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**Case Study**  
**Manhattan Hunter Science HS and Castle Learning Online**  
**122 Amsterdam Avenue, New York, NY 10023**

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Manhattan Hunter Science High School (MHSHS) opened in September 2003 with a \$400,000 grant from the Bill and Melinda Gates Foundation administered through the Woodrow Wilson National Fellowship Foundation. The school's focus is on preparing students who are especially interested in science. The school is the result of a collaboration between Hunter College and the New York City Department of Education (NYCDOE).

The *Progress Report for Schools*, as developed by NYCDOE, posted an overall score of "A" in 2007-08 and 2008-09 for MHSHS. The school is located at 122 Amsterdam Avenue, New York, NY 10023, a few blocks from Lincoln Center for the Performing Arts. The NYCDOE Quality Review completed in March 2008 showed a school with 437 students from grade 9 through 12. The school population consists of 22.8% Black, 35.5% Hispanic, 13.0% White, 27.8% Asian, and 0.9% American Indian students. The student body includes 3.2% English language learners and 2.1% special education students. Boys account for 47% of the students enrolled and girls account for 53%. The average attendance rate for the school year 2006–2007 was 94.8%.

In June 2007, MHSHS celebrated the graduation of its first class, with 77 students and a 100% graduation rate. Students were accepted to many colleges, including UCLA, the University of Michigan, Columbia and Vanderbilt Universities. College credits were earned by all of the students, with 17% earning between 20–30 college credits.

Integrated into all aspects of the high school was Hunter College's expertise in the sciences, mathematics, education, social work and other fields. It is one of the largest colleges in the City University of New York system and known for its diverse student population. MHSHS has formed a bond with Hunter College and together they are committed to helping students make successful transitions from the world of high school to the very different world of college. Through the collaboration of the two schools on sharing best instructional practices and developing afterschool programs, students were challenged and met with great success.

#### **MHSHS Sets Goals for Students**

Meeting students and teachers at the Manhattan Hunter HS campus in the heart of New York City brought a better understanding of how realistic the goals set by administration and teachers have been to these young folks. Perhaps the best expression that can be used is "lifelong learner" where goals not only involve their education in high school, but stress a connection to a college education and beyond into the work force of their community. These goals included:

- Students participate in a rigorous program that prepares them for NYS Regents exams and satisfies the expectations of Hunter College.
- In their senior year, students participate in credit-bearing courses on the campus of Hunter College, learning early how to be successful, self-directed college students. See <http://www.hunter.cuny.edu/sciencebuilding/mhhs.html> for more information.
- Students pursue dual enrollment credit and advanced Regents Diplomas based on NYS standards.
- The strong program offered in Spanish, Chemistry and Physics is complemented by a humanities curriculum that simultaneously blends English and Social Studies.
- An exceptional Research Skills class is offered to apply logical methods in answering questions.
- Throughout the year, students are offered an advisory program that provides a deeper understanding of health, study skills and nutritional issues.

### **MHSHS Assessment of Current Education Needs**

Principal **Susan Kreisman** discussed her assessment of needs at MHSHS with me. After introducing teachers and touring classrooms with the author, Ms. Kreisman explained that “students often face difficulties in comprehending course content or simply in completing assignments for a wide range of reasons.” We also discussed the fact that, as in all schools, students face social issues or classes where the content presents certain skills they must still learn. She added her perception of the high school student experience, “They also struggle translating the idiosyncratic language of state assessments in order to demonstrate what they know.” She said that as a result:

...our teachers are using *Castle Learning* to differentiate student learning and monitor successful student achievement. When necessary, what they learn can help them change a lesson or adapt a new technique in approaching the content. The plethora of questions and question design also allow teachers to approach assessment in multiple ways.

An important consideration of hers and her staff's is credit recovery. She explained:

By the end of the year, students who might have seat time, but have missed or failed to achieve a passing grade in some areas of a course, might be able to use *Castle Learning* to accomplish Credit Recovery through pre-set assignments. The Company president has been working with our staff to help develop a plan that can be used by our students and those in other schools who face similar circumstances.

### **How Teachers Currently Use *Castle Learning Online***

In addition to comments gathered while meeting with educators at Manhattan Hunter Science HS during an earlier visit, responses to a Teacher Survey were received to form answers to three primary questions to find out more about how teachers were using *Castle Learning Online*, how often they were using it, and what features were being used for their students. The results revealed the following:

- **Purposes for Use:** Teachers are using *Castle Learning Online* primarily in two distinct ways:

- Review before a quiz or test (primary)
- Homework assignments throughout a study of a course unit
- **Frequency of Use:** Teachers use Castle Learning Online:
  - Half of the survey respondents use Castle Learning Online a minimum of once per month, with several using the service every week and sometimes more, especially when students are preparing for major exams.
- **Most Used Features:** Features of Castle Learning Online that teachers gave the most emphasis were, in the order of greatest to less used:
  - Sharing assignments with colleagues, a feature that allows a teacher who creates an assignment to publish it for use by other teachers.
  - Importing questions from old assignments when creating a new assignment, thereby using the assignment as a review while providing new content. This feature allows a teacher to view questions from all prior assignments, recognize how many students displayed a weakness or strength with that content area and then to be able to include it in a new assignments. Therefore teachers can “review” while giving students “new” questions.
  - Adding questions using the Personal Content Set, a unique teacher authoring feature on the Castle Learning Online website where educators can enter new questions, designate an answer and provide both hints and reasons that will guide the learning process.
  - Printing vocabulary worksheets that can key in on definitions for terms most often found in an area being taught. Drawing from this extensive database of thousands of vocabulary terms with definitions for all subjects, teachers can provide students with vocabulary derived from any assignment or by directly selecting a unit of study and then the vocabulary associated with that unit.
  - Mixing content from different grade levels or different courses. This feature could, for example, be used by a physics teacher who wants to check on student understanding of adding and subtracting fractions by using questions from an elementary or intermediate course in mathematics.
  - Giving students flash card assignments. Associated with Vocabulary Worksheets, this feature allows a teacher to send students lists of unit vocabulary with definitions in the form of a Flash Card.

### **Effectiveness of *Castle Learning Online* in Meeting Needs of Students and Teachers**

The Teacher Survey also provided teachers an opportunity to elaborate on the effectiveness of *Castle Learning Online* in meeting the academic needs of their students. In these responses, teachers refer to the NYS Regents exams, which are state course tests given each year, similar to EOC (End of Course) or EOG (End of Grade) exams administered in other states.

- **Benefits Offered to Teachers:** When asked what benefits does Castle Learning Online offer to you, educators emphasized two key benefits:
  - **Saves time when grading.** The teacher can create an assignment in a few minutes and can learn the results instantly. For instance, the students who answer questions to check their knowledge of specific content can receive instant feedback in the form of hints and defined vocabulary, along with reasons for correct answers. Everything is instantly provided to the student and the teacher can learn how to improve upon these results.

- **Check student progress in course content and determine weaknesses and strengths.** Teachers are able to review weaknesses and strengths of individual students or classes and consider whether to re-teach content and/or give additional assignments to specific students based on what they learn from the Reports Feature of Castle Learning Online.

As a supplemental thought regarding the Report Feature available in *Castle Learning Online*, I shared with Principal Kreisman the experience of meeting a Long Island Assistant Superintendent for Curriculum, Michael O'Brien, who described consistent checking of student progress as a **CBM or Curriculum Based Measurement**. He explained how teachers who use *Castle Learning Online* can view current, week-by-week data information on the progress students are making. Research shows that when teachers use some form of **CBM**, they can find out how well students are progressing toward learning the content for the academic year. The results of treating *Castle Learning* as a **CBM** are twofold. It allows teachers to monitor the student's progress and, on a more personal level, the success of the instruction the student is receiving. If a child's performance is not meeting expectations, the teacher can adopt new or different ways of teaching or provide remedial assignments to assess whether sufficient progress is being made toward meeting academic goals.

- **Performance Results:** When asked whether students perform better or exceed expectations on state exams when using *Castle Learning Online*, comments included:
  - When using *Castle Learning Online* once each week, one teacher remarked that “[There has been a significant increase on scores both in the classroom and Regents examinations.](#)” (Note: these exams are given in NYS in January, June and August).
  - This same teacher reported a passing rate for the difficult NYS Chemistry Regents from 70% in 2007-08 to 90% in 2008-09. He said, “[I attribute this change to increasing use of Castle Learning each week.](#)”
  - In more general terms, another teacher observed, “[Kids who practice on Castle Learning score higher on exams and the Regents.](#)”
  - Another educator remarked that using *Castle Learning Online* more than one time each week has produced the view that “[Students who take the time to do assignments properly get more out of it.](#)”
  - A teacher who uses *Castle Learning Online* once each month was unsure, perhaps because of the way it is used in preparing students for major tests, whether student performance has changed. The teacher said, “[I have not given them tests with Regents questions without preparing them with Castle Learning.](#)” It might be assumed there are no comparison numbers to determine a performance change. The teacher further explained, “students are preparing for their tests by studying questions from the question bank (each course has a large number of questions) and reviewing vocabulary words.”
  - One teacher admitted that there was no regular use of *Castle Learning Online*, but said, “[I do like the grammar and critical lens for the students.](#)”
  - Upon completing a year of study in my classes, a teacher heard comments from students who learned through *Castle Learning* usage and who performed better on their class exams. The teacher explained:

This tells me that they have taken what was learned through *Castle Learning* to perform better on their class exams. A couple of my students came back to me to tell me how proud they were for completing and receiving high marks on *Castle Learning* assignments. I truly feel that *Castle Learning* assignments cannot only prepare the students for exams, but they can also help boost their confidence before they even take a test. That is something that cannot be gained without proper instrumentation or resource.

A closer examination of *Castle Learning Online* use by one teacher of social studies provided a unique glimpse into emphasis and educational thinking in approaching course content. In her explanation, she covered several key points:

- Regarding the time used and the purposes for using *Castle Learning Online*, this teacher explained that usage increases after the study of the Civil War, primarily during the study of Industrialization in America and continues through into the modern day, usually every two weeks. The teacher observed:

In previous years, I have used *Castle Learning* in two ways, as primary end of unit assessments, and as reviews for those assessments. When creating an exam with CLO, I tend to choose advanced questions that focus on interpretation of primary sources, followed by intermediate level questions that ask students to differentiate between concepts, and a small percentage are vocabulary questions. Depending on the desire of the student, you will see high scores and success (mastery) on the Regents. Across the board there is no average, as all students do not study the same, or take practice exams, or complete study guides.

- Realizing there is no one way to use *Castle Learning Online* this particular teacher used it less as a homework tool and more as a review before exams. She explained, “I do rely on *Castle Learning* for Regents review towards the end of the school year, and that is where you will see most of my review assignments.”
- Vocabulary and definitions are important to instruction. In reference to the vocabulary, this teacher explained her reasoning and it is quite typical of many I’ve met:

In terms of reviewing for tests, I do not emphasize teaching toward the test. Instead, I focus on vocabulary acquisition which does not really work for era specific *Castle Learning* exams until the end of the year when Regents questions usually contain vocabulary that is learned throughout the entire year, [and therefore] is more helpful during May and June review sessions to use CLO.  
(See Author’s Note)<sup>1</sup>

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<sup>1</sup> *Author’s Note:* Vocabulary—From the Company’s beginning, when formulating how questions would be displayed for students, the elements of vocabulary and definitions were part of the *Castle Learning* approach to the technology built around courses found on the website. It has been our belief that they are a natural part of all content in the *Castle* course content areas since the Company began 20 years ago. Teachers have long known that built into every question are key terms that when understood and used help course content become clearer for the student.

- There are often surprises when teachers are using Castle Learning Online; they gain a perspective from their students they had not previously considered. Asked about an anecdotal experience with a few students, this teacher explained:

Each class of students is different and so there are a variety of experiences that I have to share. Many are of the students who graduated recently and had the most experience using *Castle Learning Online*. For an entire week I gave them old NYS Regents exams to take in class and stored their scores. The scores were hideous, in my opinion, so I was not very confident going into the [June] Regents Exam. Surprise at the end of the day: these students had earned excellent scores on the multiple choice section, and I was relieved to know that their hard work had paid off.

### **Concluding Thoughts**

The goals related to improving student achievement are being met by a strong staff in a close-knit, cooperative atmosphere. Having visited the school on two occasions and meeting the students, it was easy to observe the interaction between staff members and between these teachers and their students.

Ms. Kreisman described for me her view of where *Castle Learning Online* may fit into the broader picture of the Manhattan-Hunter program: We are hoping that CLO will help our students be assured of academic success with Credit Recovery assignments. The educator/president of the Company has already offered a workshop which helped some teachers formulate assignments. His interaction with the staff has provided some criteria for setting up a workable program for Credit Recovery. Tailored both to the rigors of course curricula and specific gaps in students' learning, we anticipate a truly individualized program that will meet student needs.

She also remarked on whether *Castle Learning* is helping students:

Teachers choose to use CLO. Periodic assessments clearly demonstrate that students who take advantage of CLO assignments are successful in class and on end year exams. For many of our teachers who have been using CLO as an integral part of their classroom it is difficult to separate it as a specific learning source. But teachers see its value and consider it a staple. Some teachers have reported that by using *Castle Learning*, student achievement in difficult courses such as chemistry has been significantly more successful when taking the end of course Regents exams.

Asked if she saw an attitude toward learning change with students by using *Castle Learning*, Ms. Kreisman concluded:

I continue to be impressed with the way CLO has helped promote a team spirit in support of students. Guidance counselors, teachers of subjects other than the one a student is struggling with, and parents can all use CLO and be coaches. To that end, CLO has had a serious impact on attitude. Throughout the school there are posters supporting use of *Castle Learning* and students have reacted positively. And when we have a visit from "Professor Bill," he gets celebrity status and requests for autographs, which can be the lighter side of educating students

As a result of my visiting Manhattan Hunter Science HS, our Company has been collaborating closely with educators to form a solid response to their need for Credit Recovery. Take a moment to review our website at [http://castlesoftware.com/home/credit\\_recovery.html](http://castlesoftware.com/home/credit_recovery.html) for more information about Credit Recovery.