Full Steam Ahead: Maximizing Our Impact with Deeper Learning

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Goochland County Public Schools

Andrea

John

Goal 1

Prepared for Life through Deeper Learning

To maximize each student's academic potential through engaging experiences and deeper learning, preparing our students for the challenges of learning and working in the modern global economy

Objectives

All students will experience high levels of engagement, enjoyment, and personalization while learning.

All students will exceed expected growth each school year.

We will fiercely pursue preparing all students to graduate on-time and to be both college and career ready.

Strate

Instructi

1:1 Tech

Teacher

Extracur

Personali

Redefine

Enhance

Goal 2

Improved School Climate

To improve the climate of our organization and

Objectives

We will attract, recruit, and retain inspiring professionals.

Strate

Evaluate

Rigorous

Objectives

All students will experience high levels of engagement, enjoyment, and personalization while learning.

All students will exceed expected growth each school year.

We will fiercely pursue preparing all students to graduate on-time and to be both college and career ready.

Strategies

Instructional Innovation Plan

1:1 Technology

Teacher Support for Engagement

Extracurricular Engagement for All

Personalized Learning Plans

Redefine Exceptional Education

Enhance the Curriculum

Systemic Approach to Intervention

Training on Best Practices

Balanced Assessment

College-level Courses for All

Communication Skills

2-year Degree Program

STEM & CTE Expansion

Virtual Courses

Graduation Watchlists

SAT & AP Test Preparation

Early Childhood Education

Objectives

We will attract, recruit, and retain inspiring professionals.

We will engage and inspire faculty, staff, parents, business partners, and community members resulting in a more positive perception about the school division.

We will develop students of high character.

Strategies

Evaluate Engagement

Rigorous Interview Process

Improve Compensation

Staff Recognition

Improve Recruitment

Teacher Leadership

Professional Learning

Clarify Climate Responsibilities

Leadership Feedback

Public Relations Plan

Engage Families & Volunteers

Honor Code

Mentoring

Values-based Leadership Curriculum

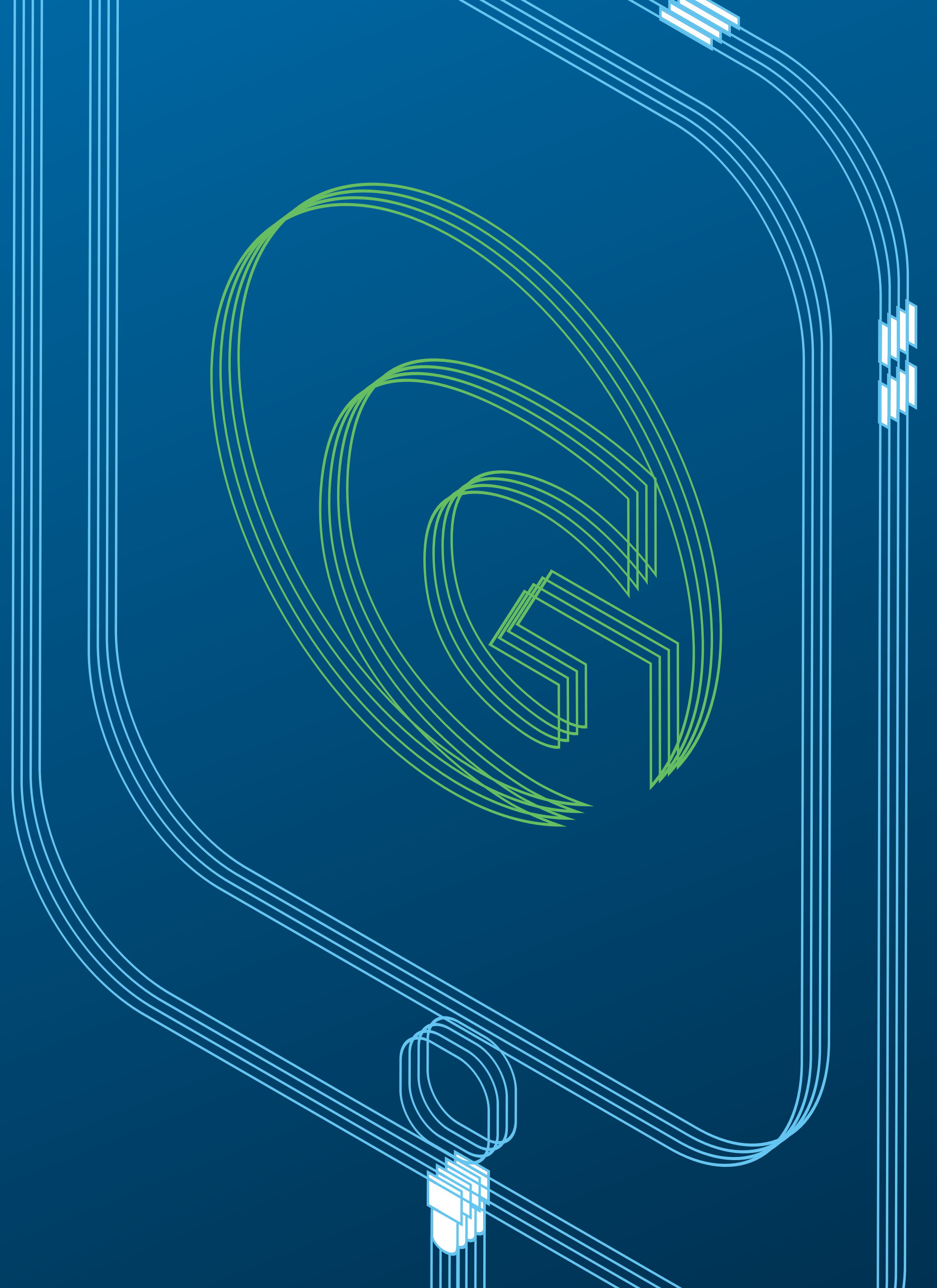## Objectives

We will improve school safety—es-

Strategies

Programs to Address Discipline &

Transparent Budget Process

New Mandate Compliance

Distinguished Schools

Background

Our Technology Coaches help develop teacher knowledge and professional practice.

Teachers' Technological Pedagogical Content Knowledge and Learning Activity Types: Curriculum-based Technology Integration Reframed

Judith Harris
College of William & Mary

Punya Mishra and Matthew Koehler
Michigan State University

Abstract

In this paper we critically analyze extant approaches to technology integration in teaching, arguing that many current methods are technocentric, often omitting sufficient consideration of the dynamic and complex relationships among content, technology, pedagogy, and context. We recommend using the technology, pedagogy, and content knowledge (TPACK) framework as a way to think about effective technology integration, recognizing technology, pedagogy, content and context as interdependent aspects of teachers' knowledge necessary to teach content-based curricula effectively with educational technologies. We offer TPACK-based "activity types," rooted in previous research about content-specific activity structures, as an alternative to existing professional development approaches and explain how this new way of thinking may authentically and successfully assist teachers' and teacher educators' technology integration efforts. (Keywords: technological pedagogical content knowledge, learning activity types, technology integration, TPACK, TPCK)

INTRODUCTION

Studies of K–12 teachers' instructional applications of educational technologies to date show many to be pedagogically unsophisticated; they are limited in breadth, variety, and depth, and are not well integrated into curriculum-based teaching and learning (Groff & Mouza, 2008; Levin & Wadmany, 2008; Russell, O'Dwyer, Bebell & Tao, 2007; Zhao, Pugh, Sheldon & Byers, 2002). In a 20-year retrospective on U.S. educational technology policy, Culp, Honey, and Mandinach (2003) describe a mismatch between educational technology leaders' visions for technology integration and how most practitioners use digital tools. Researchers emphasize technology uses that support inquiry, collaboration, and reformed practice, whereas many teachers tend to focus on using presentation software, learner-friendly Web sites, and management tools to enhance existing practice. McCormick & Scrimshaw (2001) label these currently predominant uses for information and communication technologies as efficiency aids and extension devices, differentiating them from transformative
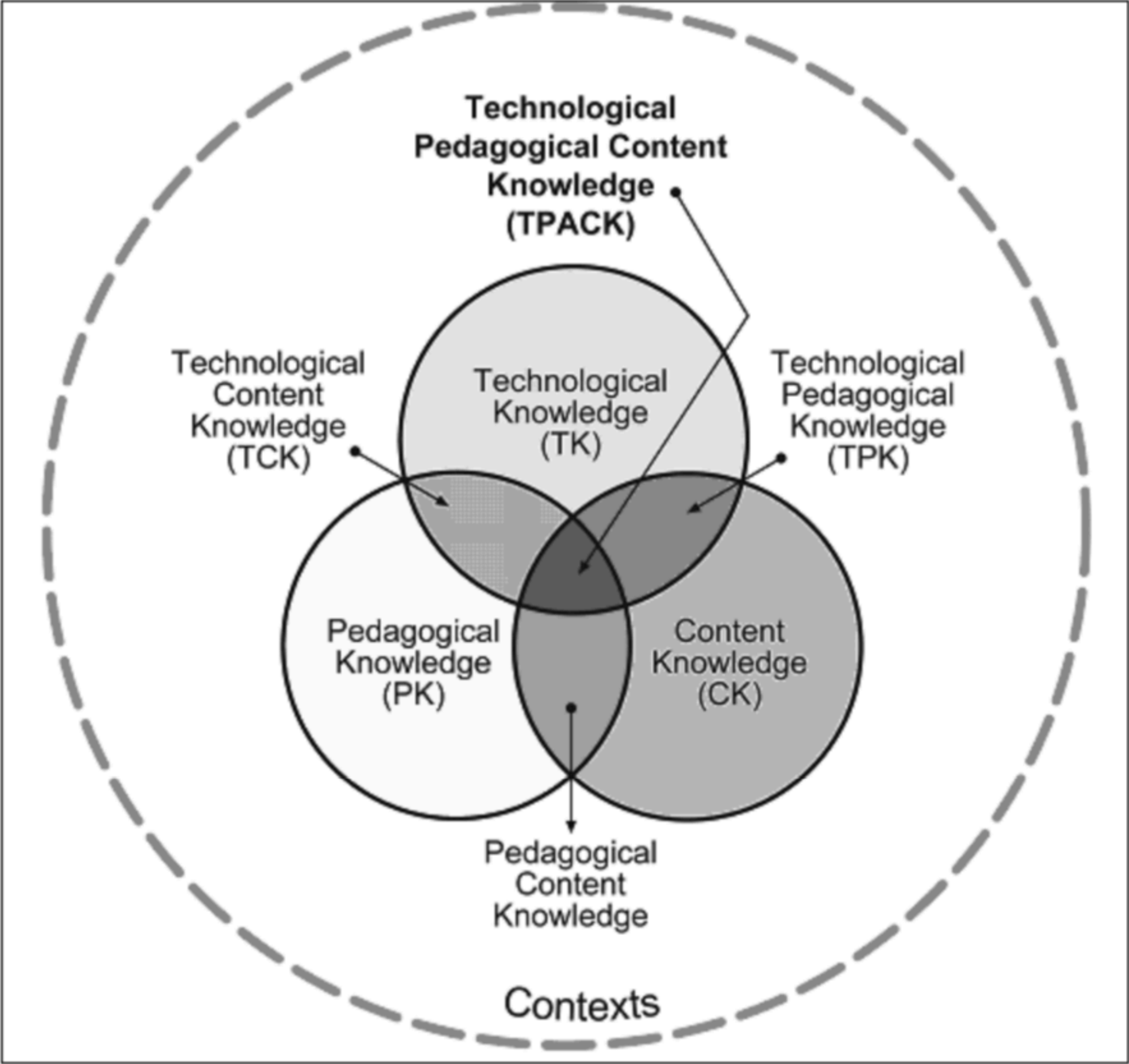

Figure 1: The TPACK Framework and Its Knowledge Components (Adapted from Koehler & Mishra, 2008)

Their work includes co-planning, co-delivery, modeling, and individualized training.

School vs Learning by George Couros

SCHOOL
- promotes starting by looking for answers
- is about consuming
- is about finding information on something prescribed for you
- teaches compliance
- is scheduled at certain times
- often isolates
- is standardized
- teaches us to obtain information from certain people
- is about giving you information
- is sequential A B C D E
- promotes surface-level thinking

LEARNING
- promotes starting with questions
- is about creating
- is about exploring your passions and interests
- is about challenging perceived norms
- can happen any time, all of the time
- is often social
- is personal
- promotes that everyone is a teacher and everyone is a learner
- is about making your own connections
- is random and non-linear
- is about deep exploration
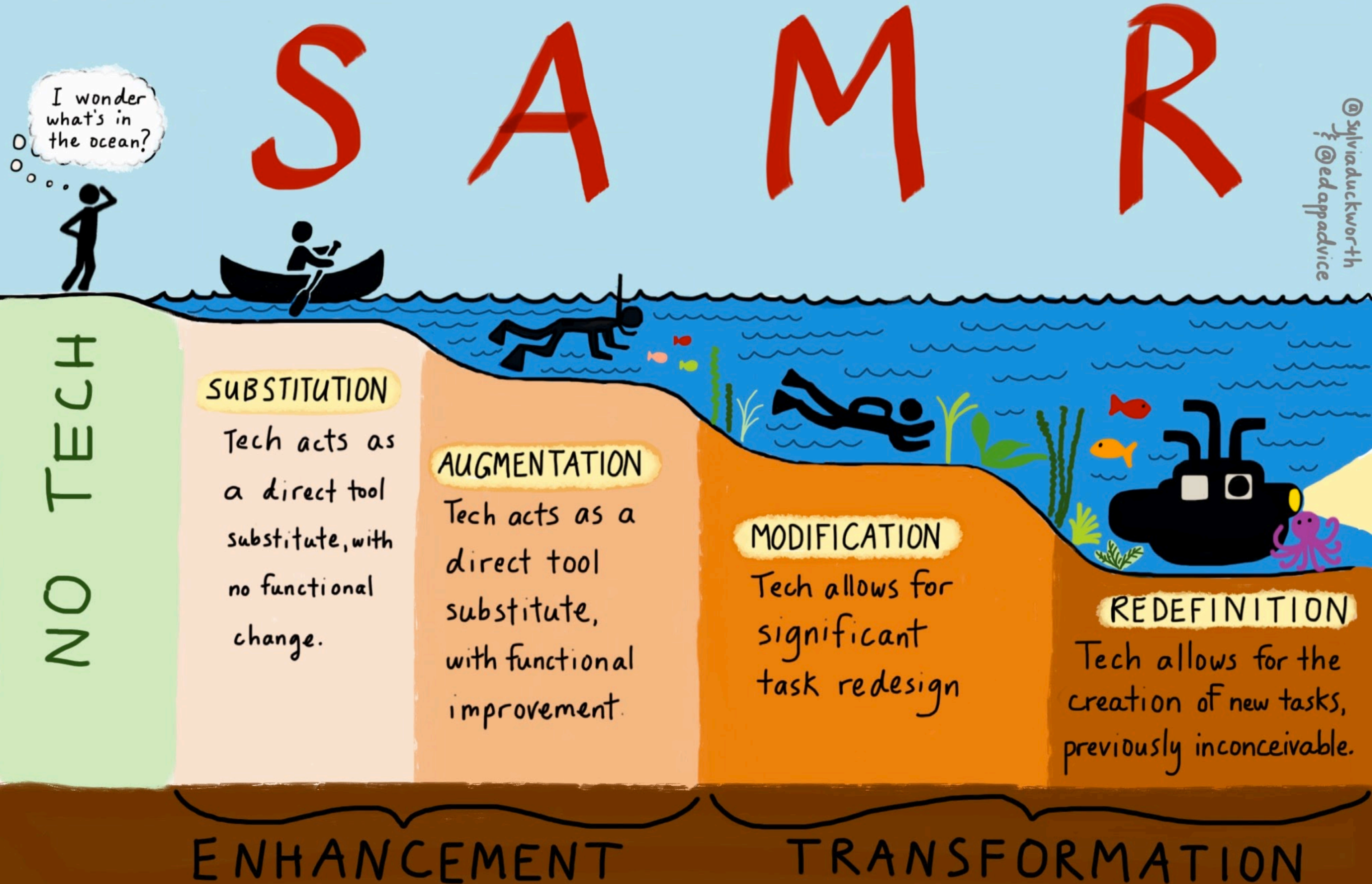
homo sapiens	human as thinker, knower	So much of education has relied upon this modality for learning—simply by transferring knowledge to students through listening, reading, and watching video. A deeper approach would embrace this modality by making inquiry a core part of learning, and by providing opportunities for group and individual reflection in learning.
homo faber	human as builder, maker	Summarized nicely by Papert's theory of constructionism, this modality focuses around creating knowledge through the creation of things. The arrival of maker spaces and robotics programs in schools augment more long standing traditions like fine arts programs to provide students the opportunities to learn through creation.
homo ludens	human as player	This modality is likely the least visible in American public schools today, but can be seen through the practiced preschool modalities in Montessori and Reggio Emilia schools. Through play, students have the opportunity to work towards possible solutions or the correct answers, usually in something deeply interesting to students. Another important tenet of play is social learning, and what we gain from the interactions and experience of our peers.

Brown, J. S. (2013). Reimagining learning for a world of constant change. [Slide presentation]. Retrieved from http://www.johnseelybrown.com/rlcspan.pdf

Thomas, D., Brown, J. S. (2009, June). Learning for a world of constant change: Homo sapiens, homo faber & homo ludens revisited. Retrieved from http://www.johnseelybrown.com/Learning%20for%20a%20World%20of%20Constant%20Change.pdf

**"the process through which an individual becomes capable of taking
what is learned in one situation and applying it to new situations"
— James Pellegrino (2012)**

context

Learning tasks should have a real world application that allows learners to connect personally to what they are learning

construction

Learners should be able to link their own experiences and prior knowledge to new learning

collaboration

A problem solving scenario allows learners to develop, test, and analyze their ideas while being exposed to others' opinions. Each individual learner will arrive at an individual conclusion after collaboration is completed.

conversation

Communication with and within learners is an essential instructional practice. Learners should spend time in conversation while planning and making sense of new learning.

Jonassen, D., Davidson, M., Collins, M., Campbell, J., & Haag, B. B. (1995). Constructivism and computer-mediated communication in distance education. The American Journal of Distance Education, 9(2), 7-26.

Four Assumptions
Putting Theory into Practice

1

The school experience **doesn't end** with any "test."

2 There **won't be expectations for using digital tools** just because we have them.

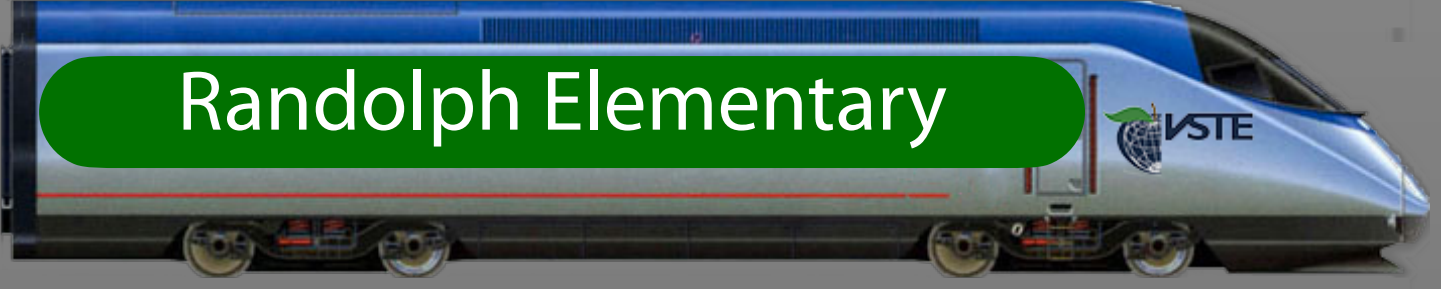**3** We will have **digital tools** because they can help us be **more efficient teachers** and **learners**.
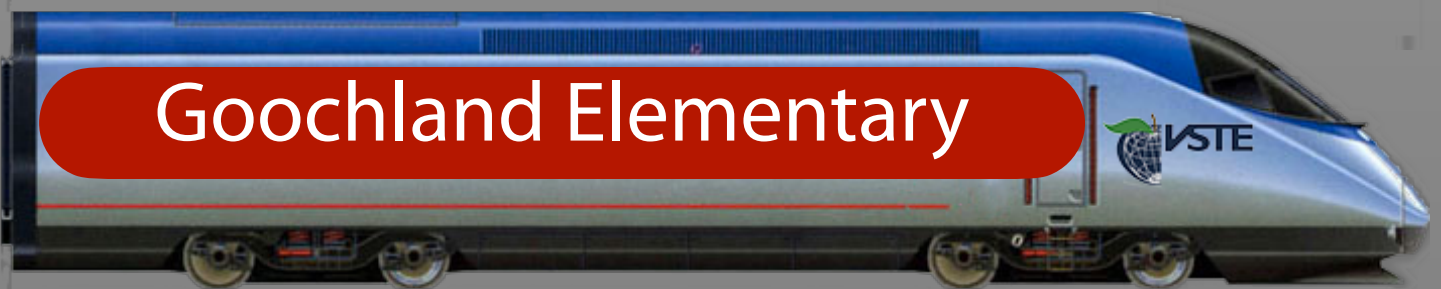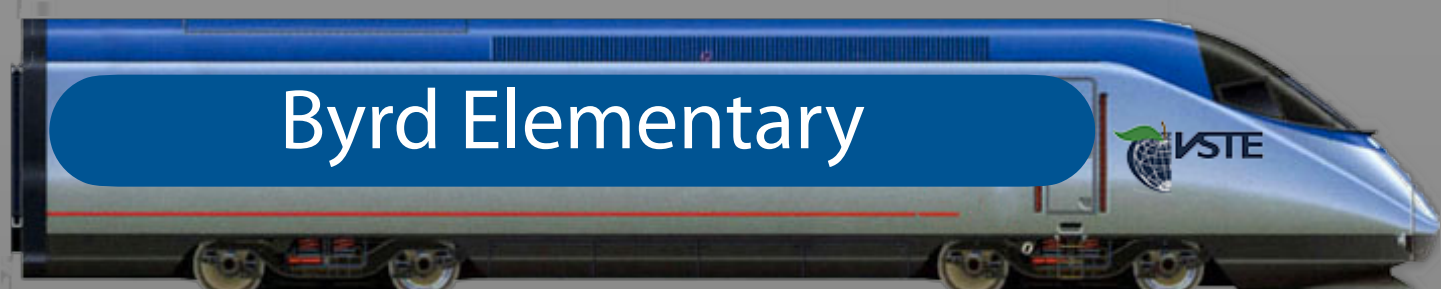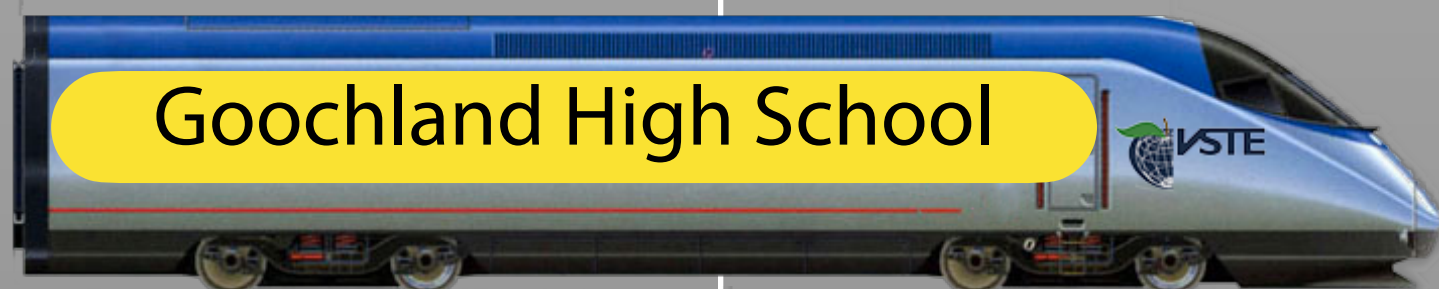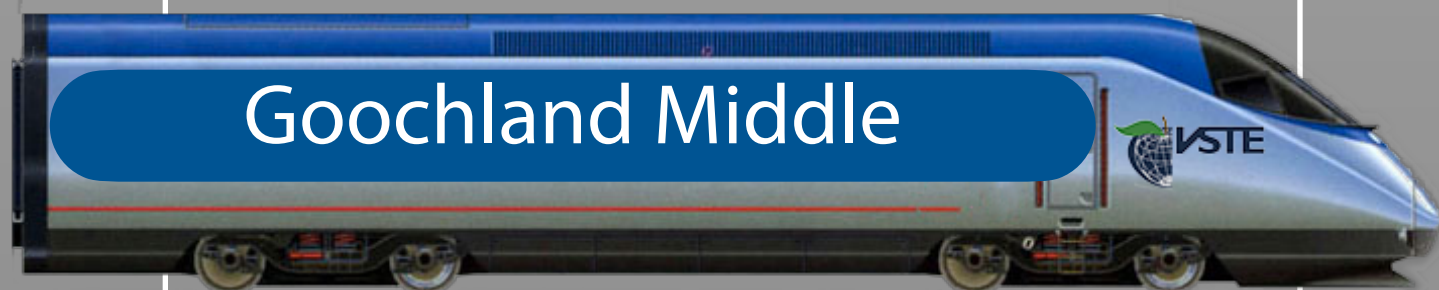
4

We will have digital tools because they can help promote **deeper ways of learning** for students that will be **more impactful for their future success** as **both college & career ready**.
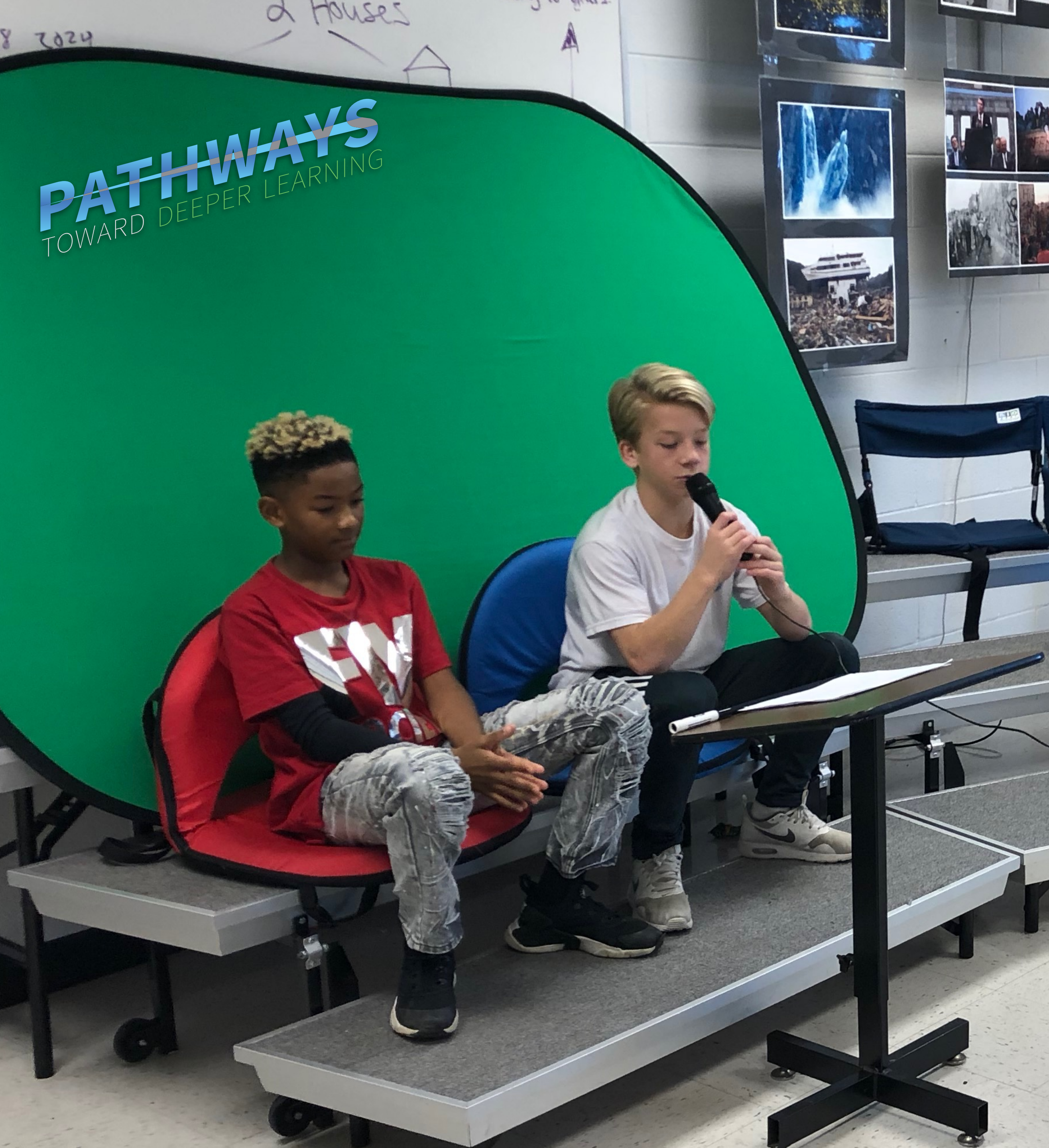
How can we get better?

Our Research

Our Research

Goochland High School

Goochland Middle

Goochland Middle

Byrd Elementary

Goochland Elementary

Randolph Elementary

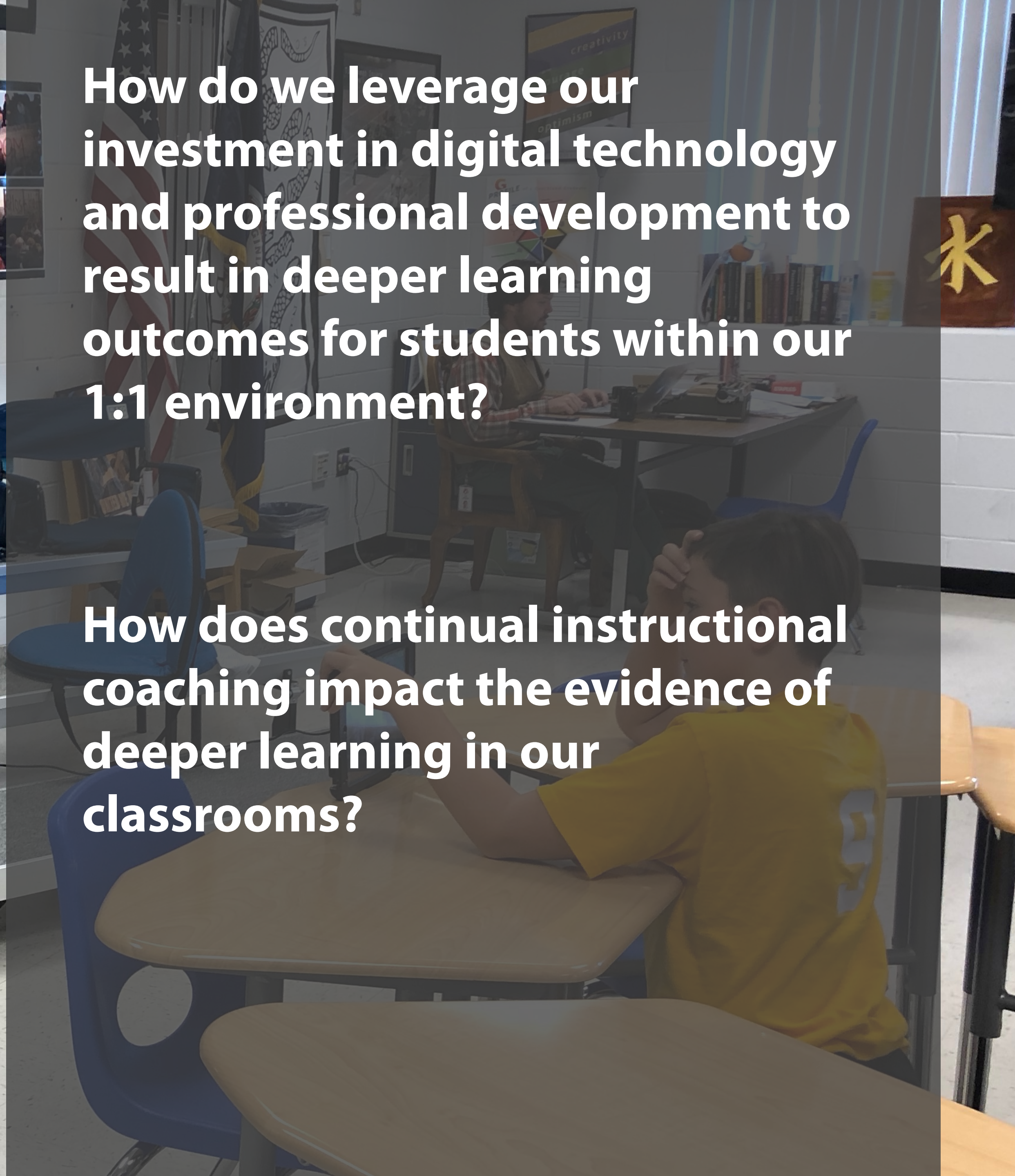DEC 2017

JAN 2018

DEC 2018

JAN 2019

JAN 2020

Looking at how students are learning

How do we leverage our investment in digital technology and professional development to result in deeper learning outcomes for students within our 1:1 environment?
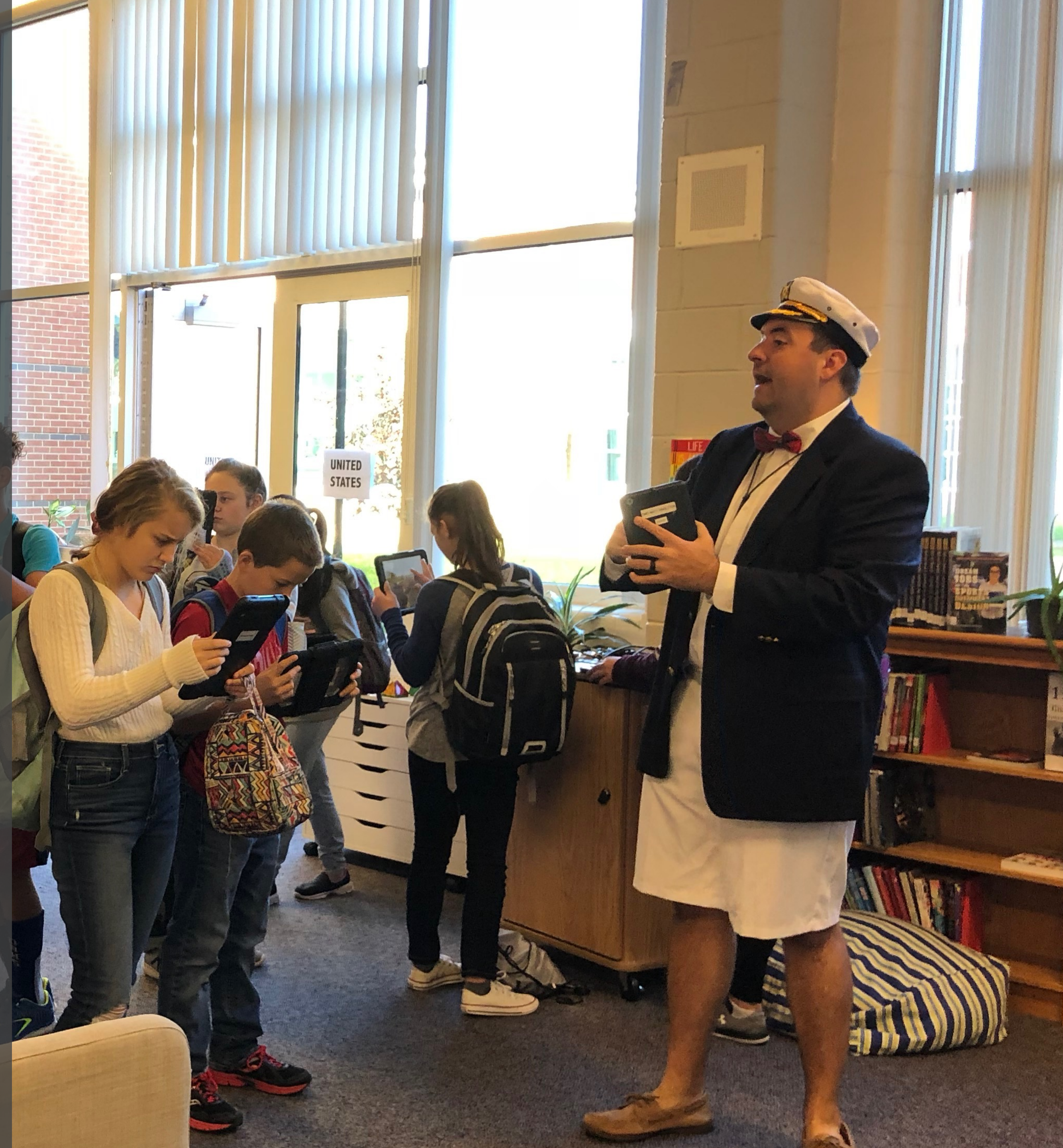
How does continual instructional coaching impact the evidence of deeper learning in our classrooms?

We focused our study on just one department.

We used an observation instrument to generate a "growth index" aligned with our model of deeper learning.

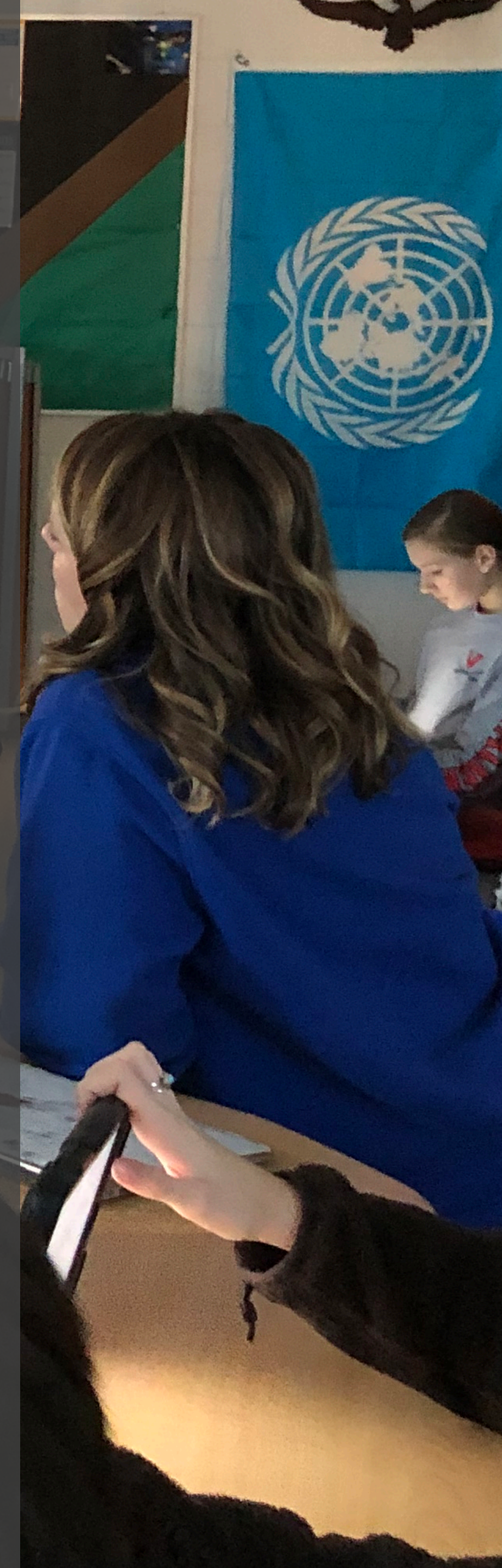We surveyed students with a related instrument to correlate their experience with our observations.

Started in Spring, 2018 with a baseline lesson with each teacher.

Continued observations from Spring, 2018 into Fall, 2018.

Collected a total of 4 observations from each teacher and paired student surveys.

Expected to see observed depth of learning increase over time.

Content

1 - delivered	2 - directed	3 - discovered	4 - created
information is being *delivered* to students by a talking teacher, a video presentation, or by reading material provided by the instructor	content is acquired through activities that are heavily scripted with some input or choice made available to the learner; a scaffold may be used	knowledge is derived from a cognitive event, such as inquiry, deduction, or through activities that satisfy a student's natural desire or questioning	the learning activities involve the creation of knowledge in the domain of the content area

Describe the observed content interaction scenario:

Context

1 - generic	2 - artificial	3 - controlled	4 - genuine
the learning scenario is so general that almost any content could be acquired in this modality (e.g. worksheet)	to save time or efficiency, the learning context is somewhat related to the content domain but the experience may be abstract; following a recipe	the context for content acquisition is in a safe, controlled environment, such as a school science lab or in a simulation; creating a recipe	activities mirror real-life situations; history is done through interviews and research, science is done through real-world conditions, math problems are solving real-world problems; high risk

Describe the context for learning in the observed lesson:

Community

1 - isolated	2 - connected	3 - collaborative	4 - consolidated
the learner is participating with content in a solitary way	learning begins to be social; the interaction however isn't working together toward common goals	socialized learning where there is a healthy balance of contribution from multiple learners	instead of learners working together as a collection of individuals, the team functions well as a highly productive team; team members may have specialty skills that help contribute to the team's success; experts may be involved

Describe how students are working together or alone:

Depth of Knowledge

DOK 1: Recall and Reproduction	DOK 2: Skills & Concepts	DOK 3: Strategic Thinking	DOK 4: Extended Thinking
simple procedures and recall of facts; remembering	students are making decisions; includes making comparisons, organizing concepts, summarizing, predicting, and estimating	thinking tends to be more abstract; students use planning and apply evidence in learning activities; solving non-routine problems, designing an experiment, analyzing characteristics of a genre	most complex cognitive effort; synthesis, transfer of knowledge from one domain to another; interpreting results from data collection

What will students need to do to succeed at the task?

Integration of Tools/Technology

1 - no technology	2 - efficiency	3 - enhancement	4 - transform
specialized technology or tools do not have a role in the learning activities	technology is affording the learner and also possibly the teacher an efficiency in the learning process (easier, faster, or combination of the two)	hardware or software contribute to the depth of experience; technology affords capabilities that add value (individualization, facilitating collaboration, promoting advanced skills)	the tool affords a level of learning that would be impossible without the tool; i.e. observing cells without a microscope, interviewing native speakers in Spain with Skype, etc.

What are students doing using technology?

Twenty-First Century Skills

	1 - emerging	2 - developing	3 - mastery	Rating
Foundational Skills	Digital skills and cross-disciplinary knowledge; software use, making connections between different content disciplines			
Meta Skills	creativity and innovation, problem-solving and critical thinking, communication and collaboration			
Humanistic Skills	life and job skills, ethical and emotional awareness, cultural competence			
Comments				

$$\left(\Box + \Box \right) \times \left(\Box + \frac{\Box + \Box + \Box}{3} \right) \times \left(\Box \times \sqrt{\Box} \right) = \Box \text{ IDS}$$

Measuring Depth

Cubic Learning Model
William Rankin, Ph.D.

Webb's Depth of Knowledge
Norman Webb, Ph.D.

SAMR
Ruben Puentedura, Ph.D.

Synthesis of Twenty-First Century Learning
Punya Mishra, Ph.D., and Kristen Kereluik, Ph.D.

Elements of Learning
Apple Professional Development and Stanford Research Institute

Harnessing Technology for Deeper Learning (includes the Four Shifts Protocol)
Scott McLeod, J.D., Ph.D., and Julie Graber

What's in this book

Through our work with Apple Distinguished Educators, Apple Distinguished Schools, and education researchers, we've learned how teachers around the world are using Apple to raise the bar for what's possible in learning. In this book, you'll find classroom ideas, downloadable lessons, and interactive examples, designed and shared by innovative teachers in Apple learning environments.

These teacher resources support elements of learning that exemplify active, personal, collaborative, and relevant learning experiences—designed to empower learners to be creators who believe their work matters. Each element of learning is defined with a set of components that represent unique aspects of lesson design.

This book was created through research and development with educators, in collaboration with SRI Education's **Center for Technology in Learning**. We hope it sparks new ideas and helps you design experiences that support elements of deeper student learning.

Teamwork	Communication and creation	Personalization of learning	Critical thinking	Real-world engagement

Examples

Good projects are the main course, not dessert.

iMovie

AR Sandbox

Intro to GIS
World Geography 8

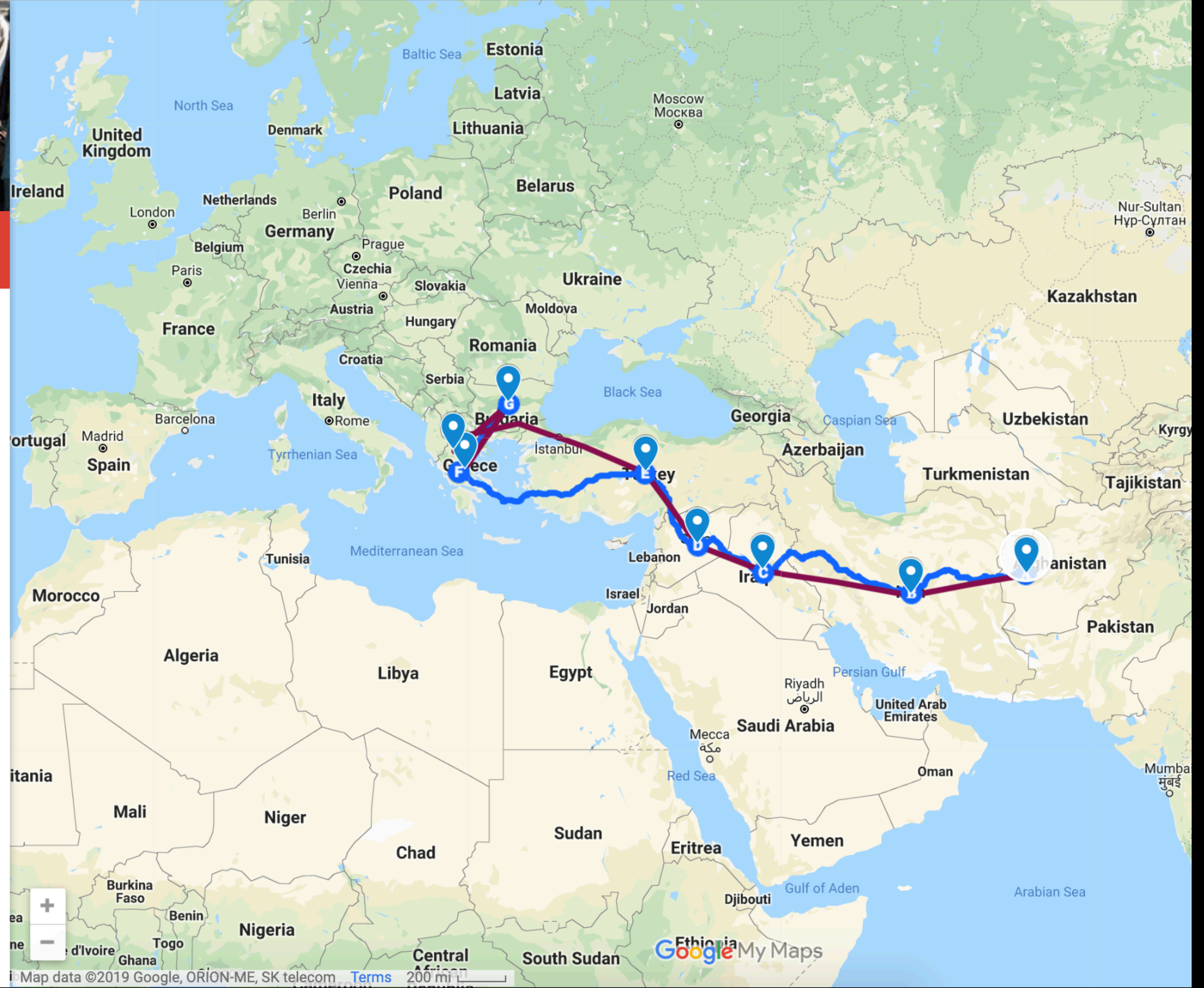# Satellite image
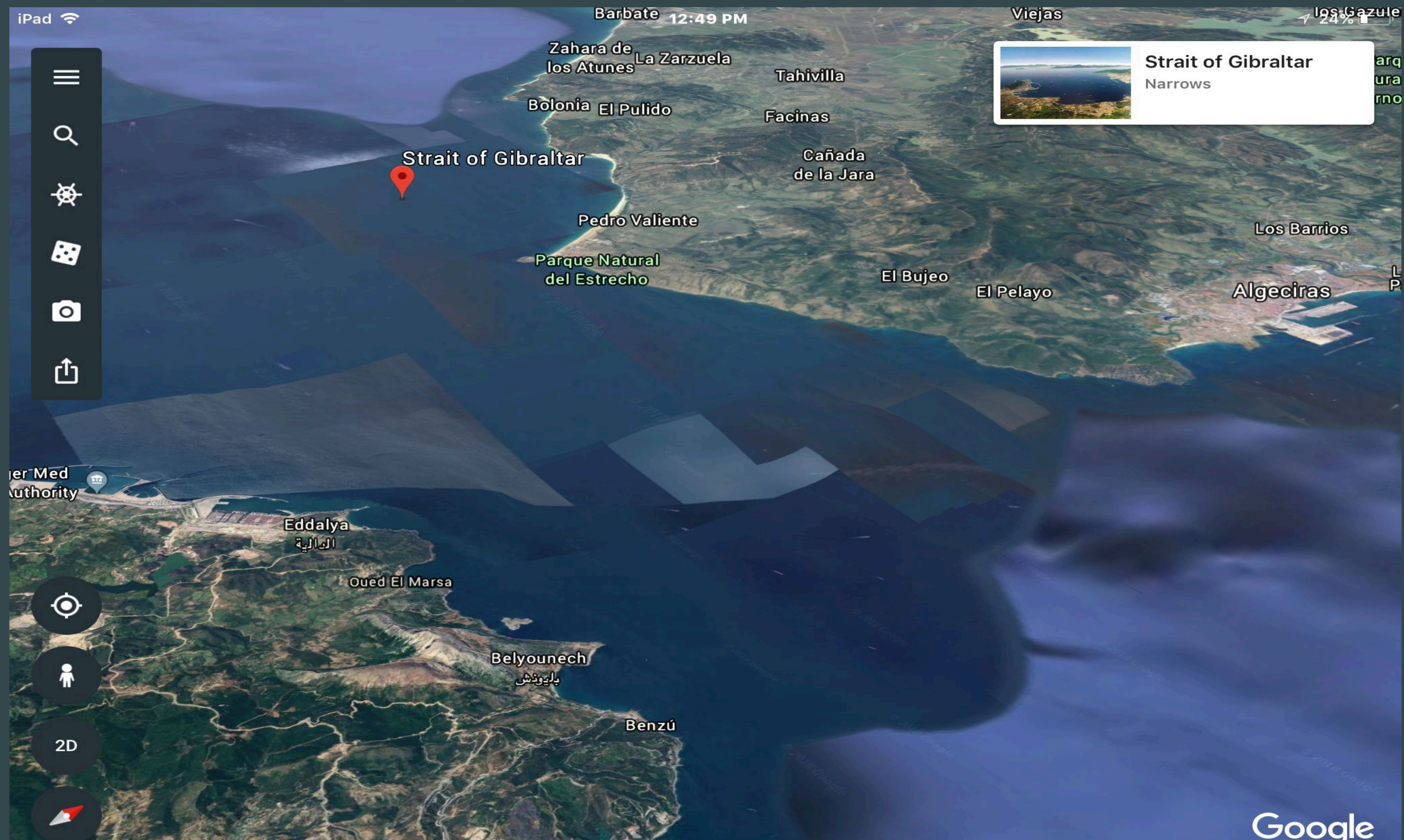
Afganistan

name

Afganistan

description

Day 1: Today is the first day of my very long and hopefully sucessful journey to Europe. I am a child named Shada who is leading my people to safety. I am from Afganistan and my religion is Shi'a. I hope that I will live. To Iran we go!
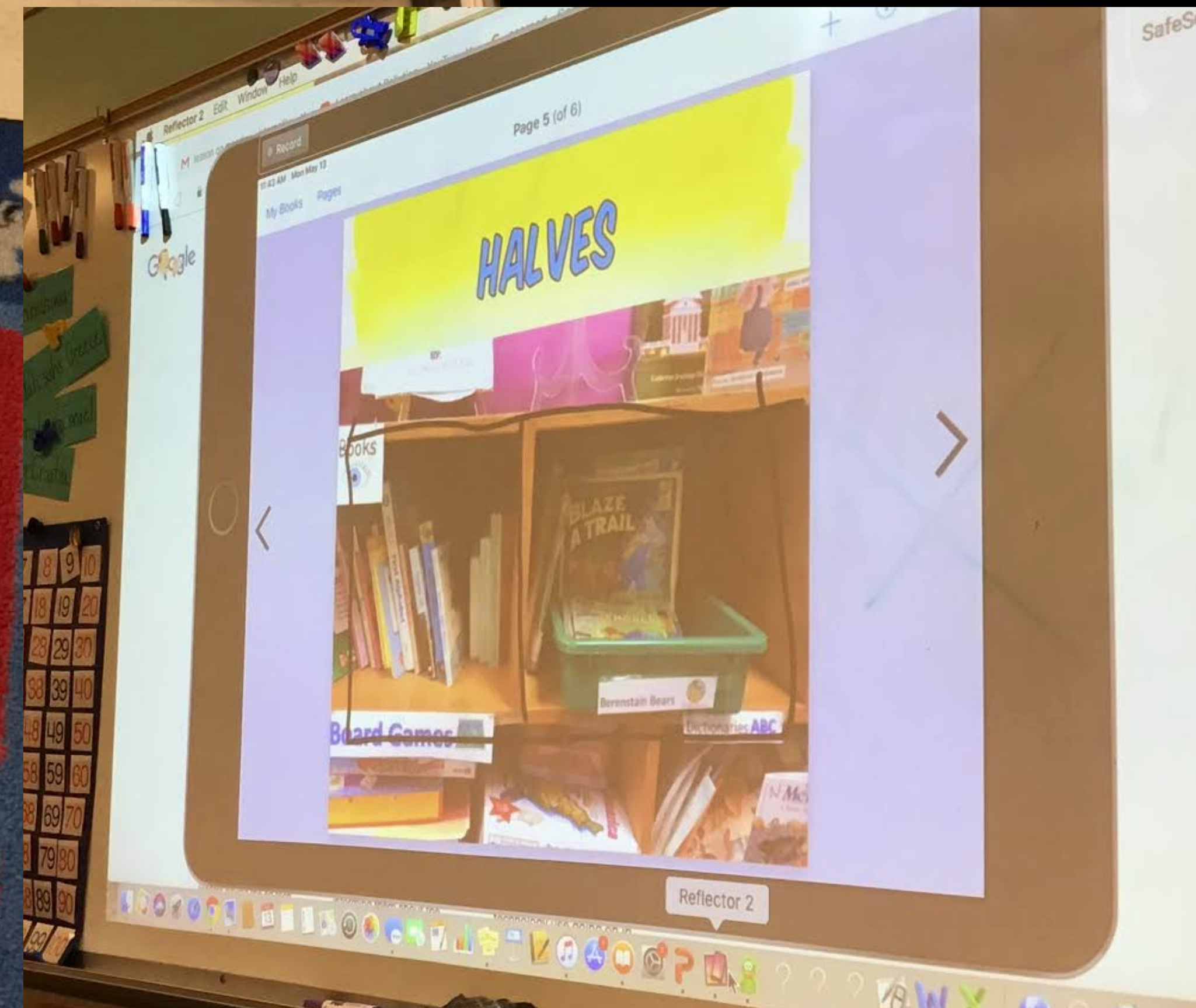
Designing Videos about Explorers - 5

Rock Cycle Scratch Animations- 5

Fractions Books
1st Grade Math

Initial Results

Disclaimer

We have modified our findings to protect teacher identification.
The names of teachers in the next slides are fictitious.
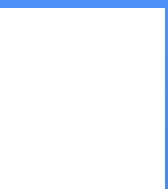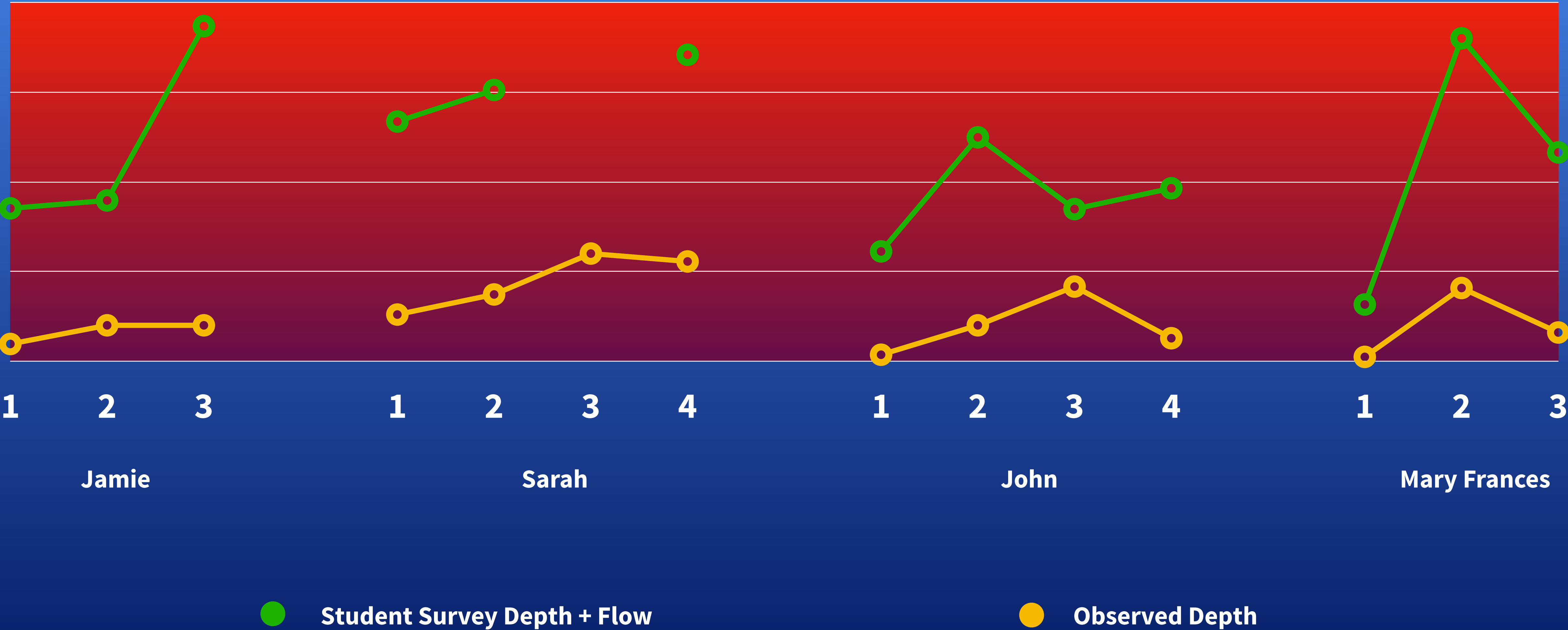
Visualizing Learning by Pathway
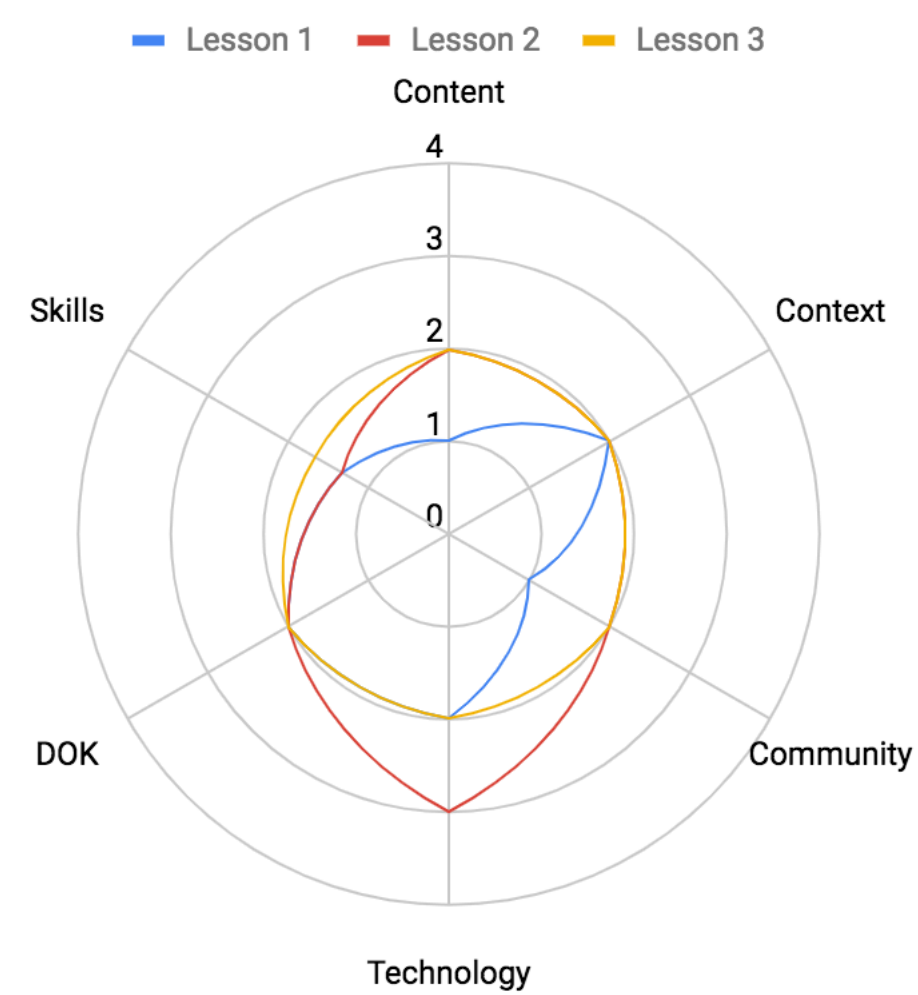
1   2   3   4
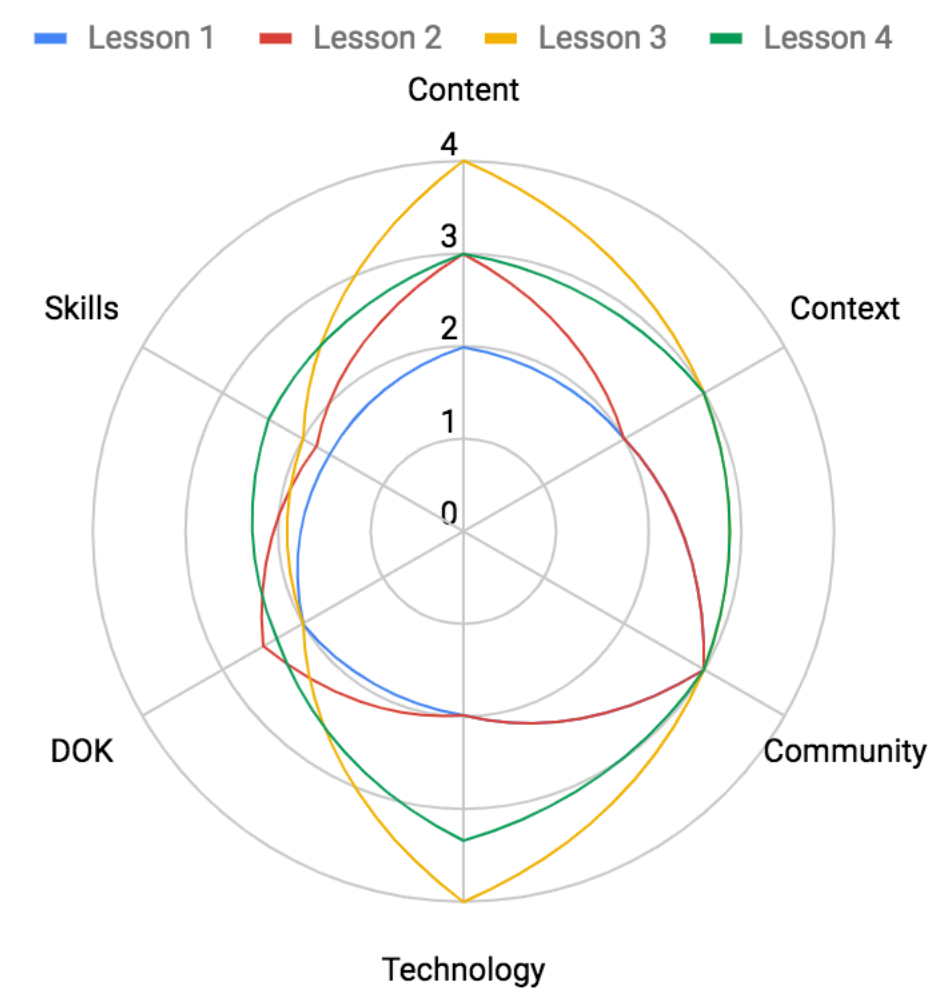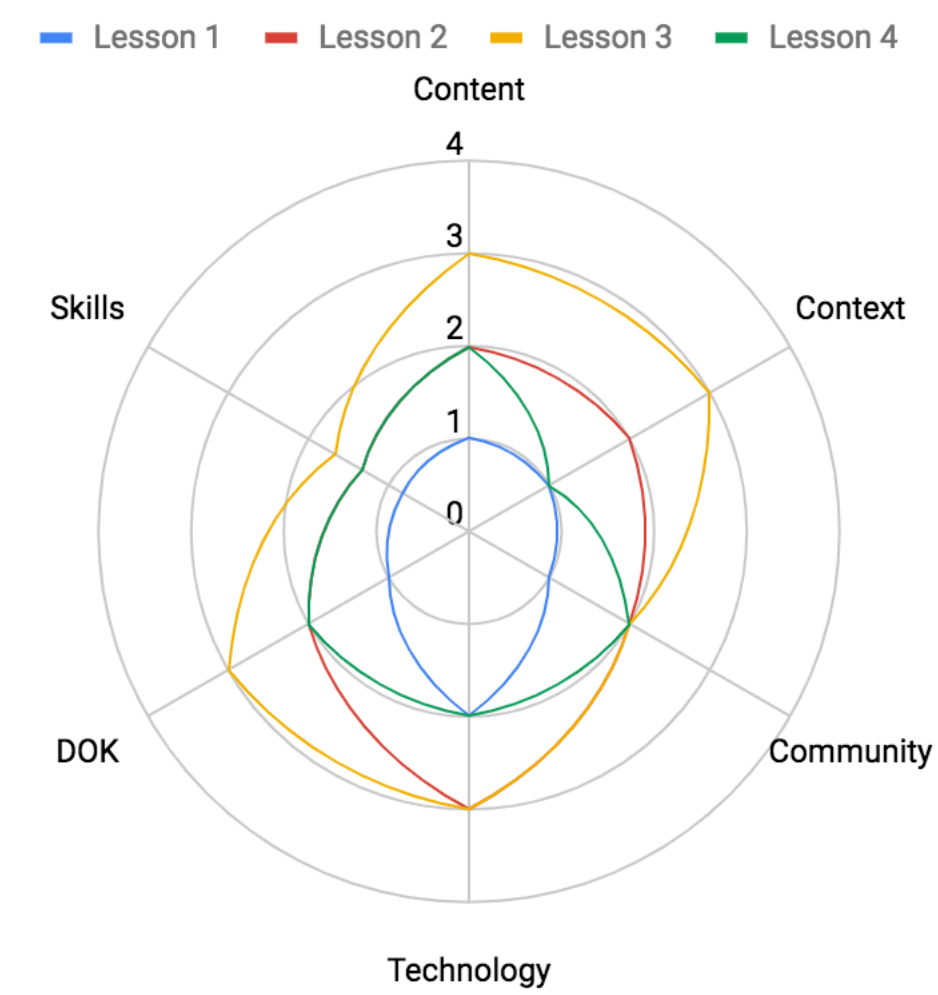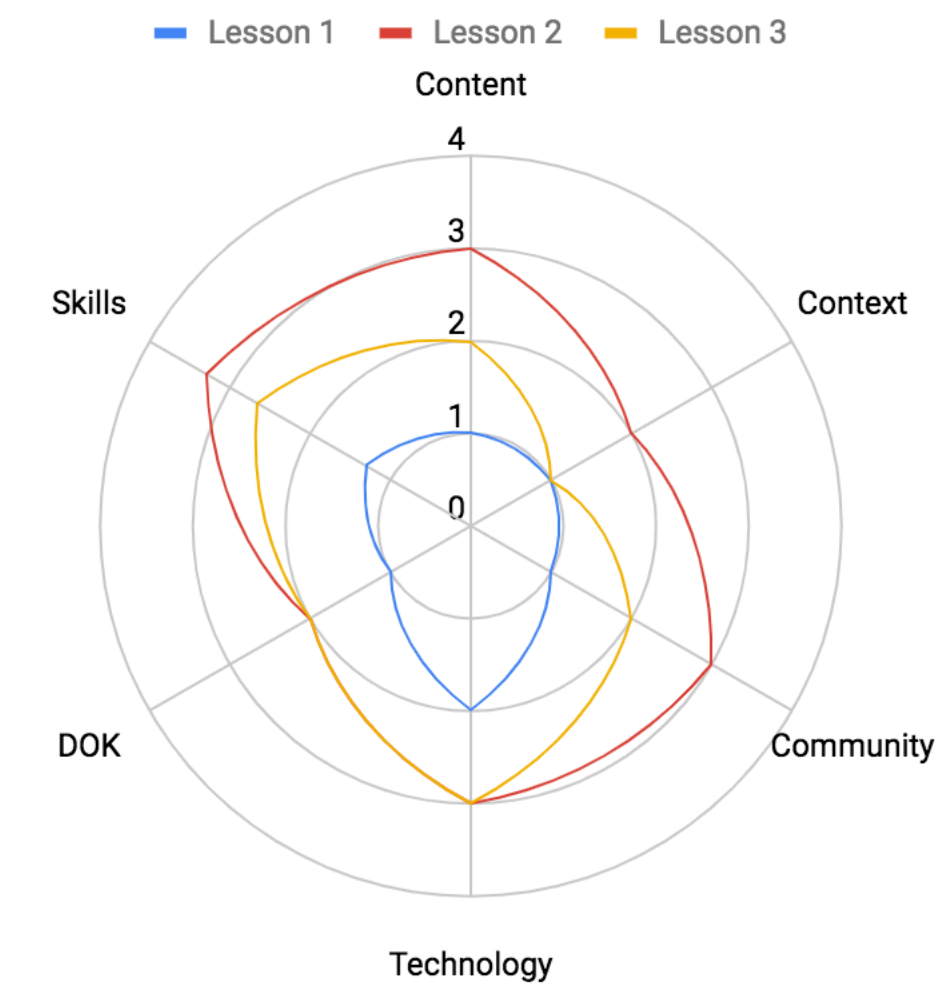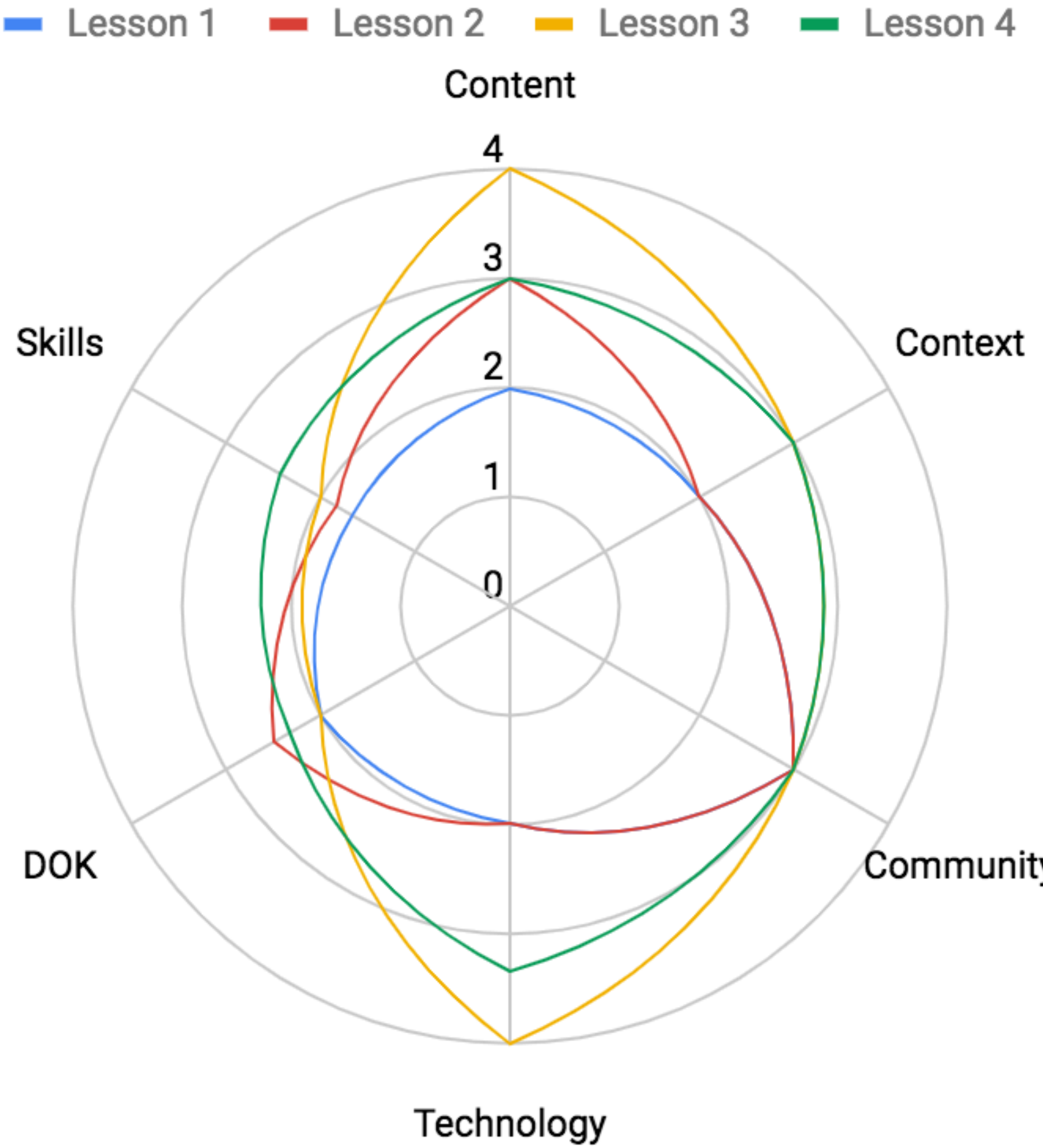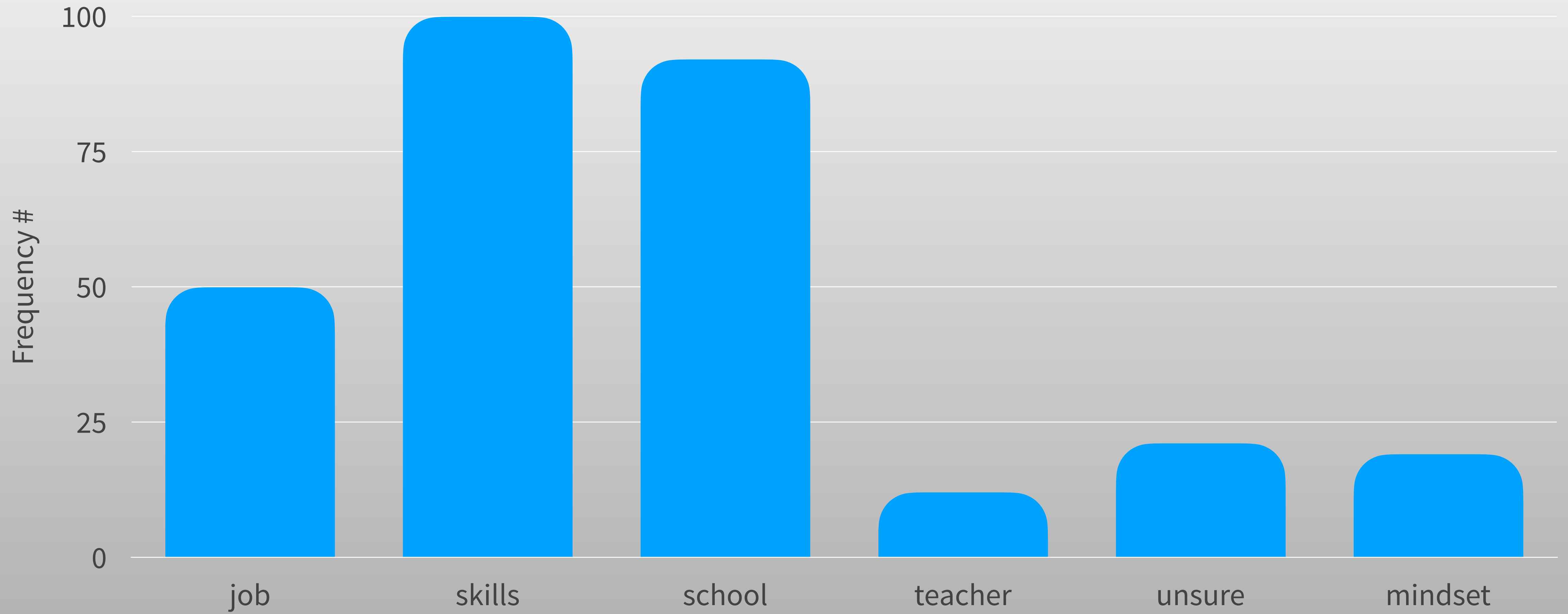
First Year Conclusions

The support provided by the coach needs to start well in-advance of the learning experience.

Our protocol did not include reflection; however reflecting using our instrument or the Apple *Elements of Learning* book would be helpful.

We found value in the alignment of student responses and observed learning.

Looking Forward

We decided to take this program "on the road" and replicate at our other schools.

We believe the process is beneficial for improving coaching, for planning for learning, and for instructional leadership in the school.

Getting non-evaluative feedback using a specific lens can help teachers coming from a trusted colleague.

Positive Outcomes

- Deeper relationships forged with participating teachers

- Inclusion of school principals in debriefing sessions after observed lessons

- Coach reflection informed by feedback from lesson observers

Discussion

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Thank You!

@aburton_   @hendron