

Instructional Support, Part 1: Science and Technology

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Roselia Ramirez: Hello, and welcome to “Instructional Support, Part 1, Science and Technology.” This is the first of a two-part podcast where we will explore some common questions, resources, and strategies related to helping grantees understand effective teaching practices that support STEAM thinking and learning, as well as children's development of creativity, inquiry, and problem solving skills, or instructional support.

My name is Roselia Ramirez, and I am joined today with my colleague Melisa Jaen, and we are your hosts for today's session. If you're looking for more information on the research behind the ways children develop STEAM knowledge and skills, we invite you to explore the “Research On the Go” podcasts that were developed to specifically talk about the research. You can find these and all other podcasts on the Head Start TALKs app.

As you may know, the 2019–2020 Teacher Time Series is focused on helping teachers and family child care providers understand how to support STEAM thinking and learning every day. During these episodes related to science and technology, there were many great questions asked. During this podcast, we will be talking about how you can partner with grantees to support teaching practices that encourage children to use inquiry skills, such as observing, asking questions, exploring, making predictions, and analyzing information to help them learn about how the world works.

Let's get started. Melisa, let's begin the discussion with first defining what we mean by STEAM. If you are in an elevator and have let's say about 30 seconds to help someone understand what you are talking about when you say STEAM. How would you respond?

Melisa Jaen: I would start by defining STEAM, which stands for Science, Technology, Engineering, Arts, and Math as we know from research. Children have a natural sense of wonder and curiosity about the world around them. So, STEAM learning is essentially the way children think, explore, and create.

And when we think about STEAM from a child's perspective, engaging in science can be as simple as exploring leaves in the fall. Technology is using an iPad to investigate why leaves are shaped the way they are. Engineering is exploring how and why they're blowing in the wind. Art is creating their own leaf. And then, math is sorting them by the shape and color. So, as you see, STEAM learning is all around us and should occur every day, in every routine, in every type of program.

Roselia: Wow, when you think about these terms from a child's perspective, they seem so simple, but we often hear and sometimes see that education staff are struggling to support children in this area. And they're sometimes intimidated by the concepts. Got me thinking, you

know, during the 2019 Teacher Time STEAM Series, there was a formula that was shared for teachers, family child care providers, and that home visitors can apply, and it included three things: Creating an engaging environment, providing nurturing responsive and effective interactions, and providing science and technology related learning experiences and opportunities for children.

Let's explore this a little bit further. Melisa, what might you suggest for an ESC who is working with a grantee in these three areas? To refresh everyone's memory, engaging environments, effective interactions, and learning experiences that support STEAM skill development?

Melisa: That's a great question. And there are actually many tools available to support grantees, but there are a couple of them that come to mind. I was thinking that through process consultation, you can actually reflect with the grantee on data sources such as staff education and experience, class observation data, hovers, coaching data, and also the quality of ongoing assessment data related to children's development as defined by the ELOF cognition and approaches to learning domain.

You know, starting with data, can actually help to establish an individualize approach to capacity building. This can be done by simply modeling the inquiry cycle, asking questions, making predictions with the grantee, exploring together, discussing possible outcomes, and also conducting observations.

Roselia: Okay. Let me see if I'm understanding you. Process consultation can be a starting point in helping a grantee to understand their challenges; but what do they do next? How do they go from understanding their challenges related to STEAM teaching and learning to supporting staff and implementing effective teaching practices? So, let's say an education manager shares that their observation data has indicated that there aren't enough materials in the environment that supports science and technology learning, and that their teachers are not frequently engaged in interactions that support concept development. What would you suggest for them?

Melisa: Your question got me thinking about my time as an ECS, when a grantee reached out to me regarding instructional support challenges, specifically related to concept development after they review their class data. The education manager and I began with process consultation, and together we observed interactions in the classroom, reviewed lesson plans, and looked at available classroom materials. Through this process, I was able to support the education manager in developing targeted professional development, aimed at addressing how to implement effective teaching practices in science and technology. How to you use materials to support the learning? And how education staff can share science and technology materials? Rotating materials can be challenging specifically if the materials are different from what the children usually use. We learned also what the education staff challenges were, by meeting with each teaching team, and based their PD plans on their needs.

Roselia: Melisa, this is a great example of how to support movement from knowing the challenges to exploring solutions that support implementing effective teaching practices that

are specific to science and technology. You know, on the Teacher Time episode they highlighted a STEAM box full of resources that can be found on the ECLKC, as well as on my peers. The STEAM box was sent to education managers to help them support their programs. Do you have an example that you could share with us, which will highlight just how these resources can help support programs?

Melisa: I sure do; and I'm so glad that you mentioned the STEAM box; it really came in handy. I was able to show the education manager how to use some of these resources included in the box. I would suggest starting with the AIAN manager webinar series bringing Science into the classroom video. This webinar focuses on using the scientific method to support children's cognitive and language development. It also discusses how education managers can support teachers to infuse science throughout the day.

We — when children ask why STEAM sharpens their inquiry skills handout, is a great resource to support the development of PD plans. With this resource, the education manager can help education staff to review the scientific method and learn how to foster children's thinking and increase their investigation skills. Now, we also want to think and consider how to support coaches to help teachers implement effective teaching practices specific to science and technology? The coaching corner webinar, "Full STEAM Ahead," using practice-based coaching to support the teaching of Science, is a resource I use to model the inquiry cycle when the education manager shared with me that she wanted to support the coaches.

Roselia: Melisa, I really like how you were able to make connections between these resources and skill development. These are some great tips. But can you tell us a little bit more about how this might look?

Melisa: All right. So we first explored how she would use this hand out to support her coaches. I shared my predictions on how it might help coaches increase their knowledge around the effective teaching practices that are specific to Science and Technology. Then, I observed the education manager supporting the coaches. I was actually able to observe her providing training using this webinar content which led to great discussions.

Afterwards, I talked with the education manager about what went well and she was able to identify some other areas of PD needed. As a result, modeling the inquiry cycle was so helpful for the education manager because she eventually begin implementing this type of process in her work. Coaches became more knowledgeable about concept development, how to use the related resources with coaches, and how to plan and execute coaching activities, most importantly with time, consistency, and supporting resources. Education staff gradually demonstrated an increased understanding of effective teaching practices related to Science and Technology.

Roselia: Thanks for sharing, Melisa. Those are some wonderful examples of how we can use the resources and the STEAM box to support effective teaching practices that are related to science and technology. Let's put over our thinking caps. There are so many resources that we have

available, are there any resources that come to mind that we can resurrect to help with this process?

Melisa: Come to think about it, there are some oldies but goodies that are available to help support with this process. One that comes immediately to my mind are the effective practice guides. This resource can be paired with coaching to support education staff. This also reminds me that we must keep the ELOF at the forefront as we think about supporting programs. After all, the ELOF identifies the five domains and Science and Technology is embedded in all the domains. This framework can really support the planning process to ensure that our education staff is embedding opportunities for science and technology and the arts throughout the day.

Roselia: Well, Melisa, we have come to the end of our time together in part one of the ECS podcast series. We have talked about some resources and strategies you can use to support grantees in promoting effective teaching practices that foster how young children learn about science, technology, and art. Science, technology, and art are all around us. Thank you for joining us today, and we hope that you can join part two of this podcast series for ECSs, where we will focus on engineering and math.

Announcer: Thank you, for joining Head Start TALKs. For more information on what you heard today, visit the Early Childhood Learning and Knowledge Center or ECLKC at eclkc.ohs.acf.hhs.gov.