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## Episode 49: Extended Learning Opportunities with STEAM

**Becky:** Hello fellow educators! At this point of the year, I know you and your counties are turning your attention to planning amazing and engaging summer learning opportunities for your students. So, we only thought it was fitting to focus this episode on extended learning. My co-host Samantha Statler will not be joining us today, instead I am very excited to be joined with two of my colleagues, Keisha Runion Thompson a coordinator from the Early Elementary Services at the West Virginia Department of Education and Danielle Irby, a fellow early and elementary learning specialist. Hello ladies, thank you for joining me today!

**Keisha Runion Thompson and Danielle Irby:** Hello Becky. Thank you for having us on the show.

**Becky Lewis:** Ladies, I would like our audience to know a little bit about your varying backgrounds in education to set the stage for the conversation today. Keisha let's start with you. Could you care to describe your educational journey to this point and a little about your current role at the WVDE?

**Keisha Runion Thompson:** Sure! As Becky said, my name is Keisha Runion Thompson, and I am the Science, STEAM, Computer Science, and Social Studies coordinator in Early and Elementary Services in the Office of Teaching and Learning at the WV Department of Education. I started this role in August of 2020. Prior to my job at the WVDE, I taught for over 15 years in Putnam County, with the majority of my time spent teaching 4th grade.

**Becky Lewis:** Thank you Keisha! Danielle, how about you? Can you tell us about your professional journey up to this point?

**Danielle Irby:** Certainly! My name is Danielle Irby and I am one of seven Early and Elementary Learning Specialist at the June Harless Center. I started in this position in July 2021. Prior to this, I taught 16 years in Kentucky and West Virginia in various roles. Those roles included time as a special education teacher, interventionist and 3rd/4th grade.

**Becky Lewis:** As I mentioned a moment ago, we know that many of our counties are in the process of planning their extended learning programs for the summer.

We also know that many of our counties are setting goals for the next year to include extended learning opportunities for afterschool, too. Danielle, can you let our listeners know how this episode can help with that planning?

**Danielle Irby:** Of course. We will examine survey results outlined by the Afterschool Alliance's research called STEM Learning in Afterschool on the Rise, but Barriers and Inequities Exist. We are going to look at the importance of afterschool STEM programs, through their continued findings of this research, challenges that can be found with these programs, and recommendations to bring and build strong STEM programs. We will also look at the latest findings for WV afterschool STEM programs and recommendations for next steps.

**Becky Lewis:** Thank you, Danielle! I know that it will be important for our listeners to know and understand the latest findings in WV afterschool STEAM programs in order to continue to evolve the extended learning programs that have already been established. It is also important for our listeners to know that this research has been going on for a long time now.

**Danielle Irby:** That's right Becky Lewis! They have been surveying families about every 5 years when they started in 2004, then again in 2009, 2014, and most recently in 2020. Each time, they have taken their original survey and narrowed the focus on questions about the STEAM programs to better gauge what experiences each student has with these programs.

**Keisha Runion Thompson:** I think this is good that studies are being conducted on the importance of STEM. The job market is showing an 8% increase in STEM careers by 2029. This is a much higher gain than non-STEM careers which is estimated to see an increase of just 3.4%. Trying to get kids interested early to help fill these jobs by not only getting them interested, but by also providing a foundational education in the skills needed to be successful and confident as they explore STEM careers.

**Danielle Irby:** Keisha, you bring up a good point. Getting them confident and interested early on is essential to support this growing market.

**Becky Lewis:** Keisha, the WVDE just recently added to STEM, STEAM or the arts to STEM. Why was this an important adjustment?

**Keisha Runion Thompson:** Art was added as an additional piece because it allows students the ability to express themselves through a variety of mediums. Students are given the freedom to be creative. The arts, including liberal arts and humanities, also allow students to include empathy as the arts are integrated into STEM activities. STEM is meant to be transdisciplinary, so it really is a natural step to include the arts along with all other content areas as students work to solve problems that are presented to them.

**Danielle Irby:** I'm glad you brought this up. Art was not included in this survey, but as they have continued to narrow their research, I think the addition of the arts would be interesting addition to look at. As we continue through our discussion, we may refer to the acronym of STEM as STEAM which is just STEM with the arts as Keisha mentioned. So even though art was not included, many of the programs that are highlighted and recommended in the article include art in their STEM programs.

**Becky Lewis:** With this research that is evolving by the Afterschool Alliance, what did they look at?

**Danielle Irby:** The Afterschool Alliance looked at the opportunities for science, math, and technology and engineering that were being provided in afterschool programs for all grade levels. They broke each piece up to see which area of STEM was getting the most attention in each component.

**Keisha Runion Thompson:** Danielle, I noticed that computer science was added to the 2020 survey which is a newer area to STEAM.

**Danielle Irby:** Keisha, that is correct. Would you share more about the importance of computer science?

**Keisha Runion Thompson:** Computer science is important in so many aspects and impacts everything that happens in our world today. Computer Science goes beyond computers. West Virginia has the WV College- and Career-Readiness Standards for Technology and Computer Science for all grades—kindergarten through twelfth grade. The standards are broken into clusters. The technology clusters include Empowered Learner, Digital Citizen, Knowledge Constructor, Innovative Designer, Computational Thinker, Creative Communicator, and Global Collaborator. The computer science clusters include Computer Science and

Computational Thinking, Networks and Cyber Infrastructure, Data and Information, Programming and Algorithms, and Impacts of Computing. Even in Pre-K, the standards offer opportunities for children ages 3-5 to engage in developmentally appropriate technology integration. With all these standards, students learn how to use various technologies to build knowledge, enrich learning experiences, collaborate, solve problems, and communicate in meaningful ways.

Starting with foundational skills and building throughout each grade level, these standards represent what we want for all WV students as they prepare to go into the real world. While these standards may appear to only be helpful for students who want to go into STEAM-related careers, every student can benefit from the knowledge and skills being built through the standards.

**Becky Lewis:** I completely agree with you Keisha. All students can benefit from the knowledge and skills that are taught through these standards. These skills build on the 21st century skills that students will need to thrive in the working world. Sara Hutchinson and I discussed these 21st century skills in detail in episodes 19-22. I will link those in the show notes for listeners who may be interested in hearing more about those and making the connections to the WV CCR standards that you just mentioned. Focusing back on the survey, Danielle, what else can we share with our listeners?

**Danielle Irby:** Well Becky the afterschool alliance also looked at afterschool programs that often are populated with our most underrepresented population in the STEM fields. This underrepresented population includes women, African Americans, and Hispanics. As well as the difference in programs for rural, suburban, and urban populations.

**Becky Lewis:** Right, Danielle! And the findings of this survey found that parents are seeing the importance of STEAM programs and that number continues to grow since this study first began in 2004. Knowing the importance has impacted what programs are chosen because they are looking for these specifically look for these types of programs for their kids. 75% of students are participating in afterschool programs that have STEAM related activities.

**Danielle Irby:** What I find so interesting about what you just shared Becky is that that is a high percentage of participation! It is important to note that these

programs are also reaching our underrepresented population in the Black and Hispanic/Latinx communities. These communities have the highest opportunities for students to participate in STEAM programs. There is still a gap in gender offerings in which boys are more likely to participate in STEAM programs than girls.

**Becky Lewis:** I am not sure about you ladies, but I find that fact very important when thinking about STEAM programming. We have known for a while that there is a gender gap when it comes to STEAM programs, and I know that people in charge of planning at various levels have been aware of this fact for quite a while but it's heart-wrenching to hear that there is still a gender gap. Danielle, this also has me wondering about the different communities and participation in STEAM programming. Here in WV, we have a variety of rural, urban, and suburban communities. Can you talk a little about the part of the survey that idea?

**Danielle Irby:** Sure Becky. There is still an unbalanced opportunity for STEAM related programs in our lower income communities than our highest income communities. The divide has been created due to the differences of availability in these communities, as well as the cost to attend. Programs are expensive, transportation can be an issue and there is an increase in access to programs. Urban areas have a greater opportunity than rural and suburban areas. The survey also identified that families in urban areas were intentionally seeking STEAM related programs because they knew the importance of STEM. Rural students are not only underrepresented but are underserved. There is limited access to qualified instructors in the STEM field, as well as resources, and community partners.

**Becky Lewis:** I know that communication can often be a barrier for families to enroll their children in programs like the we ones we have been discussing today. Danielle, could you tell our listeners where families can find these types of opportunities?

**Danielle Irby:** From the survey, which was looked at from a national lens, afterschool programs could be found in public and private schools, national organizations, local libraries, religious organizations, and a small percentage of students went to programs at the local museums. Thinking about in our state, I know many schools are preparing for their summer programming that offers a

variety of opportunities for STEAM based activities. Local libraries will be hosting summer reading programs. I would also check in with local museums and our city and state parks, as well. I know they have offered a variety of educational experiences available for students.

**Keisha Runion Thompson:** Those are all great starting points for families. You know looking at each component of STEAM, technology and engineering continues to be on the lower end of opportunity in afterschool programs, and spotlights, a problem: having the funds available to purchase these more expensive items, but also training the adults in charge to guide students in exploration in technology and engineering.

**Danielle Irby:** That is correct. So, to help this and other areas of their findings, they provided recommendations to better STEM opportunities for all. The first recommendation was to alleviate underserved areas need for STEM, by getting museums, universities, different local agencies or industries into the STEM field to partnering with rural afterschool programs to set up programs that they can support these underserved areas. Also, providing more opportunities for programs that focus on girls. There are several national programs available that try to target STEM related for females.

**Becky Lewis:** These are great recommendations and a way to build community partnerships if these resources have not been utilized in the past.

**Danielle Irby:** I agree. Another recommendation was letting parents know the importance of STEM/STEAM programs and how it will help develop interest in the growing STEM field.

**Keisha Runion Thompson:** This is very important to make these programs thrive and to make sure that all understand not only can these be fun opportunities, but students are also being prepared for careers that may not already exist.

**Danielle Irby:** That is so true. Students that participate in these programs could be one step ahead of their peers if given these opportunities. What better way to do that than provide these afterschool programs with the resources they need to participate in the full STEM/STEAM program by getting well developed programs and curriculum into the hands of staff, but also provide training for the staff.

**Keisha Runion Thompson:** Danielle, did they provide any information on what STEAM programs look like in WV?

**Danielle Irby:** I know that many counties participated in Summer Sole this summer to provide STEAM programs to all students and due to that success, they will continue next summer, too. Based on data collected by the Afterschool Alliance, there is an unmet demand for after school programs in West Virginia and that is not just STEM related programs. Unfortunately, 1 in 4 students have access to an after-school program.

**Becky Lewis:** That is a very low number of students gaining access to these important programs.

**Keisha Runion Thompson:** That is. How can schools gain the funding to support these types of programs in their school?

**Danielle Irby:** There is a state Afterschool Alliance contact through the WV extension office that counties can reach out to see what funding or resources are available. There are also the 21st century community learning centers grants that can support these local programs. Applications can be submitted by public and private agencies, city and county governments, faith-based institutions of higher learning and for-profit groups. Applications for 2022 - 2023 school year are due in May 2022. They have FAQ's that can help those who apply.

**Becky Lewis:** I am glad to hear that there are ways to make connections.

**Keisha Runion Thompson:** Through the recommendations it mentioned local resources, hopefully schools, if they haven't already, look into ways they can connect with different organizations, too.

**Danielle Irby:** There are also national organizations that provide the tools necessary to get programs started such as Girls that Code, Girls Inc., Learn Fresh, and many more referenced in the article. You can gain access to the link through the show notes.

**Becky Lewis:** Where can you find this research and additional information if schools are interested in finding any additional resources?

**Danielle Irby:** They can go to the afterschool alliance site which has a wealth of resources for any organization trying to create STEM/STEAM focused programs. They can also go to the WVDE website to look up recommended programs in extended learning.

**Becky Lewis:** Before we go, Keisha, I would like you to answer one final question. What is one tip or piece of advice that you could give our listeners about planning extended learning programming that is focused on STEAM?

**Keisha Runion Thompson:** Ask questions, and let students answer them so they can ask more questions. Students have such great imaginations and allowing them to figure out how to create solutions will engage them and lead to more questions. Our classrooms have the next great inventor, engineer, and scientist in them. We have no idea what they are going to create or the problems they are going to solve for our future. It all starts when they are young though, and we need to give them opportunities to explore and expand on their STEAM experiences and knowledge, not only in school, but outside of school as well.