

# Community healing in Appalachia: Narrative development through K-8 CT/STEAM initiatives in Eastern KY



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<https://bit.ly/TANrefs> <https://bit.ly/CTKinship>



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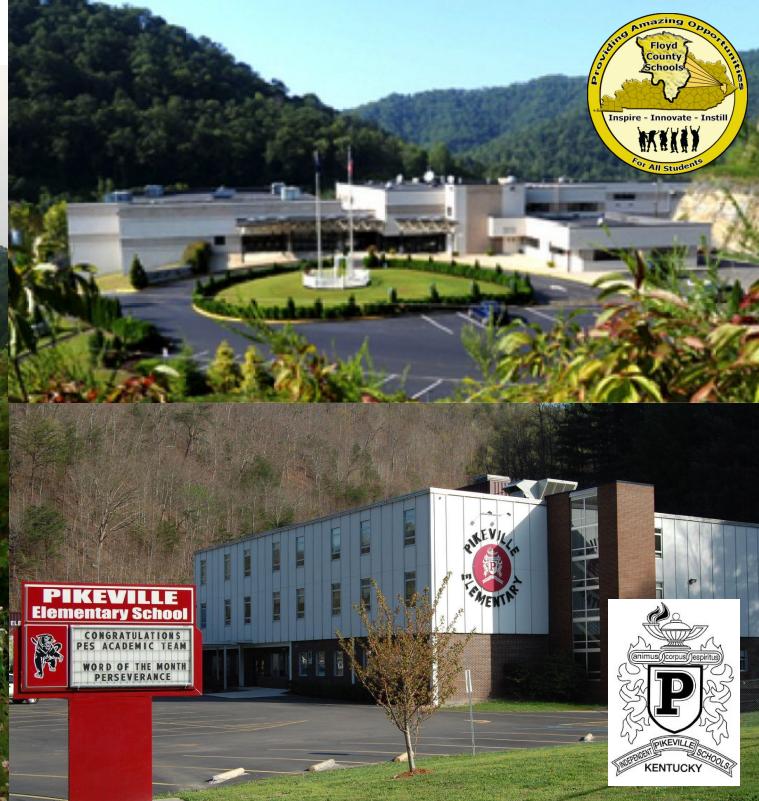
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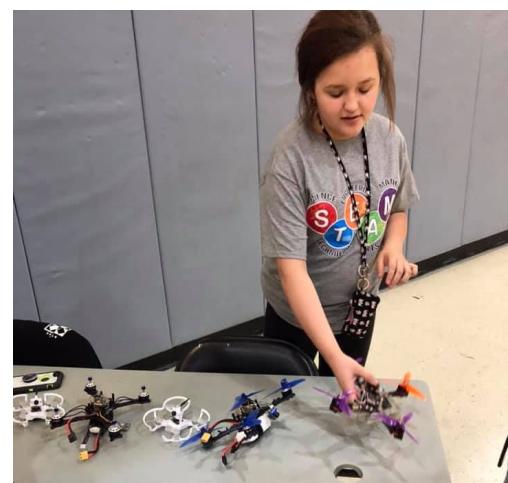
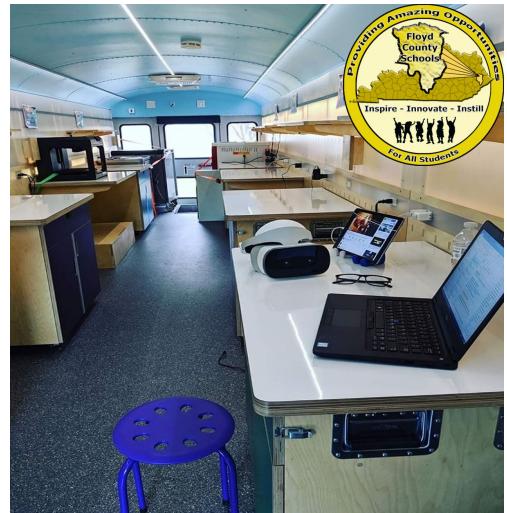
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# Our Setting: Eastern KY







# Kentucky Appalachia

- Eastern Kentucky (yellow)
- “Mountain people” (kinship, strong love of place, egalitarianism, independence, religious worldview, etc; Keefe 2005)
- Coal industry → computer science & entrepreneurship?
- Education leaders invited Digital Promise researchers to help design a K-8 Computational Thinking pathway
- Two NSF CSforAll Research Practice Partnerships (RPPs)



# What is healing?

Healing is **when a wound no longer significantly affects us in a detrimental way. It's not a reset ... It's about finding a new way forward**, including the information we got from the injury.

(E. Pierson, 2023, personal communication)



# What is Eastern Kentucky hoping to heal from?

Loss of a sense of pride

Loss of the sense of ability and  
agency to support themselves,  
and care for each other

Loss of identity



# What is narrative development?

“The stories we tell ourselves about ourselves are equally as important as these other efforts. And so it's really important, ...that you're teaching **not the victim narrative** that we all hear – the put-upon narrative – but [to teach] the **possibility narrative.**”

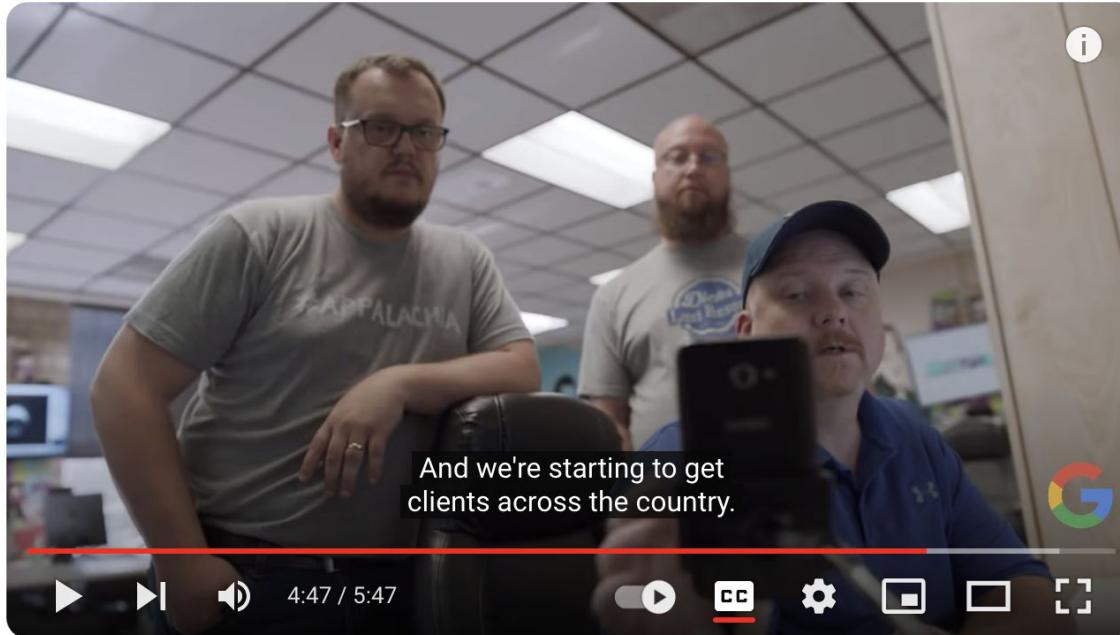
(R. Justice, personal communication to Eastern KY teachers, Summer 2021)



Today's topic: **How an NSF computational thinking education project has tried to contribute to narrative development and healing. What we might learn from that.**

- Possibility narratives in Eastern KY
- Evidence of narrative development among education leaders
- Possible project contributions
- So what?

# Iconic possibility narrative in E KY (2018)



Bit Source: Appalachian ingenuity

# Lynn Parish - Co-Founder of Bit Source (software development company in Eastern Kentucky)

All the naysayers kept saying, “you can’t train coal miners to be able to code.” But hey, these guys have been working around tech their whole lives. And they’re **tough as nails**. We can do this.



# Appalachian Retelling Project

THE APPALACHIAN  
RETELLING PROJECT

HOME CATEGORIES ABOUT GET INVOLVED IN THE NEWS



RETELLING OUR STORY.

Challenging the narrative  
about Appalachia, one  
story at a time.

AB



PEOPLE + PLACES

The Faces & Spaces  
That Make Us



CULTURE + HERITAGE

Traditions, Culture,  
& Events

HISTORY + EVENTS

Stories From the  
Past & Present

Photo: Must Love Herbs

# Our NSF project goal: Don't distract, positively contribute to these community narratives as we promote computational thinking in schools

~~“We want computational thinking in our schools so that students can be like Elon Musk, go work at places like Google or Apple.”~~

# Evolution of “Why computational thinking?” (2020 - 2023)



2020

# *Our CSforALL Vision*

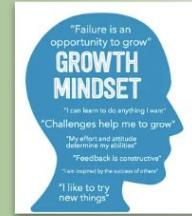
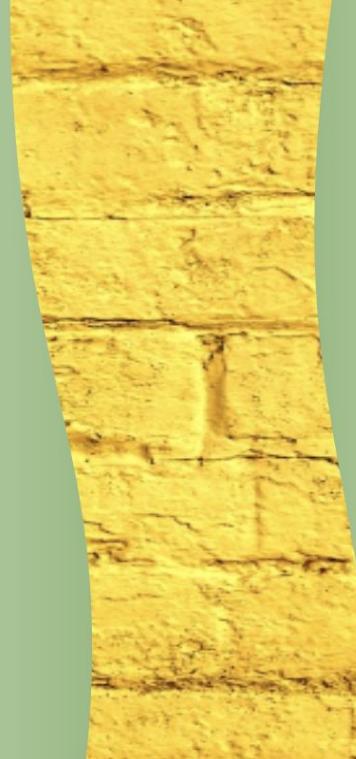
We believe in CS because ALL students should possess competencies and skills to become citizens who recognize problems and create innovative solutions.

We believe in CS because All students have the opportunity to be competitive in today's global economy, demonstrate leadership and success, inspire innovative solutions, and grow and expand our region's workforce.

# 2022 spring

## Build a CS/CT Pathway K-8

We are preparing our students for jobs that don't exist yet. We must be preparing them to creatively problem solve in groups and develop perseverance in their work.



Computational &  
Algorithmic  
Thinking



# 2022 summer

*The week has been eye  
opening, helping me to look  
at the larger picture. I want to  
encourage my students to be  
innovative and proud of their  
region.*

(Teacher, Summer 2022 survey)

# 2023 spring

## Our current “Why” - Connecting computing education with Appalachian Ingenuity

“Who are the community makers? Who are the creators? Even the historians? ... [T]he conversation about imparting that Appalachian ingenuity and how we capture and perpetuate that, for me is the biggest driver that has come out of what we've done in the past 3 years. It takes [computer science] from novelty to actual change, and it ties it directly to the people on the ground.”

Neil Arnett (Pikeville Independent School District) reflecting on possible research questions for Drawing on Kinship



# 2023 spring continued

## What is our Cultural Capital?

Our cultural wealth is rich in:

- Familial Capital (kinship)
- Social Capital

We aim to improve our students'

- Aspirational Capital
- Linguistic Capital
- Navigational Capital
- Resistant Capital

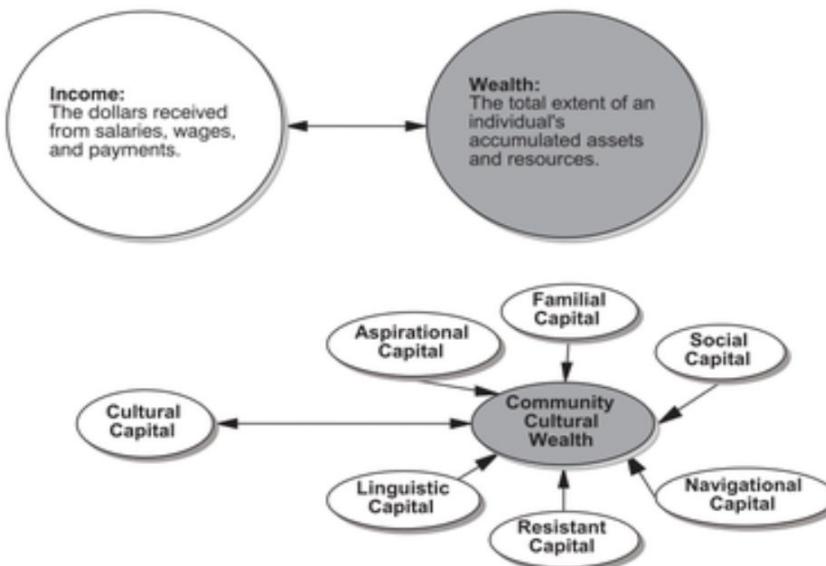
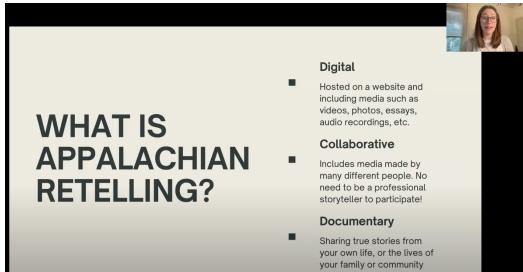


Figure 2. A model of community cultural wealth. Adapted from: Oliver & Shapiro, 1995

# What research/evaluation projects can do to promote narrative development



# (1) Provide opportunities to learn local “possibility narratives”



Inspire talks from local innovators  
(Summer 2021, 2022, 2023)



Civic Imagination workshop (Feb 2023)



Field trips to innovative companies  
(Summer 2022, 2023)



Seeing students engage with innovators and innovation (Summer 2023)

## (2) Provide opportunities for community members to reflect on who they want to be and what they want to project to the outside world



There are lots of reasons that people think computer science education is important.

What are yours?

John Dewey, 1938

[TAKE THE QUIZ](#)



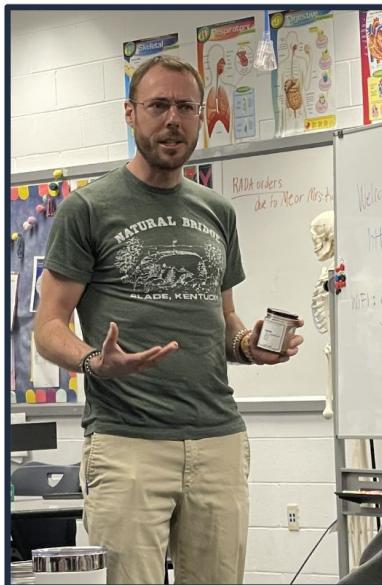
# Trusted external perspectives can be valuable for reflection



**Drawing on Kinship:**  
Rurally Sustaining  
Computational  
Thinking Pathways

## Joseph Larrimore

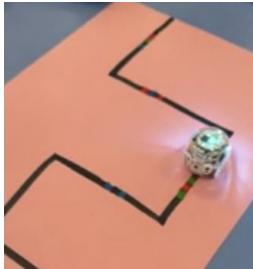
Joseph isn't from Kentucky, so he shared his outside perspective on Appalachian Ingenuity. He noted that back home when it comes to ingenuity and creativity, it is there but it is slow and things take time. In Appalachia when someone needs something or they want to do something, like this candle his student created, people just do it and make it happen.



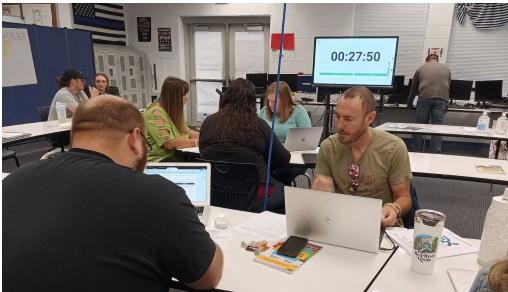
Click on the icon to listen to the story!



### (3) Support community agency and success (involve people in *new possibility narratives*)



“Little Bets” micro-lesson design & implementation (2021, 2022)



Project-based learning lesson design & implementation (starting 2023)



Teacher conference presentations (2022, 2023)



Leading Summer Institute sessions (2023)

# (4) Support discovering and communicating new narratives



March

## Finding the Low Tech, High Impact Solution to Computational Thinking Instruction



### Summer program plans to help East KY teachers

By Nicole Ziege @NicoleZiege Jan 29, 2022



A summer program for teachers is bringing computational thinking to classrooms in Eastern Kentucky.

#### ONLINE POLL

Is the current eco-

# Summary

- **Healing** = finding a new way forward; the wound no longer detrimentally affects us
- **Narrative development** can foster healing
- Projects can support narrative development by:
  - Helping people learn existing positive narratives
  - Providing opportunities for reflection about identity, hopes, values
  - Helping people create new positive narratives
  - Helping to communicate

# Members of traditionally oppressed groups can draw on “common rhythm” or “connectedness”



*There are some differences across cultures, languages, sometimes family dynamics, and on “what kind of information constitutes evidence.” But there are also a lot of similarities—e.g., how traditionally oppressed groups have responded to societal pressures in order to survive. There often is a “common rhythm” or “connectedness” across cultures, surrounding this. One advice is to make sure that you have a cultural liaison. Know what to pay attention to and how you are supposed to engage/enter into a particular setting. We have to always actively strive to be a scholar/teacher and student at the same time.*

— Stafford Hood, 10/31/14

# Thank you! For more [bit.ly/TANrefs](http://bit.ly/TANrefs)



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