

55 - STEM in the Classroom

Original Air Date: 9/6/22

Purpose: The purpose of the transcripts is to provide readers and listeners with a written version of each episode of the UAGC Center for Early Childhood Education's Early Childhood Chatter Podcast so they can follow along with the audio content. www.uagc.edu/ece-center/chatter-podcast

Audience: Current Active & Enrolled Students

Episode Transcript

Host Dr. Shipley: Hello everyone and welcome to Early Childhood Chatter with Dr. Shipley and Dr. Heald. We will upload a new episode every other week on Wednesdays.

Host Dr. Heald: Twice a month, we will come to you with a 10-minute professional development that you can quickly listen to for new ideas to try.

Don't forget to subscribe to this podcast for notifications.

Today we are so excited to have our special guest, Norda Lewis, with us today, to chat. So Norda has a master's degree in education with a concentration in special education and a graduate certificate in autism.

She is a licensed behavior specialist and serves on the board of directors for the Victim Services Center of Montgomery County. She is also the owner of Innovation and Exploration STEM Early Learning Center. Norda, we are so excited to talk to you today.

Thanks so much for being here.

Norda Lewis Speaker: Thank you so much for having me here today.

Dr. Tisha Shipley Speaker: So Norda, I love the topic we're going to discuss today, which is STEAM and STEM, and how it should look in the preschool classroom, because it is so relevant, and it really is going to help our listeners set up their environment for success.

So, tell us why you decided to talk about STEM and why it's important to you.

Norda Lewis Speaker: So, the reason why I decided to talk about STEM today is, so during my master's thesis, I completed my master's thesis in STEM education, because I wanted to see the benefits of STEM education, and I was so amazed with the hands-on learning aspect, and how four areas were connected to help understand the one concept.

My research consists of the benefits of STEM education, the challenges early child education teachers face when implementing STEM in the classroom. Also, the relationship between early child education teachers' belief on readiness of STEM education, and finally, how can early child education teachers support STEM in the classroom?

So, this research really helped me to identify the benefits and also the issues teachers were facing in the classroom.

And after that, I decided to implement a two-year program because I wanted to see how STEM would benefit young children in the classroom.

Dr. Tisha Shipley Speaker: So, Norda, in those two years, what did you see?

Norda Lewis Speaker: So, I realized there was no limit to what young children can learn. These children understand basic math concepts.

They were doing simple additions in their heads. And also, they became better problem solvers. I was really amazed with that.

And also, I actually follow up with some of these kids to see how they're doing. And they're doing so well in math and science.

Dr. Stephaine Heald Speaker: Norda, that's great.

It's just such a relevant topic in our society today. So, for our listeners who might not know what STEM stands for, it's actually science, technology, engineering, and mathematics. And so, Norda, I am very visual.

Our learners know this. Our listeners know this. Can you explain to me what the classroom setup might look like when incorporating STEM into it?

Norda Lewis Speaker: Yes.

So, the classroom setup is so important because it invites our learners to explore their environment. So, in a preschool classroom, in addition to your regular centers, you want to actually have the math center. You want to have the science, engineering, and technology.

And also, definitely have your literacy center. And in your literacy center, make sure you have put in those STEM-based books because that's where you're getting your information from, the informational texts. So, for example, for a science center, you really want to start with outside because there's so much you can find from your environment.

You can collect rocks. You can collect pinecones, leaves, sticks. And currently, in my preschool, we have microscopes, magnets, telescope, magnifying glasses, thermometers, bugs, x-rays.

There's just so much you can put in there so they can explore their natural environment. You also want to kind of like focus on the engineering. A lot of times, you don't see the engineering center.

But for us, we have a Lego wall, and it's really helping with the fine motor skills. You want to focus on the STEM-based toys. They're so important.

They can be a little pricey, but they're really good resources to have in the classroom because they promote the problem-solving skills, sharing, communication, and collaboration.

And when you're using these STEM-based toys, it's really important to let the kids work in groups because that's how they're going to be able to work on sharing and the collaboration and the communication.

I want to point out to everyone also, that having STEM-based toys and calling it STEM is not the only thing that makes up a STEM curriculum.

Dr. Tisha Shipley Speaker: Okay, so you talked about centers. You talked about the materials. So, in this, all of the great things that you do.

So, what about setting this up into your weekly lesson plan? What does the curriculum, and the lesson plan look like?

Norda Lewis Speaker: So yeah, so the lesson plan, and that is so important because right now, we have a lesson plan every week, and the parents, they know exactly what's going on in the classroom.

But when you do your curriculum, you want to create it in a way where children get that opportunity to still explore the science, the math, engineering, and technology, in addition to all the different areas of development. Your STEM curriculum should also allow children to observe, to investigate, to make predictions, taking risks, making connections, promoting curiosity and exploration, and also encourage play because that's so important.

And providing opportunities to conduct simple experiments. Kids love experiments, and just getting them in that habit of making predictions and then using the vocabulary that they can understand can really be helpful for them.

And the next thing I want to remind everyone that STEM, when you're teaching STEM, you can separate them, but I encourage you to do them together because they're normally done together.

In a preschool, like for example, in our preschool, we usually do a lot of STEM challenges, and the kids love it. But an example of a STEM challenge would be, say, they're teaching a lesson on bridges. So, the science would be the types of bridges and what makes it strong, what makes them strong.

The technology, you can, if you have a smart board, you can incorporate a smart board by doing research on different bridges. They can use their fingers to touch it and move things around. So that's how you get the technology in it.

Also, for the engineering part, it would be they're designing a bridge that can carry weight. They're going to get the opportunity to think out of the box. And then for the math, using penny to test the bridge to see if it can carry weight.

So that's how you kind of like combine all four together and make it fun and ends on for the kids.

Dr. Stephanie Heald Speaker: You've done a really great job explaining the environment and the curriculum and truly how to draw kids in to promote curiosity and critical thinking and problem solving. You probably have experienced some challenges with this in the classroom environments.

Can you speak to how we would overcome those adversities?

Norda Lewis Speaker: Well, a lot of challenges that, like, even based on my research, teachers were facing, they mentioned that they don't feel competent teaching the math and the science, and it's because they struggle in those areas. So that's like one of the main challenges for them. But also another challenge is getting the materials that they need, getting those resources, because it can get pricey, as I said.

But I encourage teachers to start with their natural environment, using, encouraging kids to use their five senses, pulling the things outside from outside, like the rocks and all that, just so it can be more affordable. But that is a challenge. And what I realized, the more you think STEM, the better, easier it becomes.

And also using the literacy to support you, because that's where you're going to get a lot of your background knowledge from, those STEM-based informational texts.

Dr. Tisha Shipley Speaker: Wow, so much information, Norda. It's just, this is great because teachers need to know how to implement this.

So, what are three takeaways that you have for our listeners before we wrap up?

Norda Lewis Speaker: So, three takeaways that we have. So, what I want to encourage teachers, so don't overthink teaching, promoting and engaging children in STEM education. It can be simple, and I know it's easy because sometimes we get intimidated by it, but don't overthink it.

Another thing, another takeaway I want them to have is, remember STEM education is not just placing STEM-based toys in the classroom and call it a STEM curriculum. Utilize your natural environment. Encourage children to use their five senses.

Also, STEM is also more than just doing a bulky experiment without no background knowledge. It is cute, but try to incorporate the literacy, making connections, incorporating the math and the science of volcano, just getting them to think out of the box and learn more instead of just the experiment. And finally, don't, try not to leave the math out in the STEM.

There are simple ways to incorporate the math, especially utilizing materials in your classroom, such as rulers, scales, using a graph for data collection, comparing results and counting. And additionally, make sure that your lessons are developmentally appropriate to meet all your learners.

Dr. Tisha Shipley Speaker: That is amazing.

Thank you, Norda, so much. We appreciate you being here today and sharing all of this very useful information.

Norda Lewis Speaker: Thank you so much for having me.

This was really, really a privilege. Thank you. Thank you.