

DPS TechConnect Summit Meeting Minutes

December 3, 2015 – The Commons on Champa



Introduction & Updates | 4pm - 4:10pm

A. Introduction

Stacy Miller | *Industry Summit Co-chair and TechConnect Pathways Director, West High School Campus*

RJ Owen | *Industry Summit Co-chair, Universal Mind*

B. Updates

Lauren Trent | *Manager of Strategic Partnerships, DPS CareerConnect*

Karis Morrall | *Communications and Event Specialist, DPS CareerConnect*

Wendy Nkomo | *COO, Colorado Technology Association*

Guest Speaker: RJ Owen | 4:20pm – 4:30pm

Topic: Advances in Technology

- Technology is quickly moving and poses an interesting challenge for someone involved in technology
 - Don't just need to know how to code or build a device, but have to think about how a person is going to use it and how it will affect the environment around them.
 - Google glass is an example: They didn't consider how their invention would be received in the public around them.
 - As we're thinking about teaching the next generation of technologists, it's important thinking about the context of the creations that they invent.
 - Disney's magic band is an example of technology done right. Great meshing of people and technology.
 - As we're thinking about teaching students about technology, we need to make them aware of the world around them. Tech will be used by people with specific purposes.

Competency Comparison Exercise | 4:30pm – 5:00pm

Description: Teachers and industry leaders listed their top tech companies.

- Jen Moriarty: Our business partner talked about project management. It's something that I've struggled in the classroom, but hearing it from someone in the industry has taught.
- Cory: Life skills were the focus of our conversations -- we never focused on a particular hard skill. Eventually we came up with "you should learn a program language." Ability to work with others and ability to rapidly acquire new skills.
- Rufus Miller: Emphasis on soft skills. Their basic level of competency with technology in general.

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- Alicia: In high school, you typically think of things very compartmentalized. When you're in any industry, things are very connected.
- All levels of science are weak in schools right now. Children need to know math and physics and chemistry. They need to be more involved and less scared in math and science. Girls NEED to be involved in science. They need to understand that it's cool and they understand how science works.
- Mike: I was also thinking about how things in industry are all connected. The first two or three competencies that we had were the same. Grit, being able to work as a team.
- Cam: Soft skills -- are you able to lead, are you able to work well with others? Are you able to manage yourself? I think that developing those skills in high school -- much more than being able to write HTML -- are crucial.
- Renee: We talked about the soft skills vs. hard skills. And we talk about adaptability. How do we actually teach that? I tell students that I'm not going to spoon feed -- you need to think for yourself. Let them lead and take control.

Part 2: Project Reviews | 5:00pm – 5:50pm

A. Table Rotation #1

Maria Gordon | *Computer Science Teacher, High Tech Early College*

- Introduction:
 - One of our units is humanizing and demystifying technology. Several activities have been very successful. Right now we're doing Hour of Code.
 - The coding is one small part of the class. One large part is collaboration.
 - One unit is creating an application. Did it on paper, so unplugged activity.
 - One activity is called "shortcut." They had a little logo, and the idea was that your phone would call you ahead when there was a traffic jam.
 - We also used consultancy protocol where students could comment on how to make it better.
 - Didn't create the technology behind it.
 - Started the lesson by having the students go out to my car in the parking lot. I let them get into my husband's new car and figure out how to open the car. They learned how to open the tailgate with their foot, and how it didn't have a key. A lot of them had never seen this technology before. That really came in handy to have that practical knowledge.
 - My goal: take that concept of using an item or going into an office and how to capitalize on that and make their own businesses. A lot of them talked about creating their own application company.
- Our student went on a CareerX to Universal Mind. At what length are industry leaders going to get those experiences into the classroom?

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- I work with 9-12th graders. I notice that they're not broken by grades. There are students in 9th grade that don't want to think about careers right now, and there are students in 9th grade that are creating their own Bill Gates company. How do we bridge the gap?
- **Clarifying Questions from Industry**
- Wendy: The lessons that you shared are examples of humanizing technology and demystifying technology.
- Luke: How much time do you spend on coding?
 - Maria: We've been doing coding all along with Scratch and Khan Academy. The Hour of Code is an intense process. The concept is that they have an opportunity to explore coding online. It's an application of what they learned before.
- Cam: What's the level of proficiency when your students enter the class?
 - Maria: About 5/20 know how to code. Then you have students who didn't want to code. But once they got into it and learned that there's more to it besides coding. Out of that, I noticed that they had varying skill levels and experience. Students with more hard skills might not have the strongest soft skills. One of the activities was when students chose their own teams and tried to build origami towers. Some teams failed. And they realized that they had chosen their friends for the teams and didn't necessarily ...
- Maria: Students will be able to create an app by the end of the semester. Will start creating an app in January.
- **Industry Feedback**
- Cam: Do a project like Galvanize, where they work with an actual company and work alongside on a project. Partner with different organizations or industries. Ask can my students help code, or can we integrate that into the project?
- Luke: One challenge would be building something usable. But I think the problem-solving aspect would be useful. Feeding into your wire framing. One thing we do at our company is user-testing. Having students walk through the wireframe and give feedback.
- Kasia: It would be interesting to have them wireframe the concept and what's it's solving in a translatable, layman's terms.
- Luke: There's a video that Apple did talking about how they created an app without talking about any line of code. Something like that could be interesting for your students.
- We use GameMaker to make basic games. You can buy the ability to export to IOS or Android. It could be a fun way to transition from how you wireframe to actually building something.
- Kate: How can we create an authentic
- Wendy: Maybe do a Google Hangout in the last 5 minutes. And maybe we use technology, like Skyping in.

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- Luke: If we have an industry partner present a problem and have the team present the solution and the process they went through.
- Monica: One example was going to the Colorado Office of Information Technology. They talked about how they had to mobilize quickly during the floods in northern Colorado. The kids were really interested. It's important to find a hook
- Wendy: The school district at Englewood chooses a theme, like water. And the topic is integrated in their different math and English classes too.
- Cam: Have each student design a product in their head that would involve some degree of software. Do 5-minute pitch at the end of the semester.
- Monica: Maybe there's something in the school where there's a need for an app that would be even closer to their hearts. Maybe something that is good for their peers as well as themselves.
- Wendy: GoCode Colorado. Extra revenue collected in Colorado when businesses apply. Teams that come out of it are really neat and went through a process.
- Wendy: What tech do they need to see in high school?
 - Luke: An understanding of when a web page loads, what's happening under the covers. A high-level understanding of that.
- **Maria's responses:**
 - My curriculum is broad enough that I can incorporate these different concepts, and they can flow from one to another. We have a classroom license for GameMaker Studio. It's really important for students to hear that type of project management.
 - The authentic display was very enticing.
 - I heard problem-solving in almost every one of your concepts.
 - Coding with actual industry professionals would be great. Today one of our other teachers brought her brother, who works for Microsoft, into the classroom.
 - We did peanut-butter jelly sandwiches for wireframing.
- Kate: What is wireframing?
 - Maria: You take a process and break it into pieces. Logic --- if, then.
- **Table Rotation #2**
Mike Stroh | *Computer Science Teacher, West Leadership Academy*
 - I want to talk to you about what types of courses students are taking. I got data off CollegeBoard's website.
 - Last spring, 11,000 students took the AP English class
 - US History: 7,000
 - Calculus: 5,000
 - Computer Science: 661
 - Out of those 661, 69% were white and 81% were male
 - Disparity between DPS demographic and the demographics of students who passed the AP Computer Science.

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- Equity is a huge part of what I'm trying to solve.
- New course: Exploring computer science
 - Designed for any students
- Right now it's the middle of the year, and I'm trying to bridge web design and go to coding.
- After that, we'll move from HTML to Python, C++, Java and whatever's next.
- I need to learn how to bridge that gap.
- Do you remember learning how to code? Do you remember what projects helped you to understand the fundamentals of programming? Variables, loops, etc?
- **Clarifying questions**
 - Kate: How many students are female?
 - Mike: It's not quite representative of the population, but it's close.
 - Wendy: Any after-school clubs?
 - Mike: No
 - Kate: Can students take computers home?
 - Mike: No
 - Wendy: Have you ever partnered with Denver Public Library?
 - Mike: 2 of my kids did the summer program, and they're a little ahead.
 - Luke: How much time do you have in the room with the equipment?
 - Mike: 50 minutes every day.
 - Wendy: Do you use online platforms?
 - Mike: A lot of the curriculum is through Code.org.
 - Nick: They're doing well with HTML and CSS. What makes second semester so challenging?
 - Mike: HTML and CSS aren't really coding languages. When you get into things like variables, students get lost. When you get into loops, students get lost.
 - Luke: Have you looked at any ways to teach those things offline
 - Wendy: Coding is English, and these students are Latino. Are there any language barriers?
 - Mike: At least 65% of students are bilingual.
 - Monica: Could you use that as an advantage? Being bilingual is like knowing various codes.
- **Industry response**
 - Terry: A lot of my kids in my class were behind, and they finished their programs on their phone. There could be an awfully huge capability by writing coding on the phone and testing it on the phone. If you integrate it with the phone, everyone can do homework.
 - Luke: There's a game called Robot Turtles, and it's a way for kids to learn how to program. It's a board game. Teaches loops. A game like that before jumping in to learning on the computer.

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- Maria: There are unplugged activities from code.org. I appreciate the 1:1 initiatives, but technology is moving so quickly. I highly recommend using cell phones. I believe you can use Scratch with your cell phones.
- Wendy: Learning your first coding language is really boring. The activity is just inane. Unless there's a big reason -- a "why" -- students are going to get lost. You need to learn how to personalize it.
- Terry: I learned how to code because my mom had a book, and I wanted to code a game. It was cool being able to take a game that already existed and alter it. There's no better way to teach students than to have them work on a project. Students can edit Javascript live on their phones, save it, and test it. FreeServer.com
- Sarah: Does DPS count computer science toward math or science?
- Sarah: Work with your school board to see if you can count it as math/science.
- Monica: One of our biomed classes deals with a "crime scene," and students figure out how the person died. Can you create a sort of project or story
- **Mike's Responses:**
 - There are a handful of states that require computer science. I'm an elective. Because I'm an elective, math teachers will take students out of my class to tutor them. I'm having a hard time explaining to admin how to give kids access to my class

Feedback & Close | 5:50pm – 6pm