Improving Research and Practice through Partnership:

Lessons Learned from
Santa Clara Unified Schools
and UC San Francisco Researchers

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When it comes to working with researchers, Principal Stan Garber of Cabrillo Middle School in Santa Clara, California, who opted in to a two-year study on executive function, says, "It really is all about individual kids. And I think if researchers understand the passion that most people in education have for kids, and they share that, they would be welcome in most schools."

He speaks from experience. Garber's research partner is Melina Uncapher, a neuroscientist at the University of California, San Francisco, and CEO of the Institute for Applied Neuroscience. Garber says Uncapher shares his team's passion for students, and holds his school's goals front and center.

In 2016, Uncapher invited the district to participate in a two-year, National Science Foundation-funded study on executive function. She is part of a team of researchers from three universities conducting the study in multiple districts, and says the study's core question is, "How do the core cognitive capacities of our brain, that we refer to as executive function, really help us learn?" Principals from nine district schools opted into the study, which includes around 1,000 third, fifth, and seventh grade student participants.

In contrast to traditional notions of distant relationships between schools and "ivory tower" researchers, Uncapher and Santa Clara staff say they have benefitted immensely from their work together. The key: a collaborative, ongoing relationship built on trust, reciprocity, and mutual respect.

Next we share how the research project progressed, from the early stages to data collection and planned future steps. For each stage, we share the perspectives of each partner: Uncapher's research team, and Santa Clara staff. Other researchers and schools interested in working together can learn from their story as they design research projects in their own districts.

Before the Study

Researchers: Developing a Relationship and Buy-In

Uncapher says she approached the Santa Clara project with a belief that teachers, school administrators, parents, and other community members could provide important perspectives that would help her refine her research questions and better understand the learning process. "I'm able to see how kids learn in the real world, instead of just how they learn in the lab…and understand the context in which they are learning," she said. "A lot of [researchers] will say that the end user that we're ultimately studying is the student….but I also think that the student is really supported by the teachers, the administrators, the school district, and the context at large," she added.

First, Uncapher presented her research proposal to district administration, and then held many conversations with school administrators and teachers. She also hosted "back-to-school night" programs with parents to share the goals of the study, field questions, and gather feedback. Wayne Leach, Principal at Bracher Elementary School, said, "A relationship was built. I felt Melina was in a way part of our community, because she came in, and she took the time to meet people. She talked to the staff, met parents…and I think if researchers do that, more educators will be willing to let them in to do projects *with* us, not *to* us."

When speaking with stakeholders, Uncapher framed the study as a way for schools to receive data that would be relevant to their work with students. Principal Stan Garber said, "The research made sense… to figure out what it is teachers can do, and what I can do, to teach students to make better use of the skills they have or develop executive function, thus becoming more

successful in everything. Why wouldn't a principal want to be involved in that?"

Further, Uncapher explained how the partnership would allow schools to engage in evidence-based practices without the burden of collecting and analyzing data on their own. Lori Rodgers, Principal at Laurelwood Elementary, agreed. "You have to partner with someone to do research because it's very difficult to run a school and also run a research program at the same time. So, it really fit the bill for us."

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Above all, Uncapher views research as a powerful tool to provide new information that can support schools' evidence-based decision-making, and hopefully increase their effectiveness. Her team generates the data, and then Santa Clara school staff can apply it in ways that will work best in their environment.

Besides directly benefitting students in the district, Uncapher presented her project as an opportunity for Santa Clara schools to help improve the entire education

enterprise. While there is a large body of existing research on executive function in other age groups, the study is one of the first to focus on elementary and middle school students. Leach commented that

he and his teachers are excited about the early data they've already received, as well as the chance to participate in a study that would "really make a difference, not just for our kids, but for education in general."

Schools: Allowing Access and Preparing Stakeholders

Uncapher says Santa Clara is an ideal district partner because administrators and teachers have what she calls "an understanding that they are a learning organism," and a belief in the power of evidence-based decision-making. Several Santa Clara principals confirmed this portrayal, and explained that participating in the study would fit well with their culture of having open conversations and using evidence to make decisions. Principal Lori Rodgers said, " [Participating in the research project is] going to be really valuable as this research comes in because it helps drive the discussion. As we talk about curriculum, we'll talk about what the data tell us."

Before data collection began, Santa Clara schools did their part to help Uncapher's team bring all stakeholders on board. In particular, principals met with Uncapher to fully understand the benefits of the study, and then shared this information with their teachers. Leach commented, "We didn't really have a lot of resistance here. People [teachers] just want to know, 'Okay. We're giving up our teaching time. What does this mean? What are we going to do with the information?'" He clearly shared the goals and benefits of the study before asking teachers to participate.

Further, Santa Clara school administrators offered Uncapher's team a high level of access to schools and students. According to Uncapher, this is unusual, as "a lot of researchers I hear from say the biggest challenge of research in education is access to students in classrooms." Administrators agreed to provide student data (such as demographic data, test scores, etc.) that would help the

researchers in their analyses, and offered numerous opportunities for the team to enter the school and collect data during class time.

However, despite administrators' and teachers' trust in Uncapher, allowing the research team into schools still required a leap of faith. Leach commented, "At first as a principal, you get nervous about who is in there working with your kids." He also said the parent release forms were intimidating, and he initially wasn't sure how the logistics would work. But as the process began, Leach saw that Uncapher's team was well trained and organized, and the school visits went smoothly.

For this study, Uncapher's research goals are well aligned with those of Santa Clara. However, Rodgers says in the future she might take initiative and reach out to a researcher, rather than wait to be approached. She suggests to educators in other schools, "Go to your district office and say, 'I'm really interested in this, and we should be partnering. Let's bring some people in.'" She plans to read bios of researchers at local universities to see if there are any with whom the district might share mutual interests.

During the Study

Researchers: Collecting Data and Giving Back

One thing Uncapher's team did particularly well during the study, according to Santa Clara school administrators and staff, was visiting regularly — not only to collect data, but to continue conversations, get to know the school environment, and "give back" to the school community.

Uncapher estimates she made between 20-30 site visits at each school in the study, and worked with some schools to present "Brain Day" events to teach students how they can use neuroscience findings to maximize their learning. Rodgers said the response at her school was positive, and she's already seen benefits. "We're helping students be metacognitively aware, so that they are thinking about their own thinking, and their learning... and how these things help you become a better student and a better learner," she said.

Uncapher's team also shared with staff the latest findings from the learning sciences that could be applied in the classroom. For example, Uncapher presented research on the benefits of "brain breaks" between activities. Rodgers estimates about 80-90 percent of her teachers now implement these breaks in their classrooms, and many say it's exciting to learn about the latest research. Similarly, Garber told us his team took information from Uncapher's presentation and immediately made "small changes, little modifications that can make big differences in how productive students can be, and how they go about the business of being students."

Recognizing it can be distracting and time-consuming to have outsiders in the classroom, Uncapher's team tried to be as unintrusive as possible. She said, "My staff is really well trained, and they know what our intention is: to come in and have as light of a footprint as possible, because we don't want to give them [teachers and administrators] extra

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work." Compared to other studies for which students work with researchers individually or are split into groups, this study design allowed for all participating students to complete activities at one time, minimizing the overall class time needed. Santa Clara administrators were pleased with Uncapher's approach, and appreciated knowing logistical details related to the study in advance, including who would be in the school, when, and for how long.

Finally, Uncapher's team shared initial data in staff meetings, inviting administrators and faculty to provide feedback and offer questions the team might pursue in later phases of the study. She plans to continue sharing data with school stakeholders often, and will make sure it is analyzed and presented in a way that is relevant to their needs and interests. Principals say they valued the opportunity to review early data and talk with the research team, and they look forward to their help interpreting study results. For example, Leach hopes the research team can help him compare the study data with results from other assessments his school uses.

Schools: Fostering Teacher and Student Engagement

In keeping with the district's evidence-based culture, Santa Clara administrators and teachers stayed engaged in the research process throughout the study. They reviewed early data, and had conversations about what they were learning. This high level of engagement helped guide the research team's work, and ensure the data would be most useful for the schools' real-world practice. Garber commented, "We were just that much more involved, because it seems that much more relevant than other projects we've taken on." Rodgers added that she is working with the district's assessment department to do a deeper analysis of the data, and compare it to her students' state test data.

To help make the data collection process as smooth as possible, Santa Clara administrators and teachers also encouraged, though did not require, students to fully participate. Working alongside the research team, they shared with students and families the goals of the study, and presented the opportunity as beneficial to them as individuals, as well as for the greater education community. They also emphasized that it would be fun to participate in the study. Garber told us, "It was more like a game than a test to them, and so it was something they wanted to do, and something they wanted to be involved in."

After the Study

Researchers: Continuing as an Ongoing Partner

Although the research project is not yet complete, Uncapher's team is already planning how they will continue working with Santa Clara schools after the study ends. First, her team will present final data in a way that is useful for schools. For example, in addition to broader analyses of school-wide or grade-level performance, she says the team will combine study data with standardized test scores and grades to create "a really rich profile of each learner."

Second, Uncapher will make herself available to schools for ongoing conversations and assistance. She described how she strives to be "in conversation around what our problems of practice are, and what we [researchers] could bring from the science of learning."

Rodgers is looking forward to this continued relationship with Uncapher, and hopes she will come back and help administrators figure out "...how we can really incorporate the learning from this more deeply in the schools, and what it tells us."

Schools: Taking Time to Analyze, Share, and Apply Data

Santa Clara administrators plan to give teachers time to analyze the research team's data and figure out how it applies to their daily work. They will also compare data from the study with their existing assessments and state test scores. In this process, however, they realize there is a potential for what Leach calls "data overload." So, the administrative teams are thinking carefully about how to best present findings and help teachers move forward, feeling empowered by the additional data rather than overwhelmed.

They also plan to share study data with the entire community of school stakeholders, including students' families. Here too, Leach will move forward with caution, adding, "My concern is we want to make sure, if we put that [data] into parents' hands, that we have a really good explanation to go with it, so that you're not just getting charts and graphs." He wants to help parents understand "what this really means, and how we can help your child individually in their educational practice."

The Future of Research in Schools

The strong relationship between Uncapher's research team and Santa Clara schools is inspiring. Both sides feel they are important partners in the project, and both benefit. Their relationship aligns with emerging definitions of successful *research-practice partnerships*. For example, Tseng (2012)[1] lists the qualities of successful researcher-school partnerships as a strong relationship built on trust, shared commitments, and open dialogue to improve research and its use.

NMSA teachers said that this research affirms what their "gut" tells them to try in the classroom, increases their understanding of students' experiences, and empowers them with tactical information that can improve their effectiveness. An inspiring example of learning science research implementation comes from former NMSA math teacher Dan Newell.

Newell's interest was piqued when Uncapher presented research on retrieval practices, which are strategies for bringing information to mind that have been shown to improve retention of that material. He had been looking for a way to help students recall information when they need it most, such as when taking a routine quiz or test, or facing the high-stakes assessments that can determine whether or not they will graduate. His students had typically prepared for tests by "reading and rereading" their notes, but research has shown that this strategy is *not* effective for remembering information over the long term. Newell decided to implement retrieval practice with his classes using three strategies.

> We need to have everybody at the same table, having the same dialogue, and bringing their own personal wisdom to the conversation.

[1]Tseng, V. (2012). The uses of research in policy and practice. Social Policy Report, 26(2), 1-16.

Learn More

This case is part of our series on implementing research in practice: a collection of stories and videos that highlight examples of learning sciences research use in districts, schools, and classrooms, as well as meaningful collaborations between researchers and education practitioners.

Check out the **video** to learn more about how Santa Clara administrators collaborated with their UCSF research partner.

Visit the Digital Promise Research Map for videos, summaries, and resources to help you start using research today!

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