

Synthesis of Teacher Interviews –

What did students and teachers get out of participating in the Hydroville Curriculum Project?

STUDENTS: In your (teacher's) opinion, what do you think was foremost that students got out of the curriculum? Do you have any stories that depict how the curriculum may have had an impact on a student?

Self-esteem/sense of accomplishment

- Students invited their parents (7 attended) to come and observe their team presentations. Pete said that the students were very excited about the presentations and that they were really a challenge for many students.
- Students were proud of themselves and had a sense of accomplishment; it was huge!
- One student boasted that she received a 15/15 on her presentation. There was a real sense of pride and accomplishment.
- Students stepped out of comfort zone.
- The non-skippers are the ones that stayed and faced their fears. They conquered fears which would come in life later.
- I have a high number of ESL (English as a Second Language) students in my class. It is difficult for them to get up in front of an audience and present and feel confident. It was a big deal for them.
- It's (Hydroville Curriculum Project) a give deal for a lot of them; they have a tremendous amount of fear so it's a big step, a big life experience.
- The students really felt like experts and that they were specialized. The teachers did not know as much as the students because each teacher was responsible for teaching one of the expert groups.
- Start and project and complete it. Students were responsible for findings and completion of project. The students were accountable for presentations and many of them rose to the occasion, not all. I'm proud of that. So many times, they don't see a process from start to finish or complete it.
- Seeing kids rise to the surface
- Experience project completion – from start to finish – background activities to presentations.
- One student that normally that missed a lot of school improved her attendance and even spoke during the presentation. She felt so good. But one of her friends didn't show up for the presentations and he felt bad for not doing it. A sense of accomplishment.
- Working hard and pulling stuff out to meet the challenge.
- All the students have improved as scientists and how they feel about themselves.

Teamwork

- They were helping each other out in the expert groups; some teams were lacking experts because of attendance and other experts within the class jumped in to help their peers. It was the student's initiative to help each other, I gave extra credit.
- Teamwork was the single most achievement, problem solving not so much.
- Students came to the presentations that were not passing the class to help their team.
- Camaraderie developed within the class.
- The class had a dress rehearsal for the presentations and their peers critiqued each other. They were very respectful and offered helpful suggestions, e.g., "talk louder".
- The students within a team helped each other out. Then the three teams in the classroom was working to support one another. Then one expert from one class would go help out another team in another class. There was teamwork within the group, within the classroom (intraclass) and interclass.
- Yes, some student did progress (at teamwork) more than others based on two factors: personality and development. Some students are "better at it" because they are older, with more experience, maturity, and drive and a sense of accomplishment.
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- I had one student who is a special education, with low skills and he couldn't get into this stuff. He commented, "I don't know how to do all of this stuff." He found his place on the team when another girl got him involved and he helped get the overheads ready for the presentation.
- The students have been taught to ask the teacher, but in this case they were saying, "go as Desiree (a student), or "go ask Charlie." Another comment, "have you talked to your team person?" or "go talk to a person on your team?"
- Some students progressed (teamwork skills) more than others.
- They had to depend on others to show up. They were working in singletons, groups, teams, etc.
- When the experts met in their teams there was ownership. It's a culminating event when they come into teams they have ownership.
- Attendance improves for the team, especially the days when they are preparing for the group presentation.
- Teamwork, more willing to follow
- Teamwork is really, really hard.
- These students have no social skills. They can't solve a problem or get over past histories. During the scenario, they had to work together. Cooperative learning is hard.
- "It (Hydroville) forces people to work together".
- "It (Hydroville) gives them a vehicle to do that."
- "self-interest" It's up to you if your team does well.
- It's (Hydroville) a real world experience, like a job. If you go down, then it affects the whole team.
- A new kid in Hydroville has an easier chance to become a member of the school. It forces everyone to interact. It forces them out of their comfort box.
- Kids depend on teachers and the bond remains for the rest of the year.
- There was a reduced rate of skipping. No team had more than two skippers. Student volunteers acted as group jumpers when the other experts were absent to take their place.
- They depended upon each other; don't leave each other in a lurch.
- The CLASS Academy's purpose it to build a sense of community. Students are accountable in every class, and Hydroville plays into that.
- When students were absent from a team, the other group members were on them because they were depending on each other. Students were stepping up to the plate; it worked well because of Hydroville.
- In the CLASS Academy, students already have experience in working in teams. More team work in the presentation; Hydroville supports project. Students had previous experience with jigsawing – the foundation (for working in teams) had been laid and Hydroville supported it.
- Four out of twelve teams had a conflict where one person had not stepped up to the plate with information. Both individuals and teams were accountable and graded so they needed to rely on one another. You can't fail because we provided them with multiple evaluations on their group process and experience within the team. We had a clear picture of how teams went.
- Everyone one should contribute. Malia helped a student think about his tactic to motivate another team member who was not contributing equally. The stronger kids needed to learn how to build another person's ego or whatever. Peer encouragement and motivation. Malia emphasized to students how to be more supportive, encouraging, and motivational.
- Group interaction and student working in teams.
- They got an opportunity to work in teams.
- Students motivated each other

Leadership ability

- Students were given the opportunity to become leaders; they would not have had this opportunity in a regular high school classroom. Low achievers stepped into a leadership role. One student stated, "Brian, if I didn't know what I was doing, I couldn't do this." Kids stepped in and became experts in their class.

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- Some kids are not used to being leaders. One student had to and she was petrified. It was more work, but a great experience. She said, "I can do this."
- One girl took over her group; her leadership came out and she stepped out. Others were frustrated and worried that their grade would suffer when other team members were absent.
- The sophomores really stepped out. Most students that presented well were sophomores. These students participated in the Pesticide Spill last year. (Perhaps they progressed because of experience and maturity.)
- He said that the sophomore leaders this year were the students at the bottom of the list last year. "I think this program works". Mark also said that the 9th grade leaders would probably move out of the program this year.
- In any classroom, 3-4 kids are never are going to get it. But (in the Catapult) these same kids can move up to the next level because they can't sneak under the class or hide, the classes are too small (15 students/class). They get a sense of being leaders and are able to step up. This is not something they would have done in a mainstream class; they wouldn't have a chance.

Scientific knowledge

- Environmental Health education is not primary, but it's the curriculum that gets kids excited about learning. Kids don't remember slope, but they should get dose makes the poison and to read labels.
- They are better at science, graphing, expressing their fears and asking for help.
- Get a sense of the scientific process and how much goes into it
- Good science. It's not successful or new at science – situations like these with different experts; this involves everybody in the classroom.
- They have learned science inquiry skills in a detailed way. All have done science projects freshmen year and go through the scientific method.
- A lot of them learned how science fits into the big picture. A lot of them took away, "that's why we're doing this?" It is based on real life.

Careers

- One student, Adrian wants to be a pharmacist and realizes that there are a lot of science jobs he's never heard of.
- There was no struggle with "how am I ever going to use this"? The students didn't need to ask the questions because they got it.

Technology

- The students liked the technology and Vernier equipment; there were not a lot of problems. Almost all of the teams made PowerPoint slides for their presentations.
- It was nice to use the Vernier equipment and it was also a humbling experience since he was not ready to teach science labs. "I love science. But teaching science is a completely different to teach (than communications)."
- Students had previous experience in PowerPoint and presentations. They were fine tuning taking information to put into an understandable format.

Presentations

- One out of three teams jumped right in. Since they have no experience with presentations, they were not sure of a format to use so we used the presentation guidelines in the curriculum. They were very helpful. Once they had a format, they went with it. They had trouble organizing their thoughts; they've never done it before.

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- None of the kids have ever done a PowerPoint presentation before in our classes. This population of kids in a mainstream classroom would be in the background, not saying a word. For them to do a student presentation is big.
- Skills: Presentations, speeches
- “It brought certain intensity out at the end when students knew they were going to present to a public group.” (Students presented to parents and guests during an open house for CLASS Academy.) The vice-principal attended the open house to watch the student presentations and commented, “I couldn’t believe that these were 9th graders doing this.”
- The presentations increase and reinforce their understanding of the content and interpretation of data because they had to present it to the public.
- Students must put a presentation together for non-science people and communicate to either other and to the public.
- The real problem is working in teams. Biology overcame this issue by practicing. Practice for how to present science in the future. Ninth graders do not have lessons in speech yet or studied presentations in other classes. Peer evaluation during practice was significant.

Integration

- “Hydroville provided a naturally way for science to feed into all three areas. We were happy to include Malia”.
- “Integrating science in all three areas: social studies, language arts, and social studies; Hydroville is really good at that.
- I need to consider that my team members do not feel that the curriculum is integrated. If I could do it single handed, I would. The extensions are good, but the curriculum is long enough. If it were expanded in all of the other classes (social studies and language arts), it might be an overload for students.
- I like the integrated curriculum; it offers different segments from different disciplines to enhance critical thinking skills and creative problem solving. There’s not a lot happening at the high school in these areas. Students are very good at details, but not very good at putting them together.
- I really like the concept of an integrated curriculum and that there is no right answer. No real solution for the problem. Problem solving with no right answer. It is fuzzier. The students have to work in teams where no one has the specific answer and no one person has all of the information and you need to work together. Those are the skills you really need to work with other people and to work in groups to gain solutions. You need to do your job, but also keep one eye on what the other person is doing. I really like this curriculum.

Problem solving

- Regarding problem solving... there were some indications what I saw in they knew the individual pieces and details, but can’t put it together. It’s basic how we teach kids in high school. We teach all the pieces, not a lot of places to teach them to add all the pieces together to synthesize.
- Hydroville makes kids think. They come out doing well, but they didn’t really like it. They want to know, “what’s the answer?” so I can put a grade down. “It takes work to think if you’re not just regurgitating facts.” We teach people to attain concrete scores in high school. “We are totally goal oriented.” A good score means a good grade and a good GRE.
- I wanted students to know that there was no right answer in the scenario. During their presentations, they needed to justify their answers and explain their answers to lay people. Most of the time they said, “I need to know the answer.” They were upset about that.
- I really like the concept of the curriculum. It bothers me that problem solving in different areas is not taught in high school. By the time the student is in elementary school, we beat it out of them. We take away their ability to integrate information because we reward specific answers to specific questions.

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Overall - Student Impact

- The expert groups went well and for some kids the “lights went on” and they took work home. For the other 25 students did not have the same impact.
- This group of kids had low grades in middle school and they click on different things. Some kids clicked onto Hydroville.
- “Hydroville is an awesome project”
- Kids are more engaged in school.
- Real life, authentic learning.

The Hydroville Curriculum is really good at:

- Group skills
- Presentation skills
- Classes used to solve problems
- Career component

Teachers and students need authenticity as much as possible.

The main reason for implementing HCP another year, is the science component has ambiguity in the solution and therefore, the students can generate different hypotheses. You can't have all of the information and all of time in the world to complete the scenario. Science textbooks present a formula and you can look up the answers, which is very misleading in science. Science is the bully; science knows all of the answers. Students experience this first hand. During their presentations when they go through the whole process; they have to admit, “I'm not sure. Oh well, I'm not sure how they got that”. Students can see where the real science happens. A real endeavor, perfect truth.

TEACHERS: After teaching the Hydroville Curriculum, what effect has it has on you as a teacher? What did you get out of it?

- I had a ball doing all of the science and working with the colorimeter, acetylcholinesterase, and laptops. I learned science.
The kids did really well despite my inexperience with teaching science. It was an opportunity for me to learn new material and get it across. I was really proud of myself. I was scared, there was lots of math, but I liked being a science teacher. I am a reading and art teacher who taught the background activities for Industrial Hygienist, i.e., gas chromatography, graphing a calibration curve, etc.
- There's a certain amount of satisfaction that the students don't have to come up with the answer, but their own answer. It is difficult to allow students to deal with the ambiguity. And very difficult to illustrate it in an ongoing way when students are uncomfortable, more than not dealing with the unknown.
- Integrate information and synthesize using several disciplines to come up with the solution to a problem.
- I gained a real appreciation for teaching inquiry and giving students stuff that relates to our lives. It makes sense; they can relate to this as science students.
- Some of my organizational skills were sharpened.
- Certain aspects of labs I didn't cover. Reinforce what I learned in the past.
- Get outside of text and apply to the real world, kids embrace that. HCP can help teach that way—that's what we're here to do.
- I learned to use equipment and do some things we've never done before.
- It's away of showing kids about the real world.
- I like to watch the kids demonstrate how much they learned from HCP. I expect them to learn they actually learn how to be creative and problem solvers. The John Snow activity is a good example. I handed out the material to the students and say, “Tell me what you think.” They thought about it and then we had an intelligent discussion about pumps and water contamination. Mental side taking to will and then apply it to real world.

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Teacher Expectations

- I learned not to expect as much as I should. Some students skated through this and the presentations. Charles finally explained the process so neatly and for 5 minutes straight. He said, “Is that okay?” It brought tears to my eyes. Charles got into the science of it. Now, I expect more from Charles. He surprised me and I expect more out of him.
- My expectations grew. I saw it slowly come together and my enthusiasm picked up during the scenario. I was really laying it on (giving students praise) in an honest way. The students started believing in themselves, especially the last week when they were working in their teams and preparing for their presentations.
- “They exceeded my expectations.”

Team teaching

- I have the flexibility to teach what I want. I teach the Hydroville curriculum because it does hit the science benchmarks.
- I like teaching in an alternative school because it is more flexible than traditional schools and offers a variety of different things.
- We (teachers) all work well together. We play to each other’s strength and expertise. (Melissa Harder)
- “It wasn’t because it meets a lot of CIM and CAM, but it does.” Those are the kinds of things that should be a higher part of my teaching, more content, and it’s easy to see which contributes and meets our needs.
- I think that HCP meets state science and training skills.

Overall

- “It was a good experience.”
- “It was a lot of work, but there is a big payoff”. It taps into so many connections – a life long experience.