses will be requested by many more students next year, as students have fewer obstacles such as scheduling conflicts and high school obligations.

The University of Connecticut Partnership

The partnership with the State of Connecticut’s flagship university allows teachers at UHSSE to be approved and certified as UConn adjunct instructors and to offer UConn courses at the high school for dual credit. Teachers participate in a training program at UConn to learn about the requirements for developing and teaching UConn courses at the high school. They develop and submit their course syllabus to the specific department at UConn for approval, and once approved, the course is added to the UHSSE Plan of Study. Students who enroll in these courses qualify for high school credit by passing the course at the high school level. They qualify for UConn credit by passing the university’s final exam. No fees are charged for UConn courses.

High school adjunct instructors are required to participate in regularly scheduled follow-up professional development workshops at UConn to maintain their status as an adjunct. They re-submit their course syllabi on an annual basis. Several UHSSE teachers have gained approval from UConn, with numerous UConn courses offered annually, especially in the English, math and science departments.
**The University of New Haven, Project Lead the Way, Partnership**

UHSSE has adopted the nationally recognized *Project Lead the Way* (PLTW) engineering curriculum. Teachers from UHSSE and other high schools participate in a two-week long summer training seminar prior to teaching each PLTW course. In Connecticut, PLTW has partnered with the University of New Haven to provide training and other support services to high school faculty. In addition to pre-course training, the teachers and the guidance faculty participate in annual conferences that focus on college readiness for high school students. College faculty members also serve as ongoing resources throughout the school year.

Students who enroll in any PLTW course have the option of applying for college credit from the University of New Haven. These students take the PLTW university level final exam, and those who pass at the required level qualify for college credit. The students are charged a nominal tuition fee ($200) for this credit.

**The Capital Community College Partnership**

A limited number of community college courses have been offered at UHSSE for dual credit. In some cases, these courses may be offered free of charge at the high school, similar to the UConn courses. However, due to the requirement of the local community college that the high school offer a career pathway of at least five courses in one field, this option is not likely to gain momentum at UHSSE.

**Virtual High School Courses**

Commencing with the 2011-12 academic year, UHSSE students have access to a limited number of seats in the district’s Virtual High School program. The courses are supervised by the school librarian, and may be used to fill high school requirements, or to gain college credit.

**Students’ Voices:**

- **UHSSE needs to inform students sooner about when they can take college courses.** One of my regrets was not finding out that I could take courses at the University until the end of my junior year.
- **I found that being independent about enrolling myself in the University of Hartford classes and getting to know the University liaison helped me do this more efficiently.**
- **UHSSE should try to be more of a middle man between the University and the high school so students don’t have to deal directly with the University.**
- **I wasn’t really involved on the campus other than hanging out with some students from my class in their dorms a couple of times. But in hanging out with them I got to see what college students were like. When I went to college, it was pretty much the same so I was expecting it. It’s just really cool to meet people from all over the world and the country with a similar interest.**
- **I love the challenge of taking college courses as an underclassman. It’s cool.**
Lessons Learned:

- The University liaisons needs to meet with the UHSSE students to advise them on the college course selections and the enrollment process.
- UHSSE students enrolled in University classes should have a University professor serve as their advisor regarding all aspects of the course enrollment, including communication about academic warnings.
- There are a variety of opportunities on a college campus above and beyond the regular classes. For example, the University of Hartford is renowned for its Hartt School of Music, Dance and Theater. Through the Community of Division of Hartt, students may take classes in Theatre, Digital Recording, Dance, Voice and Instrumental Music. This has helped them meet their fine arts requirement.
- Providing forums for faculty to meet face-to-face is important to build relationships and open doors for two-way collaboration to benefit students and inform practice.
- In the high school, there should be a weekly on-going support meeting for students enrolled in University courses to review/support all aspects of taking college courses.
- School and University tours should be done each year to include new faculty.
- While Community of Practice has opened up new connections and built new relationships, it is imperative to orchestrate those connections in subject areas where it did not occur (history).
- Professional development on “Looking through the eyes of the Learner: Understanding how the adolescent brain learns and the impact on teaching and learning,” provided by the Coordinator of School Partnerships provided not only a good foundation for the UHSSE faculty, but also contributed to the sense of connectedness with the University.
- The Coordinator of School Partnerships joined the Protocol Committee at the University, which makes the final decisions on recommendations for UHSSE students taking college courses. This was a step in a plan to expand opportunities for more UHSSE students to be able to take more courses in content areas across the seven colleges at the University.
- There are a variety of ways students can be admitted into University courses. This includes, but is not limited to, direct permission from department chairs (World Languages), a Protocol committee for STEM courses, clearly articulated pathways for specific departments (Health Sciences) and combination courses of 50% enrollment of college students and 50% enrollment of high school students.
- Shared use of the facilities by holding University courses at the high school fosters partnership. For example, college students in Secondary Education take their Effective Teaching Strategies and Teaching Reading in the Content Areas at the high school. The courses are taught by a member of the Education Department, who serves as the ENHP’s Coordinator of School Partnership, and the former high school Principal serves as an adjunct professor in teaching reading in the content areas.
- High school teachers serving as adjunct professors further strengthens the partnership.
- University professors teaching or co-teaching classes at the high school fosters integration.
• Involvement of Secondary Education majors as tutors and mentors, as well as Practicum and Student-teaching experience benefits students at all levels.
• The UHSSE graduation ceremony held in the University's Lincoln Theatre provides a strong symbolic event for the entire UHSSE community.
• UHSSE faculty member are now being invited to sit on dissertation committees at the University.

Additional Lessons:

• **Using the College Readiness Diagnostic.** In the spring of 2010, and again in the spring of 2011, the Woodrow Wilson National Fellowship Foundation provided funds for UHSSE to participate in two pilot administrations of the College Readiness Diagnostic assessment developed by the Educational Policy Improvement Center (EPIC), with approximately 250 students completing the instrument each year. Based on the work of Dr. David Conley (2010), data from this instrument yielded reports of student aspirations following completion of high school as well as data comparing student, teacher, counselor and administrator perceptions of the perceived emphases within UHSSE on academic behaviors, cognitive strategies, contextual skills, and key content areas. However, we will be watching with interest the work of EPIC, in general, and the evolution of the College Readiness Diagnostic, in particular.

Based in part on the results of the first pilot administration of the College Readiness Diagnostic, EPIC made informed decisions to the instrument for the second administration; therefore, the results were not directly comparable. Findings of the second administration can be found in Appendix D.

There is value in assessing student, faculty, and administrator perceptions of college readiness strategies. The results can be used to inform decisions involving school practices to continue to advance students' college readiness. It would be helpful to gather additional data once students are enrolled and attending college.

• **Creating a plan for sustainability during transition of school leadership.** When the school was faced with the retirement of its founding principal, the School Governance Council stepped in and created a protocol which included all major stakeholders in the selection process of the new principal. This resulted in the selection of a principal who had the backing and support of every constituent group. In addition, the retired principal was brought back during the transition year and then the following year as a coach for the first year principal. There is an important lesson here. Ambitious reform programs require dedicated, continuous leadership in order to effectively meet their goals. However, there are never guarantees that such continuity can be maintained. Drawing on experienced, skilled leaders to fill the gap during periods of leadership turnover seems the best strategy for maintaining momentum under difficult circumstances.
• **Experienced Designated University Partners who work directly with High School Leadership and Faculty.** Since the planning and inception of the UHSSE, the University President, Walter Harrison, set the tone for the partnership by giving his full and complete commitment to the planning, creation and success of the school and the partnership. He assured that all key players, including the Board of Regents, the Provost, the Vice Presidents, and Deans of the Colleges understood this long term investment in the partnership. The President appointed Alan Hadad as Dean of Magnet Schools. Dean Hadad served on the original planning committee, was a critical resource in the building of the physical plant school and responsible for the oversight of the dual enrollment program. Ralph O. Mueller, the Dean of the College of Education, Nursing and Health Profession (ENHP) appointed Assistant Professor, Suzi D'Annolfo, as the ENHP Coordinator of School Partnerships. Dr. D'Annolfo has been a consistent collaborative force in the development of the partnership between the two schools. Her background of substantial experience as a teacher, school principal and district administrator has proven beneficial to the development of the partnership.

• **Obtaining Data Regarding Student College Course Performance** One challenge the school faced was sharing data between the two institutions. Based on ethical and legal concerns, University of Hartford officials were initially hesitant to release UHSSE student grades in University courses for national, college readiness research endorsed by the Woodrow Wilson National Fellowship Foundation. However, a careful review, by the University's Human Subjects Committee, of the procedures to be used eventually yielded a decision permitting the release of such grades. The University now regularly produces a grade book of student grades which is forwarded to UHSSE and to the Woodrow Wilson National Fellowship Foundation for research purposes.

• **Maintaining contact with UHSSE Alumni** Supported by Woodrow Wilson funding, UHSSE faculty member, Aaron Brown, coordinated an alumni contact effort via the social networking opportunities provided by Facebook. The following comments describing the Facebook initiative are provided by Brown.

*Using Facebook to contact UHSSE alumni provided a quick and easy method of keeping in touch with the Alumni here at University High School of Science and Engineering. We were able to locate almost all of our graduates and create a group on Facebook where we could all keep in touch. We used this page to send out surveys, initiate discussions, and organize events for the alumni to attend back at the high school each fall and spring.*

*During the two years we have been using the method we have found that the students who are most engaged in the process are the most recent graduates. They are the quickest to respond, the most open to sharing their experiences, and the most likely to attend the functions set up on Facebook. They still feel a strong connection to the school and some of their peers that remain, and enjoy coming back and sharing their experiences with both the staff and students at UHSSE.*
Several times we have sent out surveys for the students to complete to provide information to us through the website. We were able to acquire some useful information, but the response rate was about 10%. The most successful strategy with the site has been its ability to set up events. We have set up three or four Alumni events at the high school and sent out the invitations and information through the website and this has been fairly successful. We have on average 40-45 students show up to these events, and at these events we are more able to engage them in meaningful dialogue about how we can better serve our student population. Moving forward with our Facebook strategy, I feel this provides the best opportunity for continued success.

Survey of Alumni at Reunion June 2011

The most comprehensive survey was conducted at the alumni reunion held in June 2011. Attendees were asked to complete the survey when they entered the reunion, and all agreed. Below is a synopsis of the results of this survey, combined with previous surveys and anecdotal responses from graduates.

Strengths of the School:

- Expectation that all UHSSE students would attend college, as established at the beginning of Grade 9 and promoted throughout all four years of high school.
- Rigor of the curriculum
- Small and personal atmosphere in the school
- Teachers who care
- College calendar
- College class schedule
- Racially diverse student population
- Tolerance for those who follow alternative life styles
- Writing instruction, including using and citing primary sources
- Anecdotal note taking

Areas Needing Improvement:

- Students are under-prepared for the enormous amount of reading that is required in college.
- Students need significantly more support in locating, managing and retaining financial aid.
- Time management, especially with regard to planning and using an adequate amount of study time
- Learning how to handle independence and commitment to education
- Dealing with the stress of finals, and the pressure put on 2 or 3 primary grades (i.e. exams, projects or research papers) to determine final course grade
- Learning to complete math assignments without using a calculator
o Seeking out and using the academic and social support services provided by the college
o Preparation for dealing with some of the personal issues students are exposed to by college peers, including dealing with roommates
o Personal financial management, including budgeting money
o Better use of internet based research systems
Conclusion

A holistic approach to creating and sustaining the magnet school focused on establishing an exemplary culture and climate. The culture of support and recognition serves as the foundation for a rigorous and relevant curriculum, for consistent expectations for all students to attend college, and for purposeful relationships among students, faculty, parents, administrators and University partners. A relentless commitment to the vision, even in the most difficult times, is critical to the long term attainment of the Early College Model.

The importance of developing a strong and productive working relationship with the University partner is essential to the success of the Early College Model. The University must champion the importance of weaving the high school into the fabric of the University campus. Fostering student enrollment in college courses, faculty-to-faculty engagement, promotion extensive multiple campus activities and experiences and the ongoing commitment from the University President and administrators is the foundation of the success of the program.

Persistent good will and focus on the best interests of students have served this partnership well. The willingness of the University of Hartford and the Hartford Public Schools to work together has resulted in the collaboration and integration of this public school and private university.
References


Appendix A
Profile of University High School of Science and Engineering

UNIVERSITY HIGH SCHOOL OF SCIENCE & ENGINEERING
351 Mark Twain Drive
Hartford, CT 06112
Telephone (860) 695-8020
Counseling Office (860) 695-9011
Counseling Fax (860) 218-2580
www.uhsse.org

CEEB/ACT School Code 070-326

ENROLLMENT
406 students, grades 9-12

COLLEGE ATTENDANCE
UHSSE has a 100% graduation rate. In the class of 2010, 100% of graduating seniors were accepted into a 2 or 4 year college. 97% enrolled in a 4 year college or university.

GRADUATION REQUIREMENTS
All students at UHSSE are required to take classes above the district’s graduation requirements. Students must complete 26 credits meeting the distribution described below.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4.0</td>
</tr>
<tr>
<td>Mathematics</td>
<td>4.0</td>
</tr>
<tr>
<td>Science</td>
<td>3.0</td>
</tr>
<tr>
<td>Social Studies</td>
<td>3.0</td>
</tr>
<tr>
<td>Modern Languages</td>
<td>3.0</td>
</tr>
<tr>
<td>Engineering</td>
<td>2.0</td>
</tr>
<tr>
<td>CAPSTONE</td>
<td>1.0</td>
</tr>
<tr>
<td>STEM</td>
<td>2.0</td>
</tr>
<tr>
<td>College/Career</td>
<td>1.0</td>
</tr>
<tr>
<td>Career</td>
<td>0.5</td>
</tr>
<tr>
<td>Health</td>
<td>0.5</td>
</tr>
<tr>
<td>Visual Performance Arts</td>
<td>2.0</td>
</tr>
</tbody>
</table>

TOTAL 27 credits

GRADING AND RANKING
UHSSE courses are designed at the honors level. AP and Early College experience. Prior to 2008 student grades based on a 0-100 scale. As of September 2008, grades are reported as letter grades. Student’s weighted mean of 0.0 scale. Rank is not reported, however, a student’s standing will be provided to institutions for scholarship purposes only if requested by the institution.

<table>
<thead>
<tr>
<th>GRADE</th>
<th>Current Grading</th>
<th>Prior Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+ / A</td>
<td>95 – 100 / 90 – 94</td>
<td></td>
</tr>
<tr>
<td>B+ / B</td>
<td>85 – 89 / 80 – 84</td>
<td></td>
</tr>
<tr>
<td>C+ / C</td>
<td>75 – 79 / 70 – 74</td>
<td></td>
</tr>
<tr>
<td>D+ / D</td>
<td>65 – 69 / 60 – 64</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>59 – 0</td>
<td></td>
</tr>
</tbody>
</table>

AVERAGE SAT SCORES

<table>
<thead>
<tr>
<th>Year</th>
<th>Reading</th>
<th>Math</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHSSE</td>
<td>2019</td>
<td>501</td>
<td>483</td>
</tr>
</tbody>
</table>
## Appendix B

### University High School of Science and Engineering

Early College Enrollments at University of Hartford

2008 - 2011

Summary of Student Performance

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credit Hours (SCH)</th>
<th>Mean GPA</th>
<th>Median GPA</th>
<th>Mode GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2008</td>
<td>74.5</td>
<td>3.15</td>
<td>3.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Spring 2009</td>
<td>56.5</td>
<td>3.78</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Fall 2009</td>
<td>76.0</td>
<td>3.80</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>94.0</td>
<td>3.43</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>94.0</td>
<td>3.72</td>
<td>3.67</td>
<td>4.00</td>
</tr>
<tr>
<td>Spring 2011</td>
<td>89.0</td>
<td>3.44</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Summer 2011</td>
<td>35</td>
<td>3.32</td>
<td>3.67</td>
<td>4.00</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>144</td>
<td>3.42</td>
<td>3.67</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Source: University of Hartford Office of the Registrar
9 January 2012
Appendix C

Local, State and National Recognition

In seven short years University High School of Science and Engineering (UHSSE) has received numerous state and national recognition for student achievement. UHSSE is the only public magnet high school in Connecticut located on a private university campus. Faculty from MIT have recognized UHSSE teachers in the Network of Educators in Science and Technology. Both MIT and Yale faculty recognized UHSSE teachers as Teachers of Excellence. In its first year, UHSSE won the *Robotics Rookie Team of the Year in Connecticut* which led to participation in the national competition.

2011

- U.S. News and World Report “Best High Schools in America.” Over 21,000 high schools were analyzed and only 16 earned the honor in Connecticut.
- SAT scores at UHSSE highest of 16 high schools in the Hartford Public Schools Portfolio of Schools
- Magnet Schools of America - Honorable Mention
- Connecticut Coalition for Achievement Now (CONNCAN) Top Ten Connecticut Schools
  (7th in closing the achievement gap for African American students)

2010

- Northeast Regional Science Bowl – 1st Place Solar Car Race University of Connecticut School of Engineering
- Connecticut Boys & Girls Clubs - Carlos Velasquez –named Youth of the Year
- Nigel Lovan Francis honored for Martin Luther King winning essay at the University of Hartford
- Connecticut Coalition for Achievement Now (CONNCAN) Top Ten Connecticut Schools Success Story School (in recognition of closing the achievement gap) 2nd in Hispanic Achievement Top Ten Overall Improvement

2009

- Hartford Public School - Shining Star School

2008

- Hartford Public School - Shining Star School
- Magnet Schools of America School of Excellence

2006

- National Honor Society of Secondary Schools Charters Walter Harrison Chapter at UHSSE
- Hartford Public School - Shining Star School
Appendix D

School Diagnostic Results (Fall 2011) for University High School of Science and Engineering provided by the Educational Policy Improvement Center (EPIC)
Overview

The CollegeCareerReady™ School Diagnostic assesses the Four Keys to College and Career Readiness, a nationally recognized model developed by Dr. David Conley and the Educational Policy Improvement Center (EPIC) that identifies the knowledge, skills, and strategies that students need to be successful in college and the workplace. These are grouped into four area that are critical to college readiness - Key Cognitive Strategies, Key Content Knowledge, Academic Behaviors, and Contextual Skills.

A report summarizing your school's college and career readiness is shown below.

Key Cognitive Strategies
The Key Cognitive Strategies are the patterns of intellectual behavior that lead to the development of skills and capabilities necessary for higher order thinking.

Key Content Knowledge
Key Content Knowledge includes not only foundational knowledge but also the attitudes toward the core subjects that students need in order to value learning, be motivated, and expend the necessary effort to succeed.

Academic Behaviors
Academic Behaviors include the attitudes and behaviors that students need to succeed in college and the workplace.

Contextual Skills and Awareness (College Knowledge)
Contextual Skills include the privileged knowledge and skills that are necessary to apply to and enroll in college and to navigate the college environment.

To access your school's reports, please log in to your account at http://collegeready.epiconline.org. When viewing the reports, click on "Show Filters" to review data in greater detail by disaggregating results based on a number of different demographic factors.
Completing the School Diagnostic has already increased awareness for participants about what college and career readiness means. To see information about the different groups of participants who participated from your school, click on each of the tabs. Use this data to see if the Diagnostic sample is representative of your school’s population, and to determine the extent that you can generalize findings to your entire school.

**Student Participation Report**

**Student Demographics In Your School**

<table>
<thead>
<tr>
<th>Student Demographics</th>
<th>Diagnostic Sample</th>
<th>School Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>251</td>
<td>368</td>
</tr>
<tr>
<td>6th</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7th</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8th</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9th</td>
<td>76</td>
<td>125</td>
</tr>
<tr>
<td>10th</td>
<td>79</td>
<td>114</td>
</tr>
<tr>
<td>11th</td>
<td>51</td>
<td>89</td>
</tr>
<tr>
<td>12th</td>
<td>45</td>
<td>70</td>
</tr>
<tr>
<td>Average GPA</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>% on an IEP</td>
<td>6%</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Student Ethnicity In Your School**

<table>
<thead>
<tr>
<th>Student Ethnicity</th>
<th>Diagnostic Sample</th>
<th>School Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian or Pacific Islander</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>African American</td>
<td>32%</td>
<td>45%</td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>18%</td>
<td>27%</td>
</tr>
<tr>
<td>White</td>
<td>20%</td>
<td>32%</td>
</tr>
<tr>
<td>Multiple Categories/Mixed Race</td>
<td>11%</td>
<td>12%</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>12%</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Additional Student Demographics In Your School**

<table>
<thead>
<tr>
<th>Student Additional Demographics</th>
<th>Diagnostic Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>% have taken an AP or IB course</td>
<td>22%</td>
</tr>
<tr>
<td>% have taken an AP or IB exam</td>
<td>15%</td>
</tr>
<tr>
<td>% Reporting going to a resource room for any classes</td>
<td>11%</td>
</tr>
<tr>
<td>% English Not First Language</td>
<td>16%</td>
</tr>
</tbody>
</table>

**Student GPA as Reported by Your Students**

<table>
<thead>
<tr>
<th>Student GPA</th>
<th>Diagnostic Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Third</td>
<td>27%</td>
</tr>
<tr>
<td>Middle Third</td>
<td>26%</td>
</tr>
<tr>
<td>Bottom Third</td>
<td>47%</td>
</tr>
</tbody>
</table>

**Parental Education as Reported by Your Students**

<table>
<thead>
<tr>
<th>Parental Education</th>
<th>Diagnostic Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential First Generation College Student</td>
<td>52%</td>
</tr>
<tr>
<td>Not Potential First Generation College Student</td>
<td>48%</td>
</tr>
</tbody>
</table>
### Student Grade as Reported by Your Students

<table>
<thead>
<tr>
<th>Student grade</th>
<th>Based on student self report of grade</th>
<th>Diagnostic Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th grade</td>
<td>Student reported being a 6th grade student.</td>
<td></td>
</tr>
<tr>
<td>7th grade</td>
<td>Student reported being a 7th grade student.</td>
<td></td>
</tr>
<tr>
<td>8th grade</td>
<td>Student reported being an 8th grade student.</td>
<td></td>
</tr>
<tr>
<td>9th grade</td>
<td>Student reported being a 9th grade student.</td>
<td>30%</td>
</tr>
<tr>
<td>10th grade</td>
<td>Student reported being a 10th grade student.</td>
<td>31%</td>
</tr>
<tr>
<td>11th grade</td>
<td>Student reported being a 11th grade student.</td>
<td>20%</td>
</tr>
<tr>
<td>12th grade</td>
<td>Student reported being a 12th grade student.</td>
<td>18%</td>
</tr>
</tbody>
</table>

### Gender as Reported by Your Students

<table>
<thead>
<tr>
<th>Gender</th>
<th>Based on student self report of gender</th>
<th>Diagnostic Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Student reported being Male.</td>
<td>61%</td>
</tr>
<tr>
<td>Female</td>
<td>Student reported being Female.</td>
<td>39%</td>
</tr>
</tbody>
</table>

### SES as Reported by Your Students

<table>
<thead>
<tr>
<th>SES</th>
<th>Based on student self report of qualifying free or reduced price lunch</th>
<th>Diagnostic Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Reduced Price Lunch</td>
<td>Students reported qualifying for free or reduced price lunch.</td>
<td>45%</td>
</tr>
<tr>
<td>Not Free Reduced Price Lunch</td>
<td>Students reported not qualifying for free or reduced price lunch.</td>
<td>55%</td>
</tr>
</tbody>
</table>
**Teacher Demographics In Your School**

<table>
<thead>
<tr>
<th>Demographic information</th>
<th>Diagnostic Sample</th>
<th>School Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Teachers</td>
<td>36</td>
<td>31</td>
</tr>
<tr>
<td>Number of Core Content Teachers</td>
<td>21</td>
<td>28</td>
</tr>
</tbody>
</table>

**Average Teacher Experience In Your School**

<table>
<thead>
<tr>
<th>Teacher Experience</th>
<th>Diagnostic Sample</th>
<th>School Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average years teaching experience</td>
<td>18.7</td>
<td>0</td>
</tr>
<tr>
<td>Average years teaching at this school</td>
<td>4.1</td>
<td>0</td>
</tr>
<tr>
<td>Percentage of teachers with a masters degree or higher</td>
<td>78%</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Subjects Taught as Reported by Your Teachers**

<table>
<thead>
<tr>
<th>Subjects Taught</th>
<th>Diagnostic Sample</th>
<th>School Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>English/Language Arts</td>
<td>19%</td>
<td>28</td>
</tr>
<tr>
<td>Mathematics</td>
<td>26%</td>
<td>28</td>
</tr>
<tr>
<td>Natural Sciences</td>
<td>22%</td>
<td>28</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>11%</td>
<td>28</td>
</tr>
<tr>
<td>Other</td>
<td>22%</td>
<td></td>
</tr>
</tbody>
</table>

**Teacher Experience as Reported by Your Teachers**

<table>
<thead>
<tr>
<th>Teacher experience</th>
<th>Based on teacher self report of years experience teaching</th>
<th>Diagnostic Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 5 years</td>
<td>Teacher reported teaching for more than 5 years.</td>
<td>74%</td>
</tr>
<tr>
<td>&lt;= 5 years</td>
<td>Teacher reported teaching for less than 5 years.</td>
<td>26%</td>
</tr>
</tbody>
</table>

**Teacher Education as Reported by Your Teachers**

<table>
<thead>
<tr>
<th>Highest degree earned</th>
<th>Based on teacher self report of highest degree earned</th>
<th>Diagnostic Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.A. or B.S.</td>
<td>Teacher reported having a bachelor of arts or bachelor of science.</td>
<td>19%</td>
</tr>
<tr>
<td>Master’s or Higher</td>
<td>Teacher reported having a master’s degree, professional degree, or doctoral degree.</td>
<td>78%</td>
</tr>
</tbody>
</table>

**Primary Grade Taught as Reported by Your Teachers**

<table>
<thead>
<tr>
<th>Primary grade taught</th>
<th>Based on teacher self report of primary grade taught</th>
<th>Diagnostic Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th grade</td>
<td>Teacher reported primarily teaching 6th grade students in the course they are answering for.</td>
<td></td>
</tr>
<tr>
<td>7th grade</td>
<td>Teacher reported primarily teaching 7th grade students in the course they are answering for.</td>
<td></td>
</tr>
<tr>
<td>8th grade</td>
<td>Teacher reported primarily teaching 8th grade students in the course they are answering for.</td>
<td></td>
</tr>
<tr>
<td>9th grade</td>
<td>Teacher reported primarily teaching 9th grade students in the course they are answering for.</td>
<td>30%</td>
</tr>
<tr>
<td>10th grade</td>
<td>Teacher reported primarily teaching 10th grade students in the course they are answering for.</td>
<td>30%</td>
</tr>
<tr>
<td>11th grade</td>
<td>Teacher reported primarily teaching 11th grade students in the course they are answering for.</td>
<td>30%</td>
</tr>
<tr>
<td>12th grade</td>
<td>Teacher reported primarily teaching 12th grade students in the course they are answering for.</td>
<td>11%</td>
</tr>
</tbody>
</table>

**Primary Subject Taught as Reported by Your Teachers**

<table>
<thead>
<tr>
<th>Primary subject taught</th>
<th>Based on teacher self report of primary subject taught</th>
<th>Diagnostic Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>English/Language Arts</td>
<td>Teacher reported primarily teaching English/Language Arts.</td>
<td>19%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Teacher reported primarily teaching Mathematics.</td>
<td>26%</td>
</tr>
<tr>
<td>Natural Sciences</td>
<td>Teacher reported primarily teaching Natural Sciences.</td>
<td>22%</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>Teacher reported primarily teaching Social Sciences.</td>
<td>11%</td>
</tr>
<tr>
<td>Other</td>
<td>Teacher reported primarily teaching Other.</td>
<td>22%</td>
</tr>
</tbody>
</table>
Counselor Participation Report

Counselor Demographics in Your School

<table>
<thead>
<tr>
<th>Counselor Demographics</th>
<th>Diagnostic Sample</th>
<th>School Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Counselors</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Average number of students assigned</td>
<td>133.3</td>
<td></td>
</tr>
</tbody>
</table>

Experience in Your School

<table>
<thead>
<tr>
<th>Experience</th>
<th>Diagnostic Sample</th>
<th>School Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average years counseling experience</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td>Average years counseling at this school</td>
<td>1.3</td>
<td></td>
</tr>
</tbody>
</table>

Administrator Participation Report

Administrator Demographics in Your School

<table>
<thead>
<tr>
<th>Administrator Demographics</th>
<th>Diagnostic Sample</th>
<th>School Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Administrators</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

Experience in Your School

<table>
<thead>
<tr>
<th>Experience</th>
<th>Diagnostic Sample</th>
<th>School Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average years as administrator or teacher experience</td>
<td>15.5</td>
<td></td>
</tr>
<tr>
<td>Average years as an administrator or teacher at this school</td>
<td>2.8</td>
<td></td>
</tr>
</tbody>
</table>

College Readiness as a Priority

<table>
<thead>
<tr>
<th>College Readiness as a Priority</th>
<th>Ideally</th>
<th>Actually</th>
</tr>
</thead>
<tbody>
<tr>
<td>A very low priority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A low priority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A moderate priority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A high priority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A very high priority</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
University High School of Science and Engineering Aspirations Report

Post-secondary aspirations for students in your school summarize their responses describing what they intend to do after graduation. Click “show filters” to view aspirations for different groups of students.

- What percentage plan on attending 2- or 4-year college? Does this percentage decrease for specific groups of students? If so, your school may want to provide additional assistance and support to groups of students with significantly lower aspirations.

- Is there a high percentage of students who do not know what they plan to do after graduation? Does this percentage increase for different groups of students? If so, your school may want to target college and career information to these students to assist and support them as they begin planning for life after high school.

**Students’ Self Reported Plans for After Graduation**

![Aspirations Chart](chart.png)
Key Cognitive Strategies

Key cognitive strategies are patterns of intellectual behavior that lead to the development of skills and capabilities necessary for college level work. Strategies require more discipline than skills do, and reflect the underlying assumption that intelligence can be expanded and thinking patterns can be learned. Key cognitive strategies include problem formulation, research, interpretation, communication, and precision and accuracy.

Problem Formulation
Students demonstrate clarity about the nature of the problem and identify potential outcomes.

Research
Students explore a full range of available resources and collection techniques and make judgments about the sources of information or quality of the data.

Interpretation
Students identify and consider the most relevant information or findings to make connections and draw conclusions.

Communication
Students organize information and insights into structured lines of reasoning.

Precision and Accuracy
Students determine and use language, terms, expressions, rules, terminology, and conventions appropriate to the subject area and problem.
Key Cognitive Strategies in My School

Teachers rated how often they emphasize these strategies in class, and students rated the extent to which each of these strategies describes them. The graph below shows teachers' ratings on the right and students' ratings on the left.

Questions to consider when viewing this summary of Key Cognitive Strategies:

- What do teachers and students agree are emphasized? These may already be areas of strength in your school.
- What do students and teachers agree are not emphasized? These may be strategies that could be targeted for improvement.
- What are your teachers emphasizing the most and least in class? Are these consistent with your school's expectations and priorities?

84 students provided 5,072 responses to 64 items.
26 teachers provided 1,716 responses to 66 items.

The ratings on this graph are achieved by averaging the average response for each component, for each user group. Responses are on a 5-point Likert scale.

Note: A rating of "indeterminate" means that there was an unusually high percentage of "Don't Know/NA" responses and the average is not displayed.
Discrepancy Analysis

My School's Discrepancy Analysis

The discrepancy analysis graph shows how your teachers' and students' responses compare to each other and how well each group's responses compare to the ideal.

How to interpret my school's discrepancy analysis

As your students indicate being more college and career ready, and as your teachers report emphasizing college and career readiness in their classrooms, the closer to the outside of the circle the teacher and student data lines would fall.

Questions to consider when viewing this graph:

- Are there areas where the data lines fall more toward the center of the circle, indicating less emphasis and self-reported ability? This may be an area your school could target for improvement.
- Are there areas where the lines overlap or are near to each other? This overlap indicates an area where your teachers' and students' responses are consistent (i.e., where the emphasis teachers give a component is similar to students' self-reported ability in the same component).
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Discrepancy Report

Aspects of Key Cognitive Strategies
- Communication
- Interpretation
- Precision/Accuracy
- Problem Formulation
- Research

84 students provided 5,072 responses to 64 items.
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**Academic Behaviors**

Academic behaviors are the attitudes and behavioral attributes that students who succeed in college must demonstrate. Academic behaviors require students to take responsibility for their own learning through self-awareness, self-monitoring, and self-control. Examples of key academic behaviors are time management, study skills (e.g., note taking, use of study groups, test preparation), self-reflection, and self-advocacy.

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**Self-Monitoring**  
Students reflect on interests, strengths, and learning styles; set educational and career goals; and persist when faced with obstacles to attain their goals.

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**Learning Strategies**  
Students know how to take notes, retain information, work collaboratively, manage their time, read strategically, study, and take tests.
**Academic Behaviors in My School**

Teachers rated how often they emphasize these strategies in class, and students rated the extent to which each of these strategies describes them. The graph below shows teachers’ ratings on the right and students’ ratings on the left.

**Questions to consider when viewing this summary of Academic Behaviors:**

- What do teachers and students agree are emphasized? These may already be areas of strength in your school.
- What do students and teachers agree are not emphasized? These may be strategies that could be targeted for improvement.
- What are your teachers emphasizing the most and least in class? Are these consistent with your school’s expectations and priorities?

![Graph showing teachers' and students' ratings of academic behaviors](image)

85 students provided 6,676 responses to 85 items.
26 teachers provided 1,833 responses to 74 items.

The ratings on this graph are achieved by averaging the average response for each component, for each user group. Responses are on a 5-point Likert scale.

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Discrepancy Report

85 students provided 6,676 responses to 85 items.
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**Contextual Skills**

Contextual skills and awareness refer to the privileged knowledge and skills that are necessary to apply to, get accepted into, and find financial aid for college and to understand how college operates as a system and a culture. Examples of these skills include a student’s potential for long-range planning or goal setting, selecting an appropriate college, applying for college, and seeking out financial aid. Contextual skills also include an awareness of the quantity and quality of work expected in college, the structure of college coursework, and other contextual factors of the college environment.

**Academic Awareness**
Students understand the range of expectations and structure of college coursework. They engage in preplanning and get experiences needed to apply and be admitted to college.

**College Admissions Process**
Students gather information, navigate the admissions process, and take steps to apply to college.

**College and Career Culture**
Students understand how to navigate the social environment of college and careers, including how to secure resources they need to manage emotionally, socially, and academically (e.g., writing center, health center, social organizations).

**Tuition and Financial Aid**
Students gather information, navigate the financial aid process, and take steps to apply for aid.
Contextual Skills in My School

Teachers rated how often they emphasize these strategies in class, and students rated the extent to which each of these strategies describes them. The graph below shows teachers’ ratings on the right and students’ ratings on the left.

Questions to consider when viewing this summary of Contextual Skills:

- What do teachers and students agree are emphasized? These may already be areas of strength in your school.
- What do students and teachers agree are not emphasized? These may be strategies that could be targeted for improvement.
- What are your teachers emphasizing the most and least in class? Are these consistent with your school’s expectations and priorities?

230 students provided 4,727 responses to 52 items.
24 teachers provided 1,224 responses to 51 items.

The ratings on this graph are achieved by averaging the average response for each component, for each user group. Responses are on a 5-point Likert scale.

Note: A rating of "indeterminate" means that there was an unusually high percentage of "Don't Know/NA" responses and the average is not displayed.
Discrepancy Analysis

My School’s Discrepancy Analysis

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Discrepancy Report

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**Key Content Knowledge**

The subjects students learn in high school continue to be important in college; students need to know certain skills to get into college, and professors will expect and build on that knowledge in college. Successful students value learning, are motivated, expend the necessary effort, and understand that effort, not innate ability, determines success.

Key Content Knowledge assesses the following for each core content area (ELA, math, science, social sciences, and technology):

- **Academic Attribution**
  Students know that hard work determines how well they do, not whether they are "good" or "bad" at something.

- **Academic Value**
  Students see the value in coursework and how learning information taught in courses will be useful later in life.

- **Student Effort**
  Students are motivated to do well and know that hard work produces satisfying results.

- **Challenge Level**
  Students enjoy being challenged and don’t pursue the easiest option; they know that they can rise to meet a challenge in the classroom or in life.

- **Structure of Knowledge**
  Students know the structure of knowledge and are familiar with the methods used within core disciplines.

- **Experience with Technology**
  Students understand how to use technology for schoolwork and daily tasks.
Key Content Knowledge in My School

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- What are your teachers emphasizing the most and least in class? Are these consistent with your school's expectations and priorities?

225 students provided 7,840 responses to 98 items.
24 teachers provided 616 responses to 51 items.

The ratings on this graph are achieved by averaging the average response for each component, for each user group. Responses are on a 5-point Likert scale.

Note: A rating of "indeterminate" means that there was an unusually high percentage of "Don't Know/NA" responses and the average is not displayed.
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