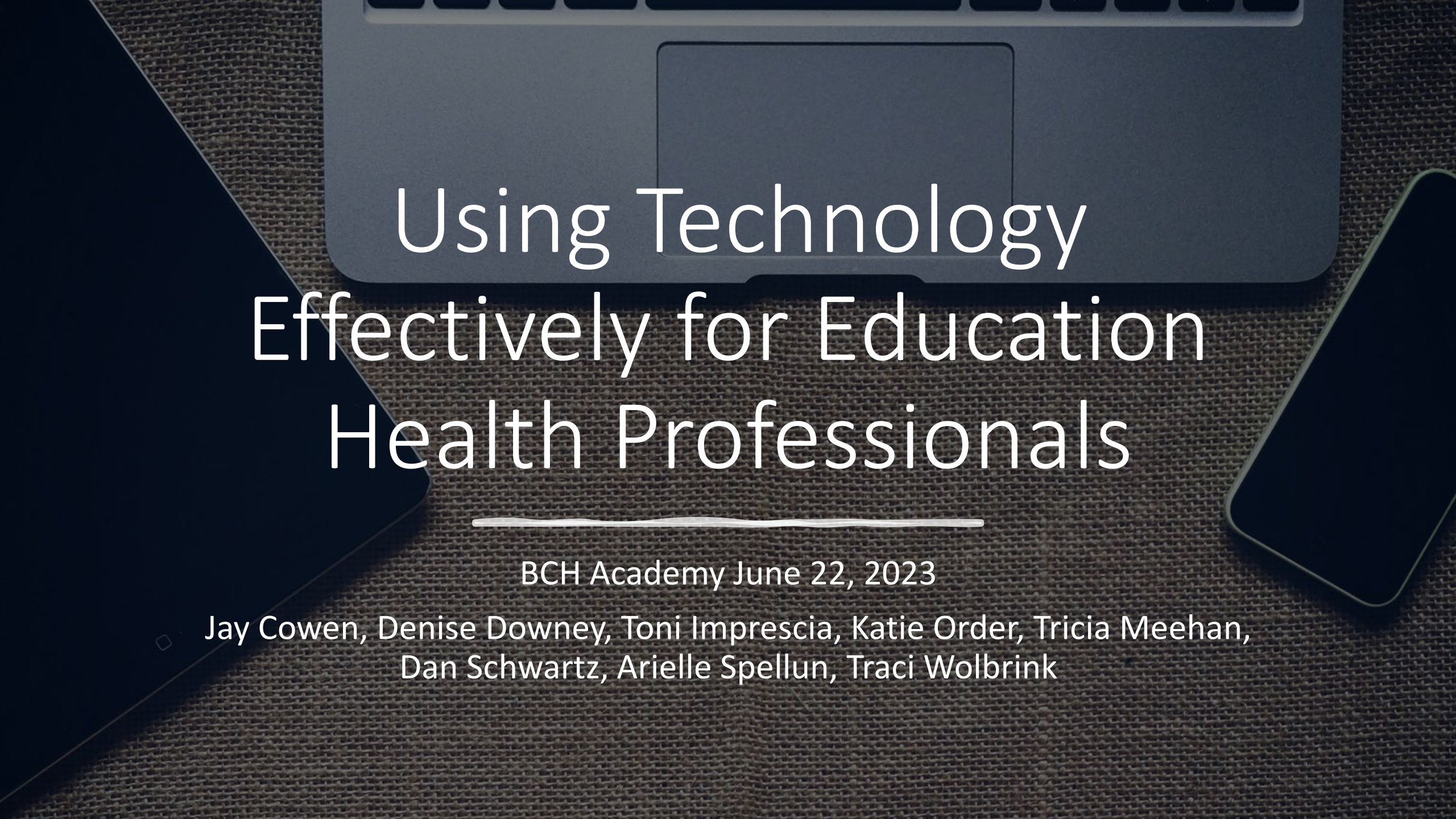


Using Technology Effectively for Education Health Professionals

BCH Academy June 22, 2023

Jay Cowen, Denise Downey, Toni Imprescia, Katie Order, Tricia Meehan, Dan Schwartz, Arielle Spellun, Traci Wolbrink

Disclosures

- We have have no personal financial disclosures to report.
- All images from Pixabay unless otherwise referenced

Today's Outline

- Welcome and Introductions
- Educational Technology Theories
  - TPACK
  - RAT/PICRAT
- Educational Technology Stories - Part 1
- Breakout
- Educational Technology Stories - Part 1
- ADDIE Framework
- Practical Tips to Get Started


Introductions

Virtual Teachers Before Us

Julia Childs
The French Chef
1963-1973
https://www.womenshistory.org/education-resources/biographies/julia-child



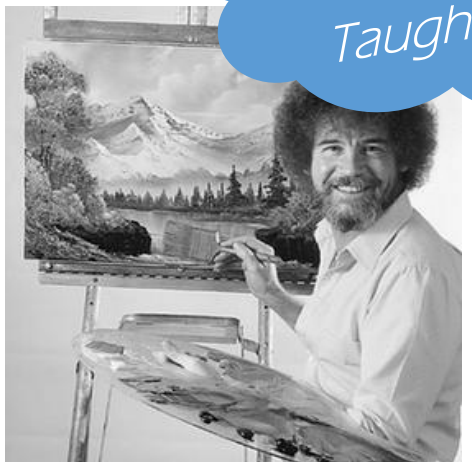
Some of the greatest teachers of all times…

Taught virtually

Fred Rogers
Mister Roger's Neighborhood
1968-2001
https://www.phillyvoice.com/google-honors-mister-rogers-neighborhood-front-page-stop-motion-doodle/

What made these good teachers?

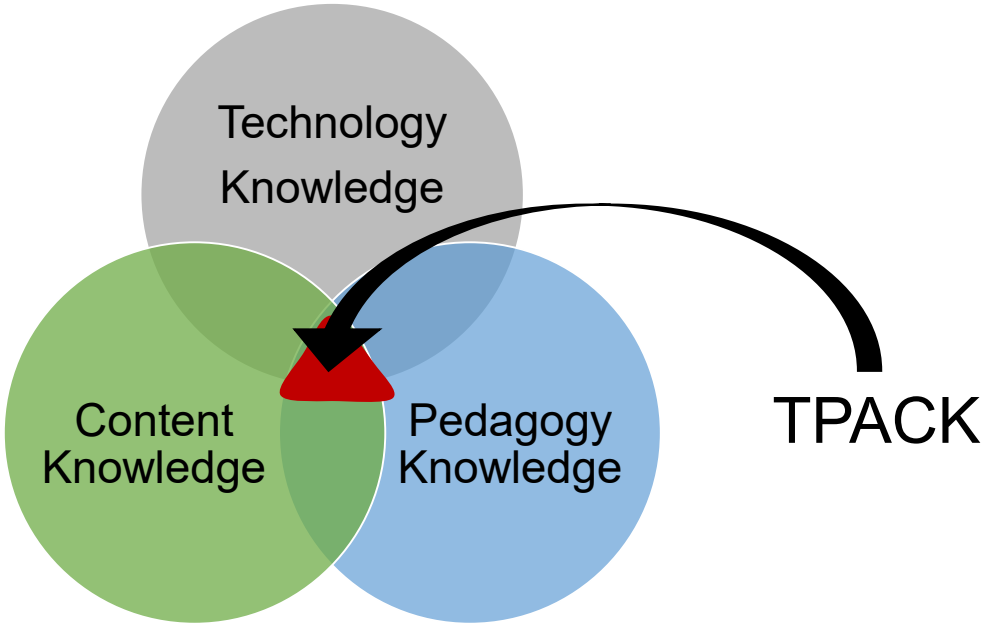
Bob Ross
The Joy of Painting
1983-1994
https://en.wikipedia.org/wiki/Bob_Ross





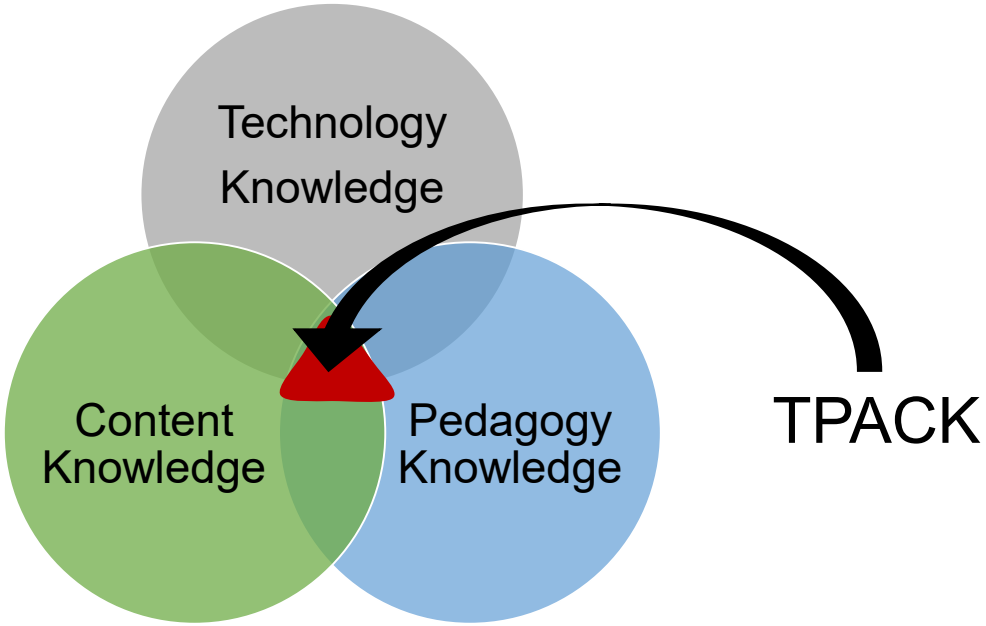
LeVar Burton
Reading Rainbow
1983-2006
https://www.themarysue.com/reading-rainbow-remixed/

Role of the 21st Century Health Professions Educator



1. Hughes J, “Teaching English with Technology: Exploring Teacher Learning and Practice. http://techedges.org/wp-content/uploads/2015/11/Hughes_Full_Dissertation.pdf
2. Mishra P & Koehler MJ, “Technological pedagogical content knowledge: A framework for teacher knowledge”. Teachers College Record, 108(6). (2006).

Role of the 21st Century Health Professions Educator



- Adapt Technology
- Content Curator
- Learning Environment Designer and Implementer
- Using Learning Analytics to Personalize Learning

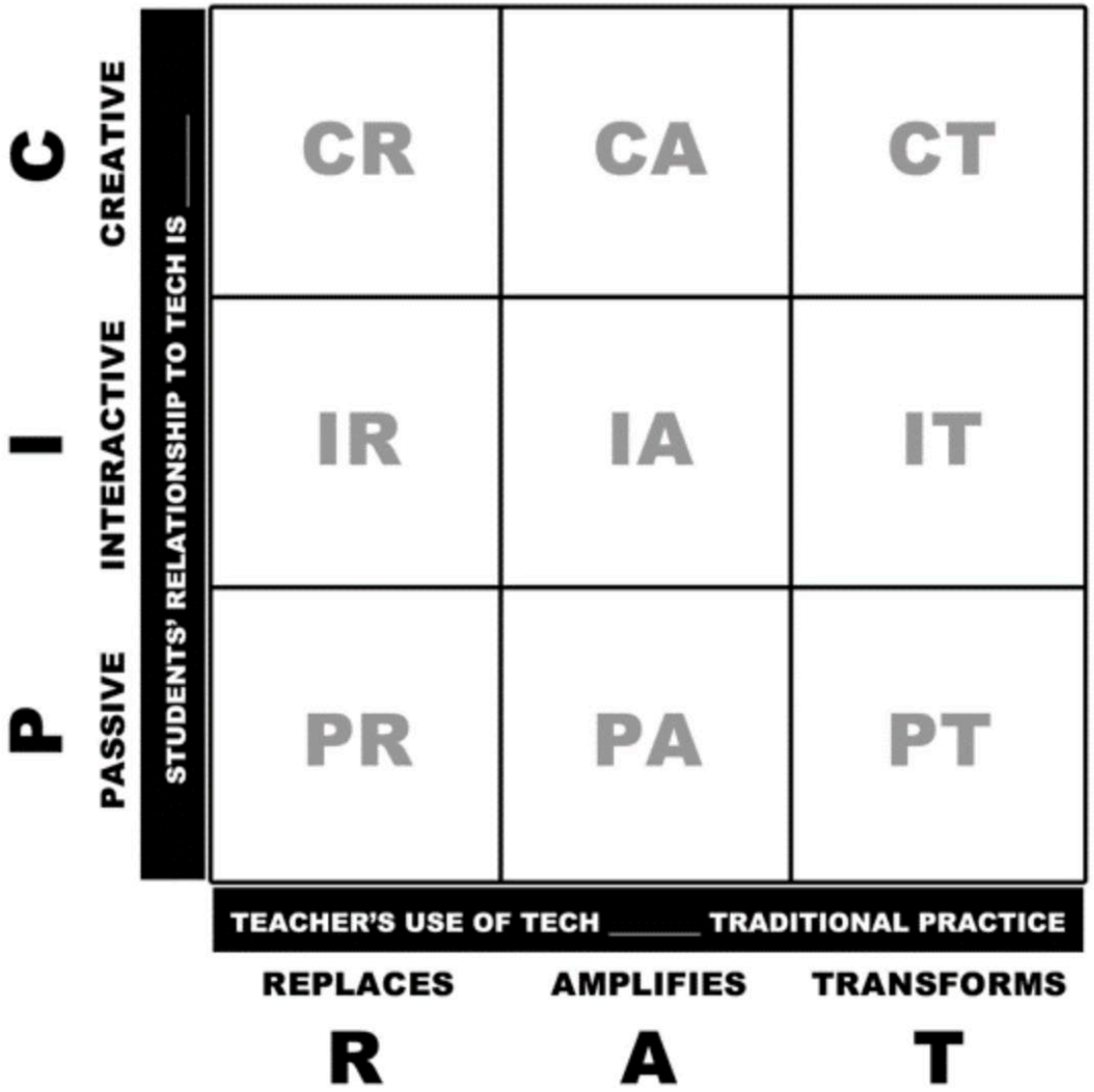
1. Hughes J, “Teaching English with Technology: Exploring Teacher Learning and Practice. http://techedges.org/wp-content/uploads/2015/11/Hughes_Full_Dissertation.pdf
2. Mishra P & Koehler MJ, “Technological pedagogical content knowledge: A framework for teacher knowledge”. Teachers College Record, 108(6). (2006).
3. Simpson D, et al. Job Roles of the 2025 Medical Educator. Journal of Graduate Medical Education, June 2018. 10:243-246.
4. Robin BR, et al. Preparing for the changing role of instructional technologies in medical education. Acad Med 2011;86:435-9.



Replacement

Amplification

Transformation



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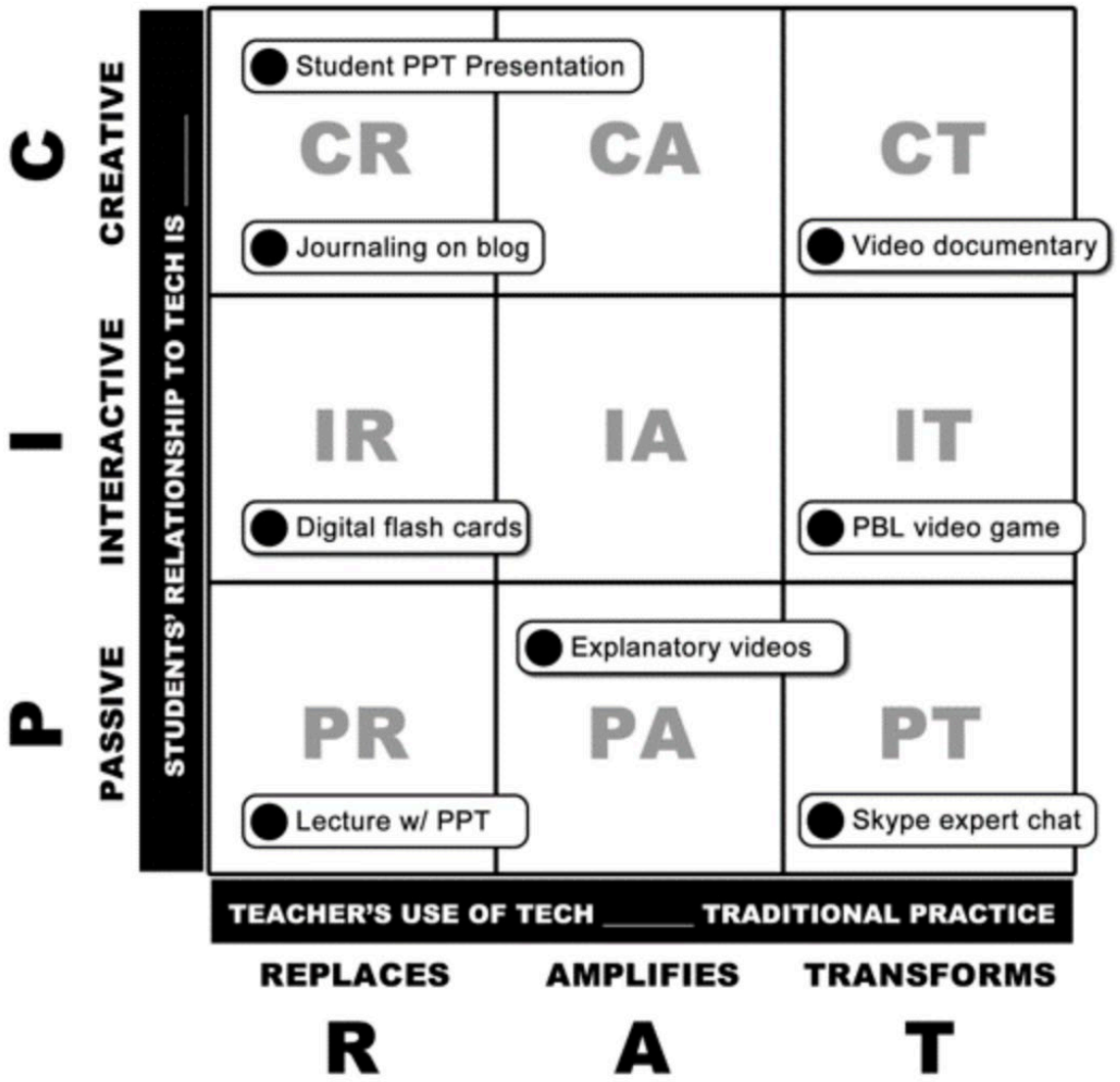


Kimmons, R., Graham, C. R., & West, R. E. (2020). The PICRAT model for technology integration in teacher preparation. *Contemporary Issues in Technology and Teacher Education, 20*(1). https://citejournal.org/volume-20/issue-1-20/general/the-picrat-model-for-technology-integration-in-teacher-preparation



Educational Technology Test Kitchen



Early Hearing Detection & Intervention

a program of the American Academy of Pediatrics

Universal Newborn Hearing Screening Program

Caring for Deaf and Hard of Hearing Children in the Medical Home: An Asynchronous Online Curriculum

Arielle Spellun, MD

Boston Children's Hospital Division of Developmental Medicine

3rd Year Developmental Behavioral Pediatrics Fellow

MA AAP Early Hearing Detection and Intervention (EHDI) Chapter Champion

Audience/Learners

- Primary Care Providers



(Adobe Stock Images)

Audience/Learners

- Primary Care Providers
- All US States and Territories



(Adobe Stock Images)



(Map of EHDI Programs, NCHAM)

Audience/Learners

- Primary Care Providers
- All US States and Territories



(Adobe Stock Images)



(Map of EHDI Programs, NCHAM)

1-2 of 1,000 Children Born Deaf or Hard of Hearing

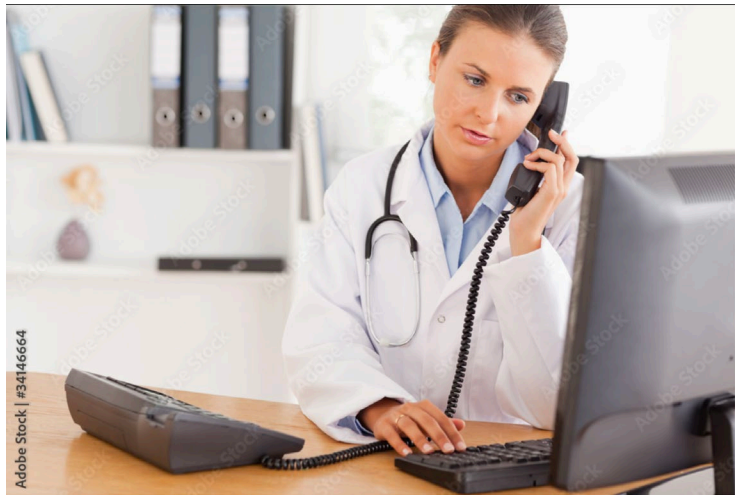
↓

3-5 of 1,000 Children Deaf or Hard of Hearing by School Age

Learning Goals/Problems to be Solved

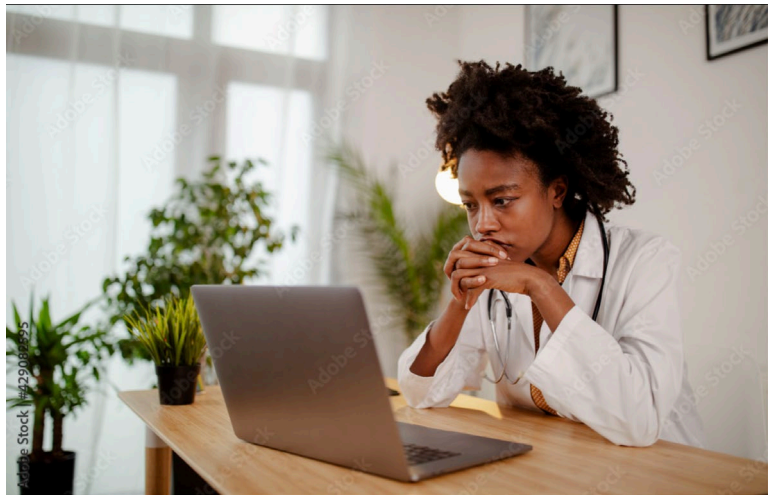


Learning Goals/Problems to be Solved



Learning Goals/Problems to be Solved

OPEN PEDIATRICS™



Learning Goals/Problems to be Solved



(Adobe Stock Images)



(Adobe Stock Images)



(Adobe Stock Images)

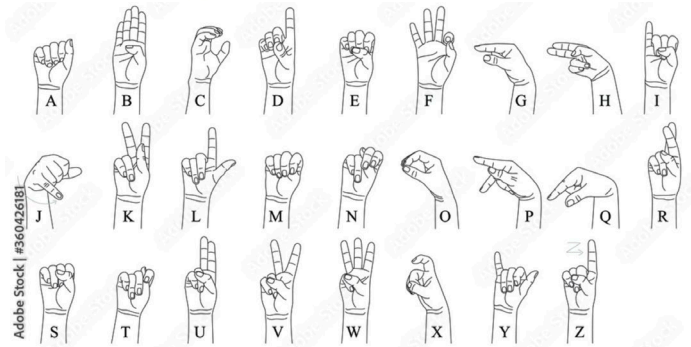


(Adobe Stock Images)



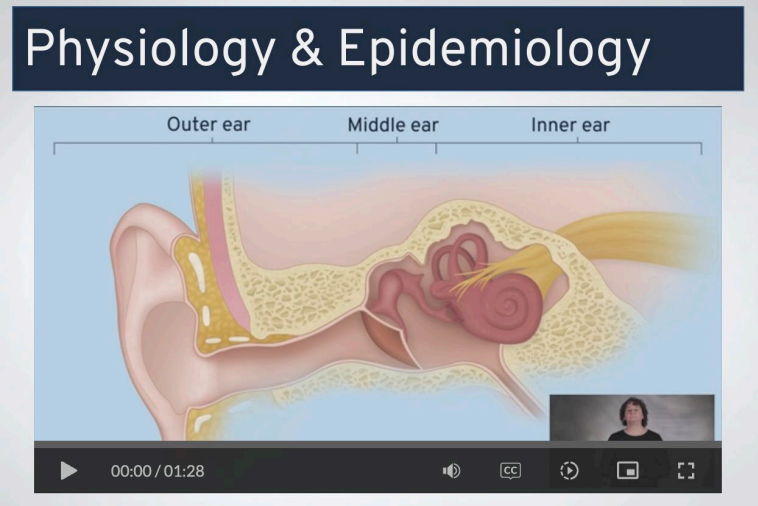
(MA Early Intervention)

GALLAUDET UNIVERSITY
Center for
Deaf Health Equity



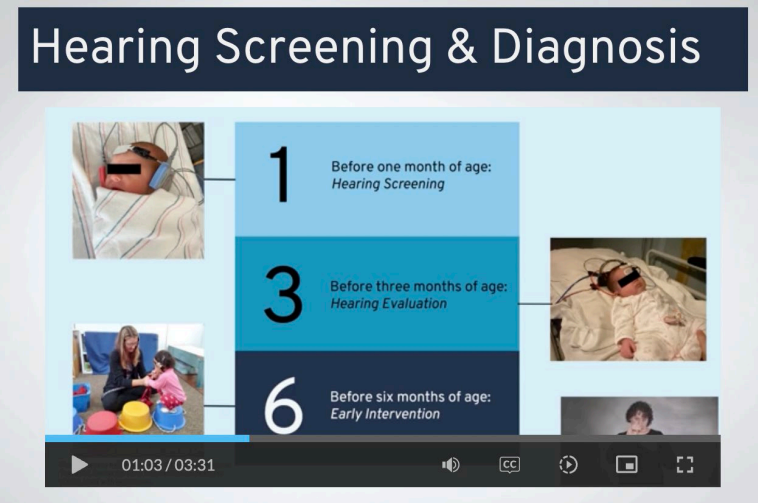
(Adobe Stock Images)

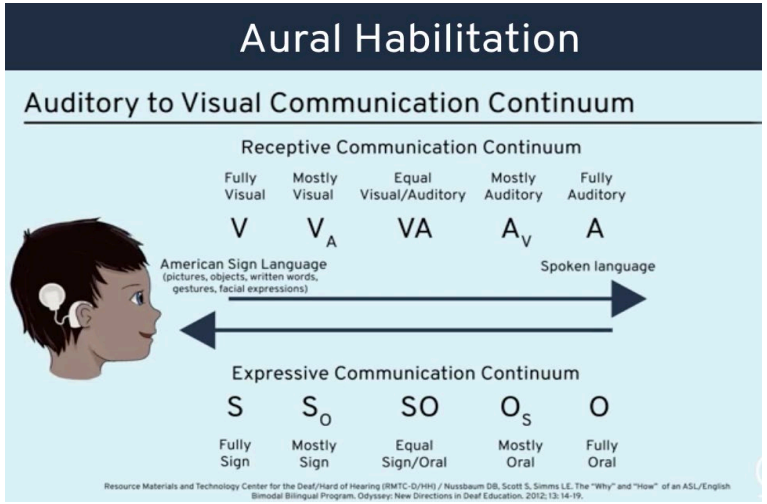
Learning Goals/Problems to be Solved

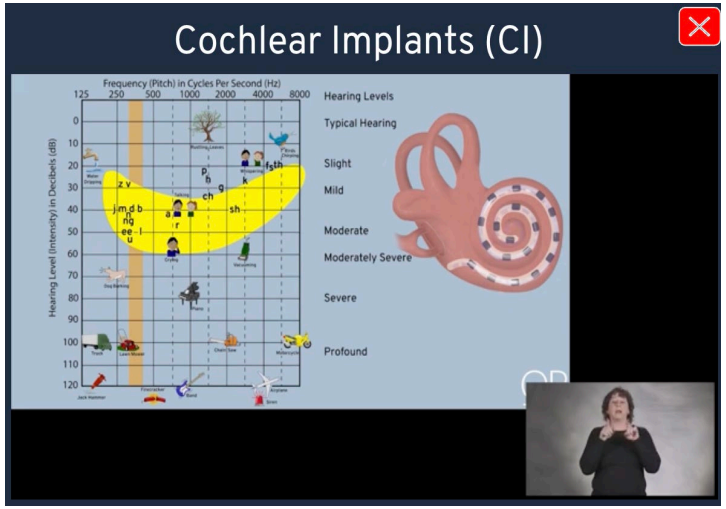








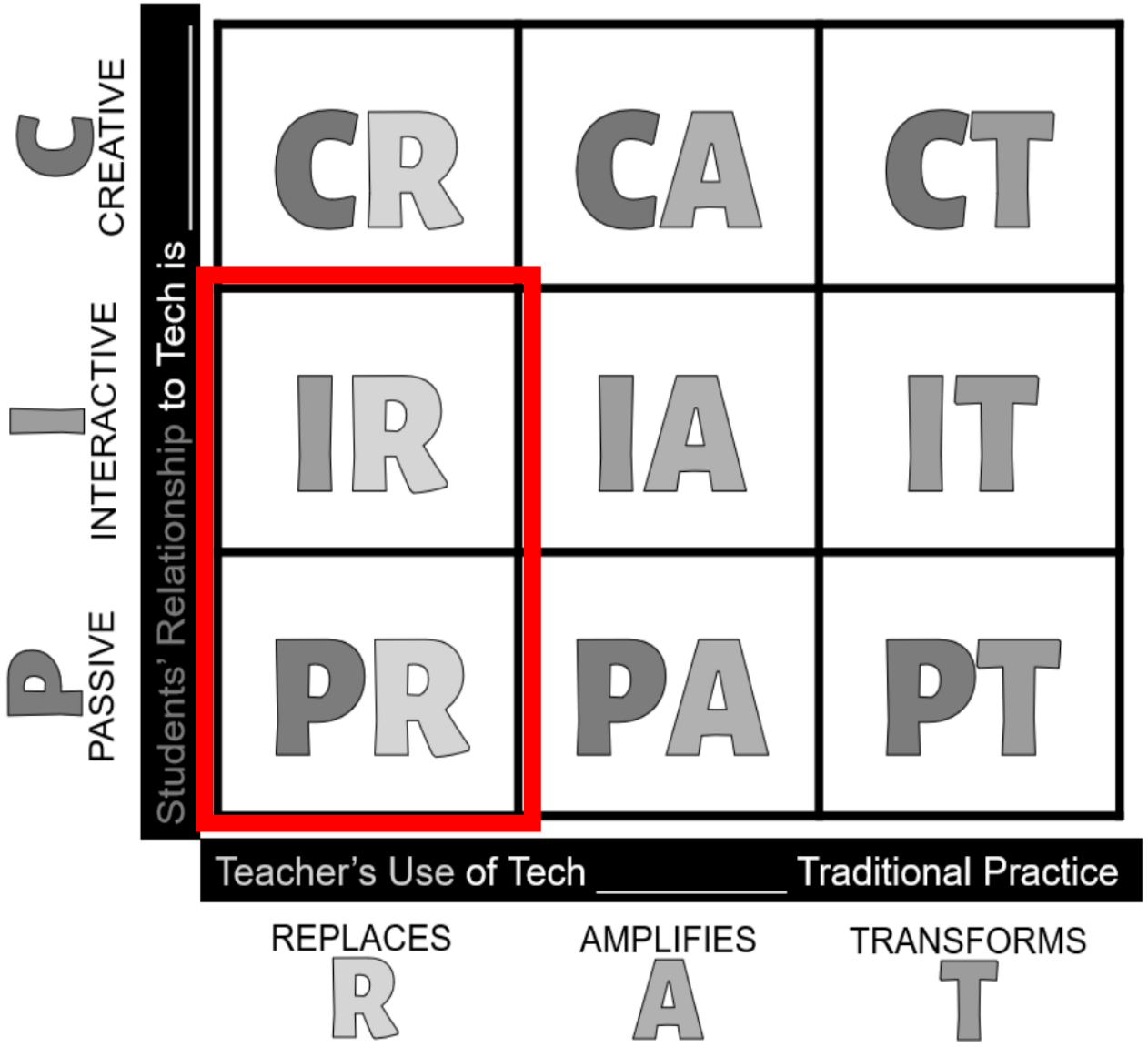




Description/Demonstration

- https://learn.openpediatrics.org/learn/course/5301/caring-for-deaf-and-hard-of-hearing-children-an-overview-for-the-medical-home

PIC-RAT


Students' Relationship to Tech is _____
C CREATIVE
I INTERACTIVE
P PASSIVE
CR
CA
CT
IR
IA
IT
PR
PA
PT
Teacher's Use of Tech _____ Traditional Practice
REPLACES R
AMPLIFIES A
TRANSFORMS T


Thank you
58Creativity



An Innovation in Education

Denise Downey, MSN, RN, NPD-BC, CPEN

Nursing Professional Development Specialist

Emergency Services

BCH Academy | Using Technology Effectively for Educating

June 22, 2023

Boston Children's



Audience/ Learners

BCH COMMUNITY AND BEYOND

- STAFF NURSES
- ADVANCED PRACTICE CLINICIANS
- NURSE PRECEPTORS
- NURSING LEADERSHIP
- NURSE EDUCATORS
- CLINICAL ASSISTANTS

Learning Goals

Use podcasting to teach critical thinking through conversation

- Provide education that is **convenient, easily accessible, asynchronous, portable**
- Discuss topics relevant to nursing but expand to multi-disciplines
- Include real-life experiences, story-telling, point of view
- Engage the audience so they want more
- Offer nursing continuing education credits

Description



The Small Talk Podcast:

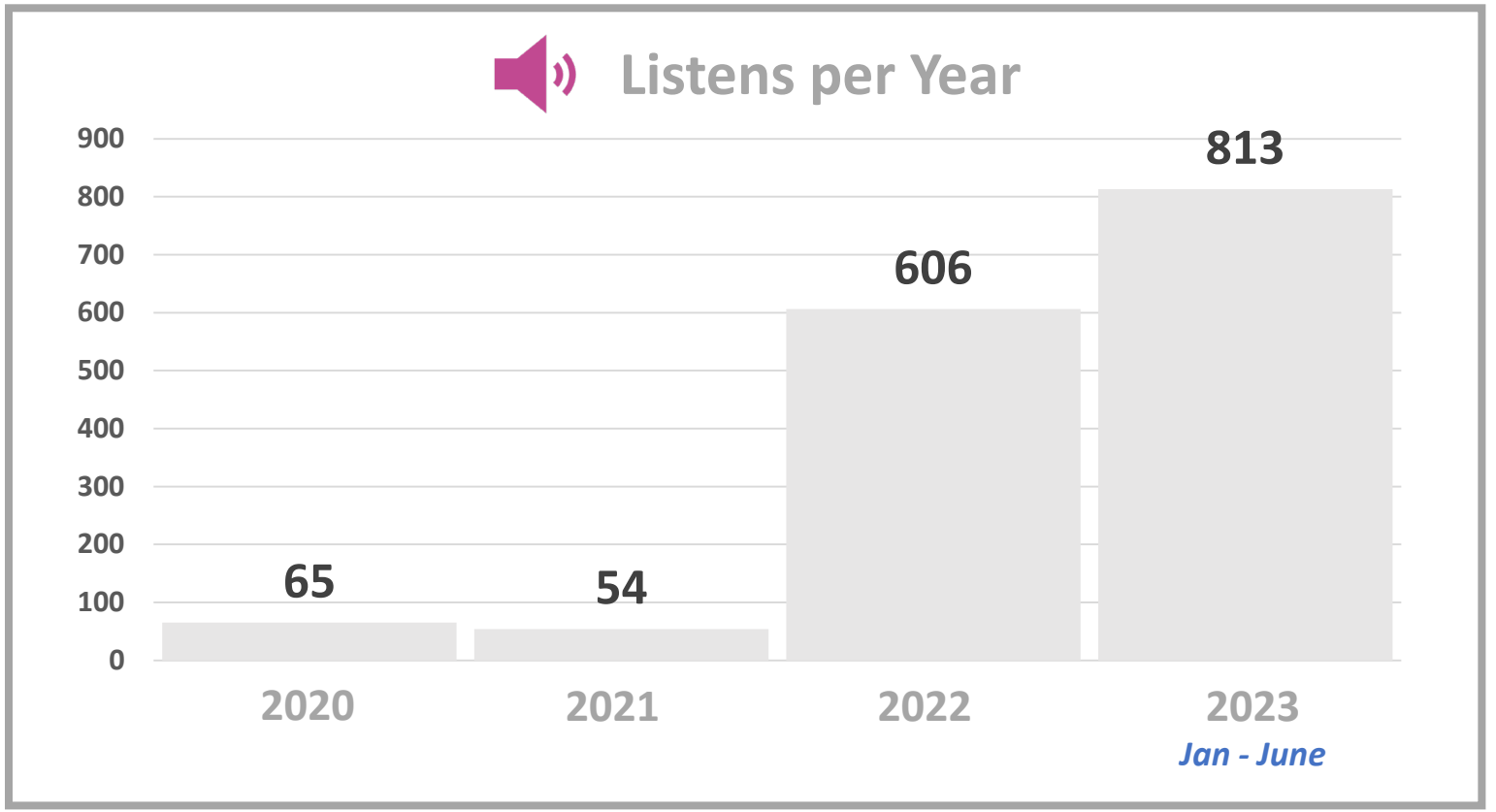
An award-winning interprofessional podcast exploring the BCH community through the art of conversation

- Grassroots collaborative initiative
- Facilitates conversation and collaboration across professions
- Creates opportunities for networking and knowledge-sharing
- Fosters a broader sense of community & pride throughout BCH
- Addresses psychosocial and emotional needs of patients & families


AIRBAG
Small Talk Podcast
Boston, United States
32 Followers • 0 Following
Show more
Pinned to Spotlight
SMALL TALK
17:24
14.11.2016
CD
RADIO
AUX
PHONE

Growing an Audience





PIC-RAT Model

PA Educator's companion to a specific topic

PR Asynchronous education to expand knowledge based on learner's interest

STUDENT'S RELATIONSHIP TO TECH IS ___	REPLACES (R)	AMPLIFIES (A)	TRANSFORMS (T)
C — CREATIVE	CR	CA	CT
I — INTERACTIVE	IR	IA	IT
P — PASSIVE	PR	SMALL TALK AN INTERPROFESSIONAL PODCAST HOSTED BY BOSTON CHILDREN'S NURSES	PT

TEACHER'S USE OF TECH _____ TRADITIONAL PRACTICES


Breakout Groups

Case Scenario



8 min

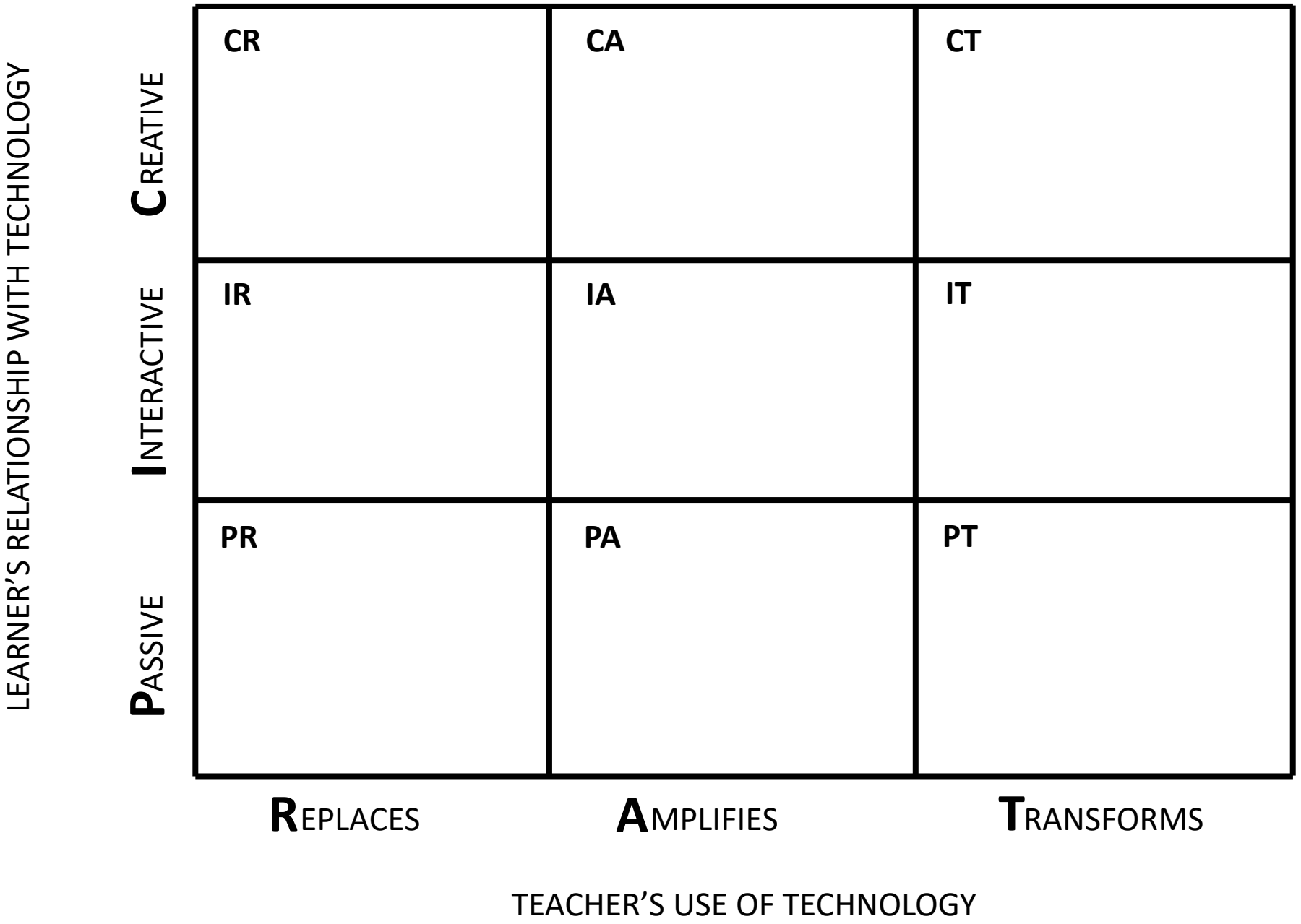
Your program hosts a noon conference.

Attendance has fallen and attendees do not seem to be engaging with the conferences.

What can you do to use technology to improve the conference?

Even breakout group number = virtual conference
Odd numbers = in person conference

*Pixabay



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Code Cart VR in the CICU

Annette (Toni) Imprescia RN, BSN, CCRN

Clinical Educator, Staff Nurse Level 3

Associate Clinical Director, CICU Nursing- Immersive Design Systems

Clinical Educator in the CICU-What do I do??

- Facilitate an established CICU Nursing Orientation Curriculum
  - 11 class days with 6 high fidelity simulation scenarios
  - Each designed to compliment course material and prepare the newly hired nurse to function in the CICU including emergencies
- Orientee feedback requests more practice calculating weight based dosing up and anticipating medications at the code cart during an emergency
- Charge nurse feedback requesting more training for new nurses to improve calculating weight based dosing up and anticipating medications at the code cart during an emergency
- Limited opportunities in simulation scenarios
- Identified a need for a creative way to practice these skills

What we did

- Collaborated with SIM Engineer (Jeffrey Jacobson) and

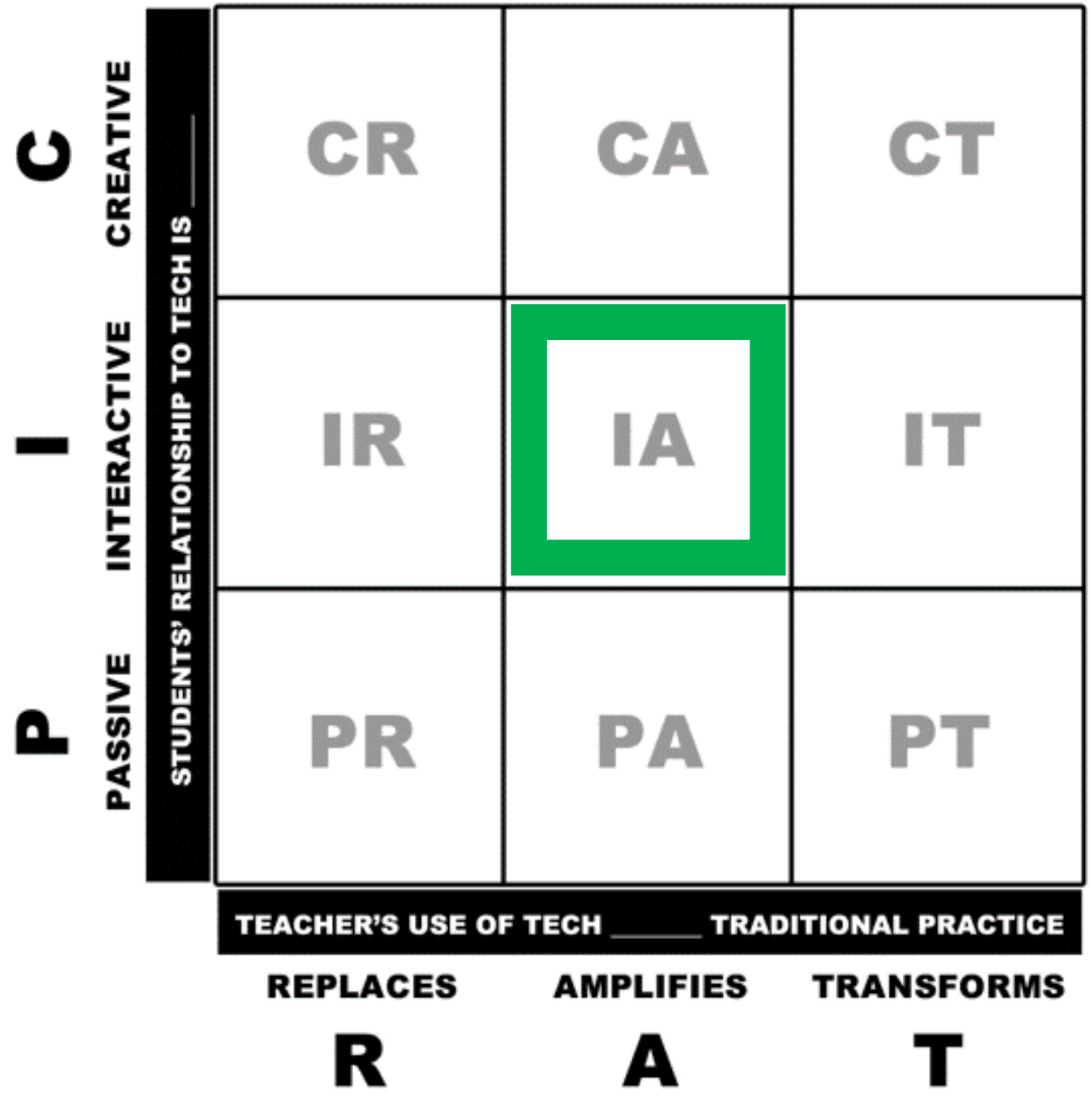
Oxford Medical Simulation (OMS) to develop a VR based experience

- Developed scenarios
  - Beginner
  - Intermediate
  - Advanced
- Embedded metrics and applied a scoring system
- Purchased head sets for orientees to take home to practice
- Collecting survey data from orientees


61
71%
36.9
PERIPHERAL ACCESS


99
91%
36.8
Hill-Rom

PICRAT


P
I
C
PASSIVE
INTERACTIVE
CREATIVE
STUDENTS' RELATIONSHIP TO TECH IS ____
CR
CA
CT
IR
IA
IT
PR
PA
PT
TEACHER'S USE OF TECH _____ TRADITIONAL PRACTICE
REPLACES
AMPLIFIES
TRANSFORMS
R
A
T

Code Cart 1 - Sam [BCH001US]

Learning Objectives



Diagnosis

Post-surgical stridor requiring intubation

Case Summary

- Post-surgery for RVOTO
- Stridor
- Vitals
  - HR100, BP 80/45, RR 10, CVP 14, Sats 92%
- Emergent need for intubation requiring:
  - Fentanyl
  - Atropine
  - Rocuronium

Technical Skills

Assessment

- Demographics (size, weight, age, gender)
- Vital signs (pulse, breathing, blood pressure)
- Immediate history (e.g. recently out of surgery)
- Know the roles of your team members

Prepare medications correctly

- Refer to code book
- Procure the correct medications
  - Fentanyl
  - Atropine
  - Rocuronium
- Read the label
- Calculate the correct dosage
- Draw up medication into correct syringe
- Apply correct label to syringe

Handoff to CN

- Verbal and physical handoff

Non-technical Skills

Make appropriately timed decisions

- Anticipate doctor requests
- Prepare medications ahead of time

Interact effectively with team

- Communicate around medical delivery and handoff

Practice effective emotional regulation

- Perform smoothly under pressure
- Utilize coping strategies

General Objectives

- Apply lessons learned in the classroom
- Know your equipment
- Demonstrate learning from formative feedback

Correct Rocuronium dose

You drew up the correct dose of Rocuronium

Show rationale

Critical

Critical Technical

01:34

Correct Atropine dose

You drew up the correct dose of Atropine

Show rationale

Critical

Critical Technical

02:52

Correct Fentanyl dose

You drew up the correct dose of Fentanyl

Show rationale

Critical

Critical Technical

04:33

What went well - important aspects

Hand hygiene

You correctly carried out hand hygiene to help prevent the spread of infection

Show rationale

Important

Technical

00:31

Fentanyl label check

You checked the Fentanyl label

Show rationale

Additional

Technical

03:45

What to improve on - critical aspects

Incorrect Fentanyl dose

You drew up the incorrect dose of Fentanyl

Show rationale

Critical

Critical

Technical

04:11



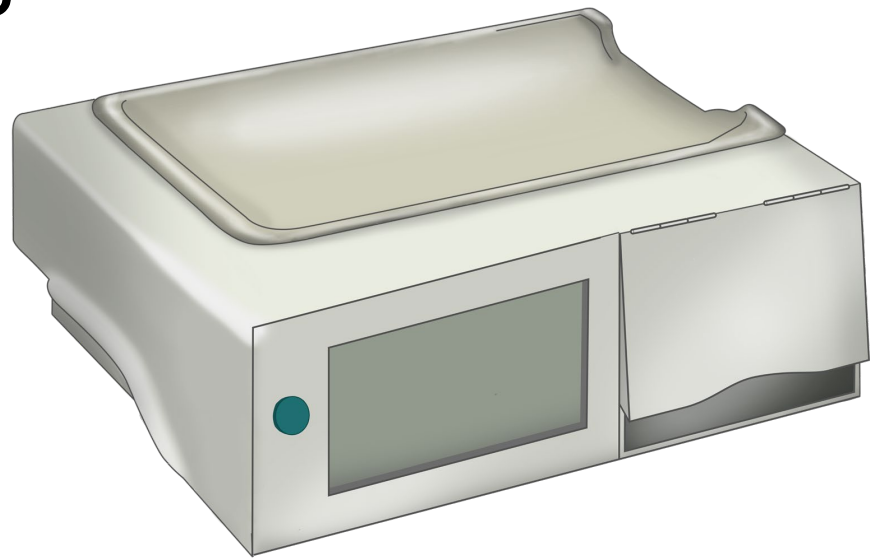
Completed in: **05m 01s**

How we calculate your score & provide feedback

“Learn Peritoneal Dialysis” Training Program for Patients and Families

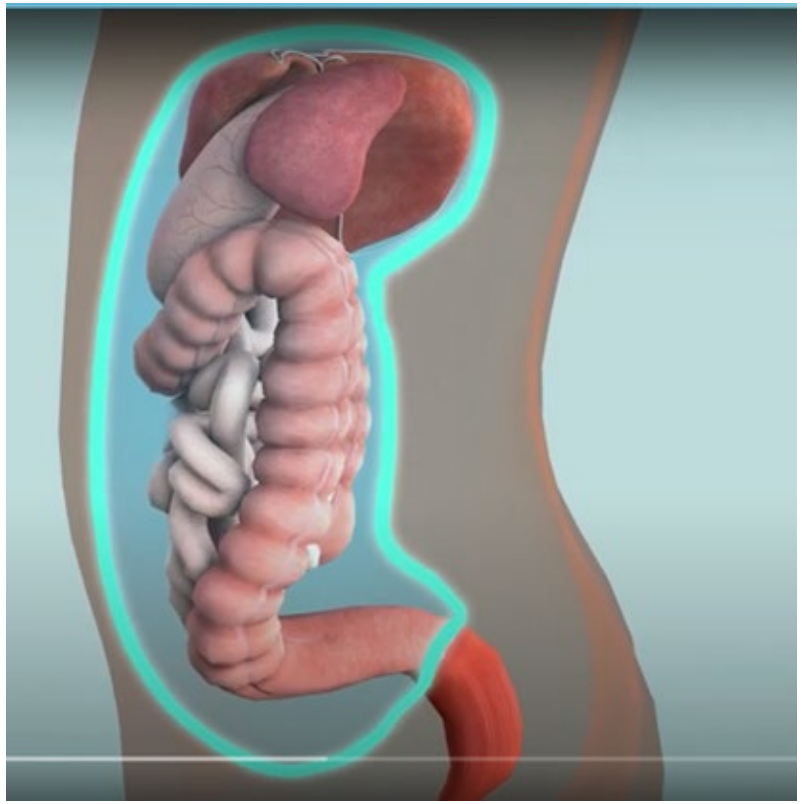


Kaitlyn Order, MD
Pediatric Nephrology Fellow
Boston Children’s Hospital



Background: Peritoneal Dialysis

- Form of chronic dialysis
- Uses the peritoneum as a filter to clean blood and remove fluid
- Provided at home overnight instead of at a health care facility
- **Families/Caregivers are responsible for running home PD and must receive extensive training**

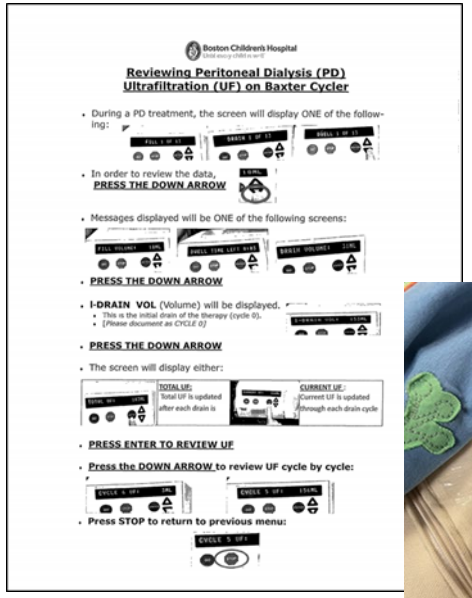


Peritoneal Dialysis Training for Families

Targeted Audience: Patients, caregivers, and families who are learning to provide home peritoneal dialysis

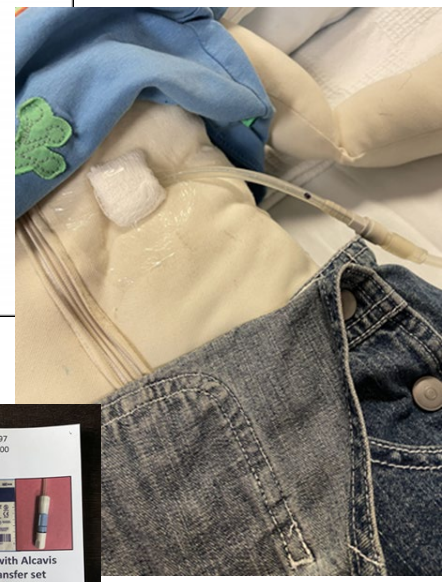
Current Problems in PD Training:

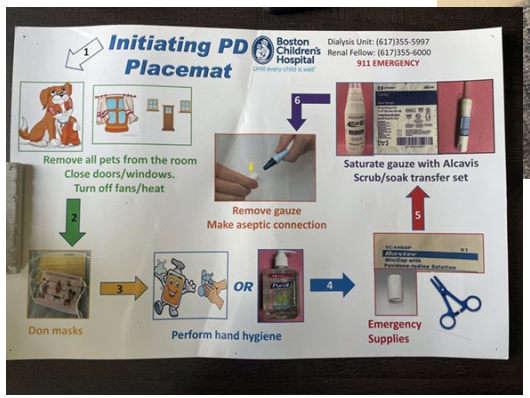
- Lack of innovative and interactive resources for teaching
- Families with limited health literacy required to learn complex tasks
- Requires specialized nurses to train families


Boston Children's Hospital

Reviewing Peritoneal Dialysis (PD) Ultrafiltration (UF) on Baxter Cycler

- During a PD treatment, the screen will display ONE of the following:
- In order to review the data, PRESS THE DOWN ARROW
- Messages displayed will be ONE of the following screens:
- PRESS THE DOWN ARROW
- I-DRAIN VOL (Volume) will be displayed.
  - This is the initial drain of the therapy (cycle 0).
  - (Please document as CYCLE 0)
- PRESS THE DOWN ARROW
- The screen will display either:
  - TOTAL UF: Total UF is updated after each drain is
  - CURRENT UF: Current UF is updated through each drain cycle
- PRESS ENTER TO REVIEW UF
- Press the DOWN ARROW to review UF cycle by cycle:
- Press STOP to return to previous menu:

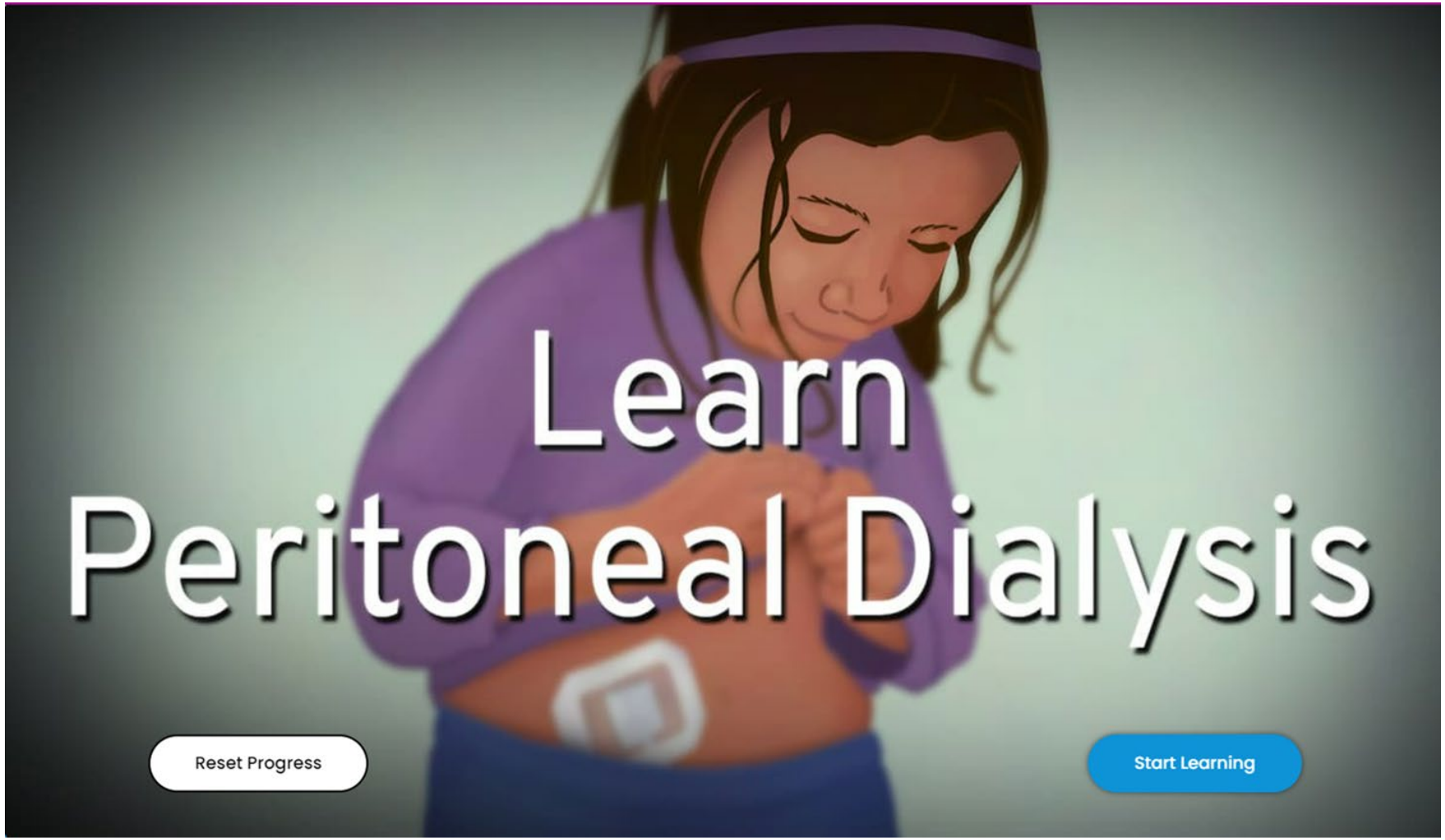


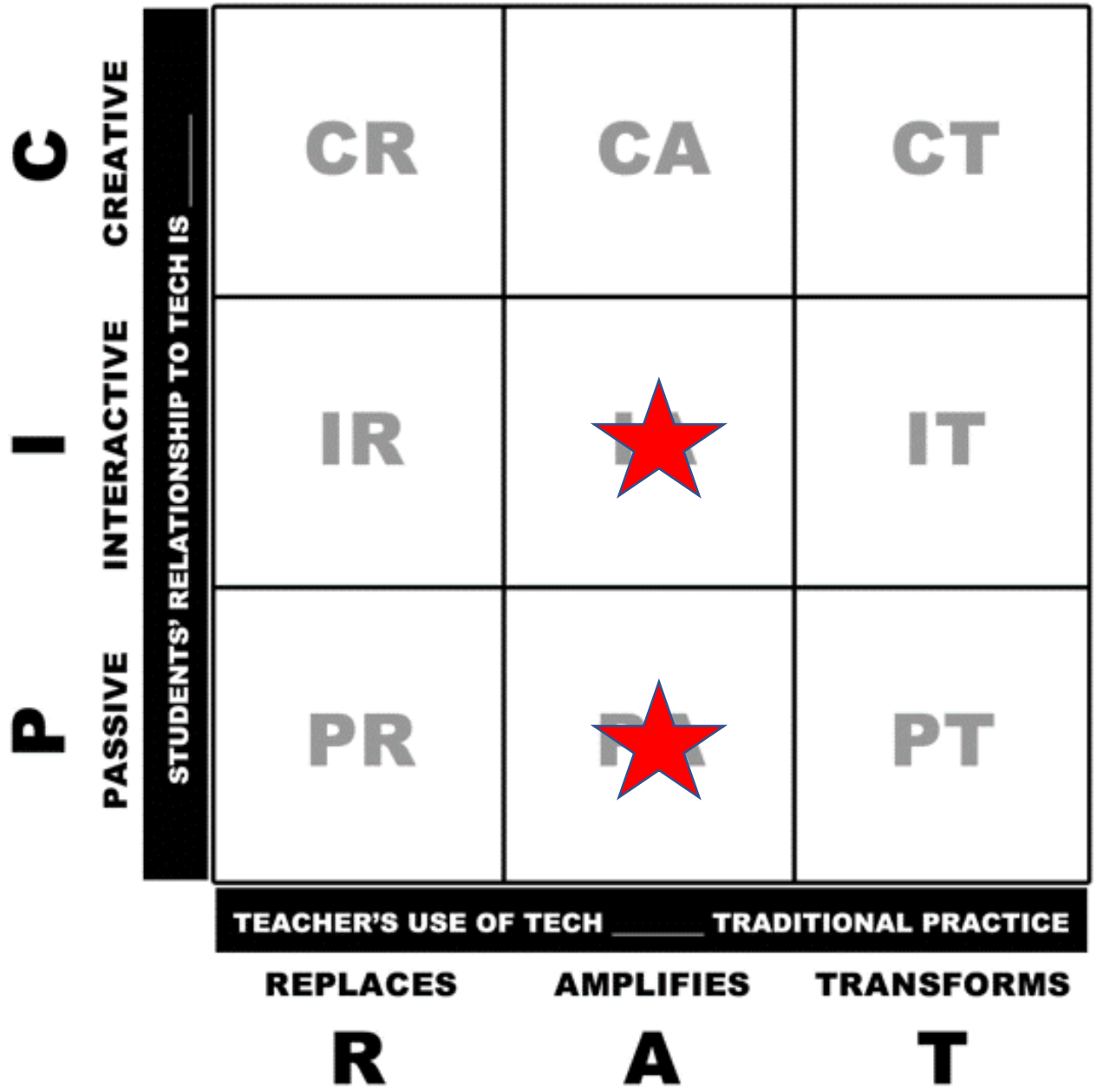


Considerations in Program Design

- Presentation of content: visual, audio, written
- 3D images vs. 2D images
- Reading level of the learner
- Use of deliberate practice in the interactive portions
- Accessible for families at other centers

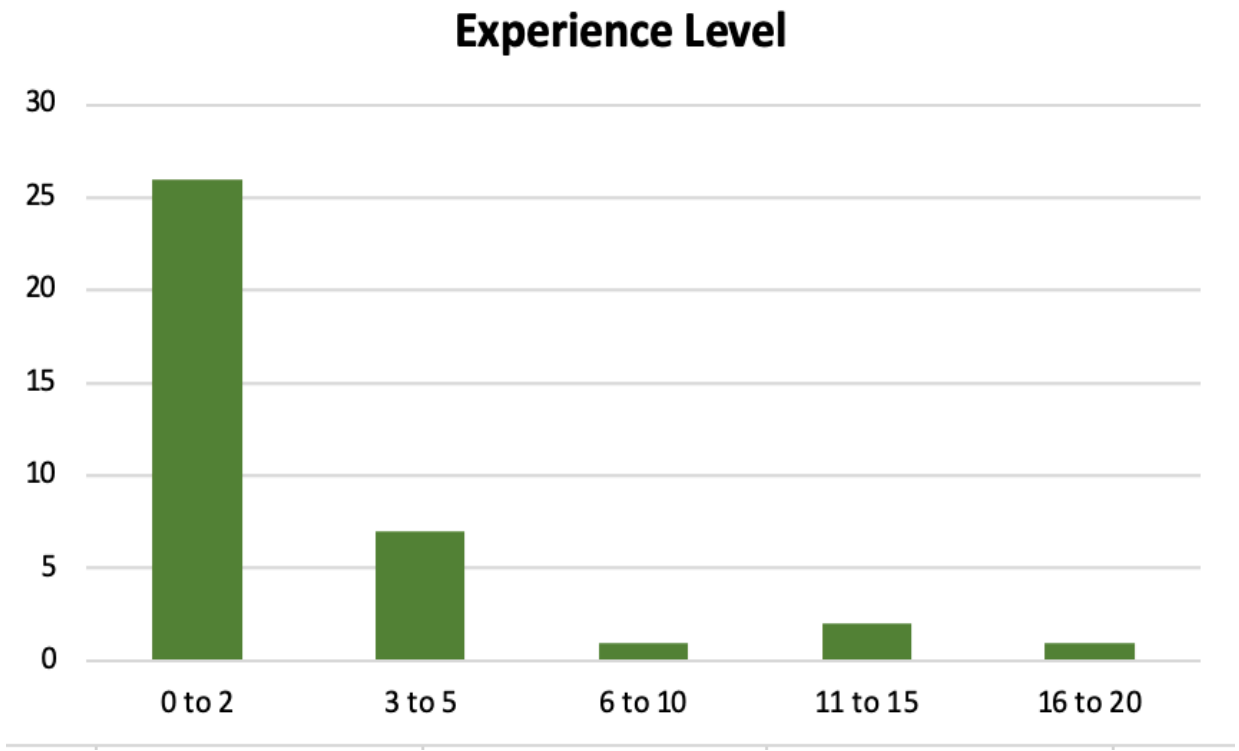
“Learn Peritoneal Dialysis” Demo




P I C
PASSIVE INTERACTIVE CREATIVE
STUDENTS' RELATIONSHIP TO TECH IS _____
CR
CA
CT
IR
IT
PR
PT
TEACHER'S USE OF TECH _____ TRADITIONAL PRACTICE
REPLACES AMPLIFIES TRANSFORMS
R A T

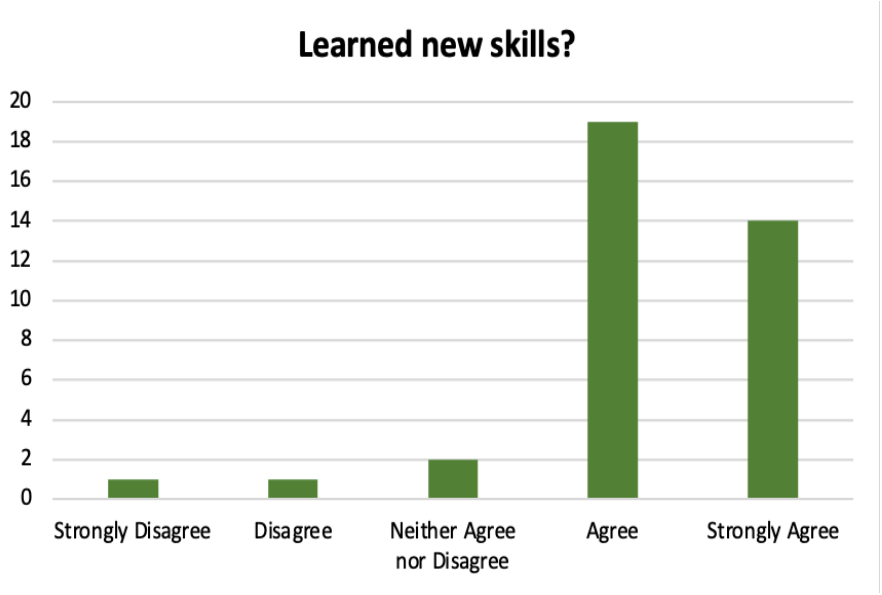
Audience

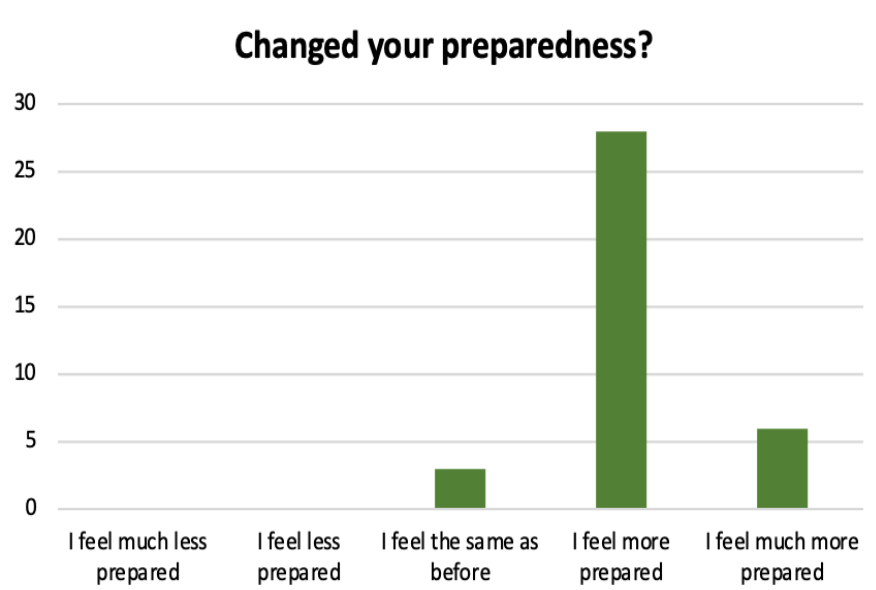
- Staff Nurses in the MSICU
  - New graduate
  - Staff nurses
    - No pediatric experience
    - No critical care experience



Goals

- Immersive experience
- Innovative
- Limited need for resources/space
- Easily adaptable



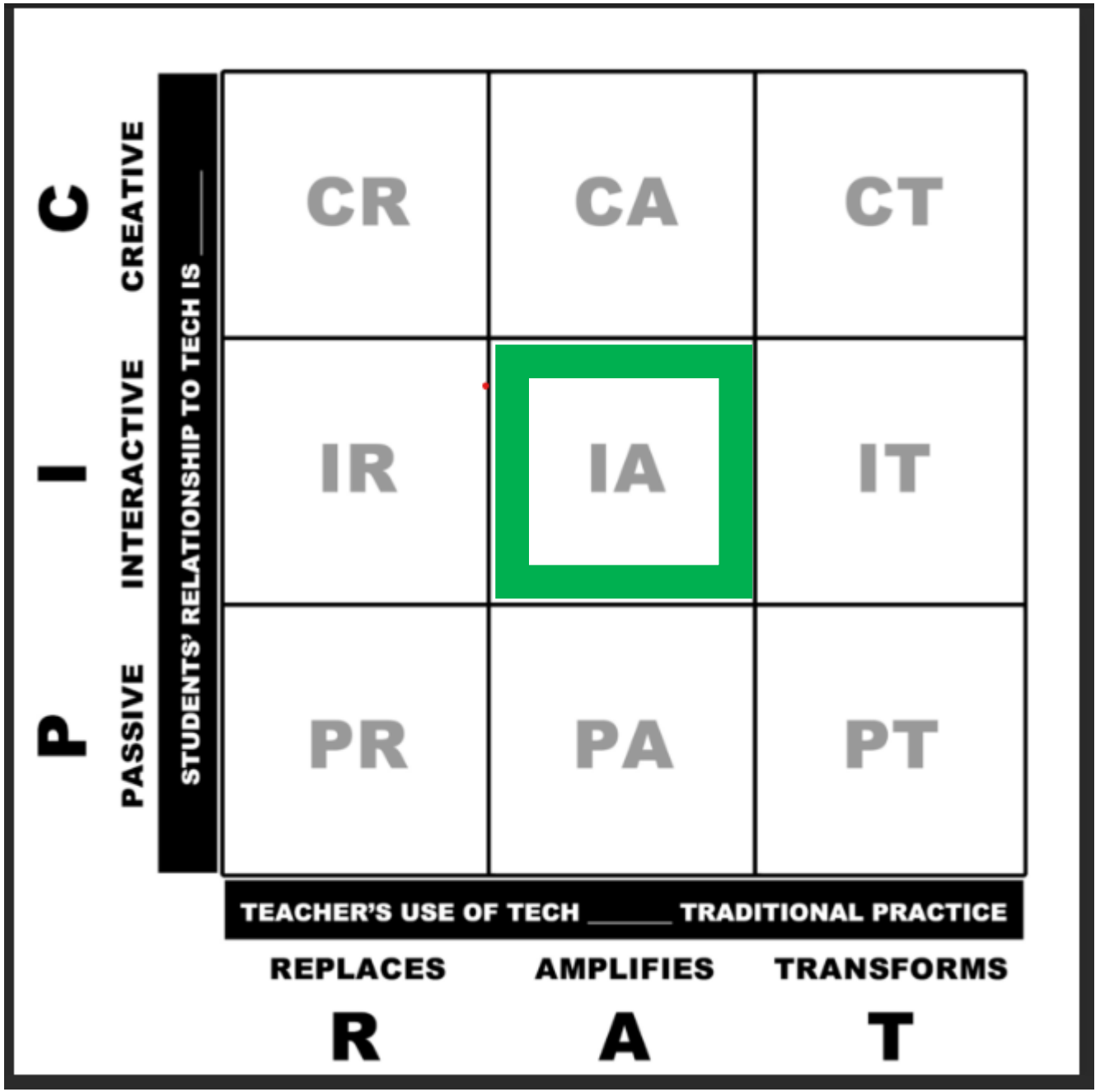


Scenario


Boston Children's Hospital
NURSE


CLEAR SPACE
LABS
MEDICATIONS
30
(SEMI FOWLER'S)

PICRAT


STUDENTS' RELATIONSHIP TO TECH IS ____
P
PASSIVE
I
INTERACTIVE
C
CREATIVE
CR
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TEACHER'S USE OF TECH _____ TRADITIONAL PRACTICE
REPLACES
AMPLIFIES
TRANSFORMS
R
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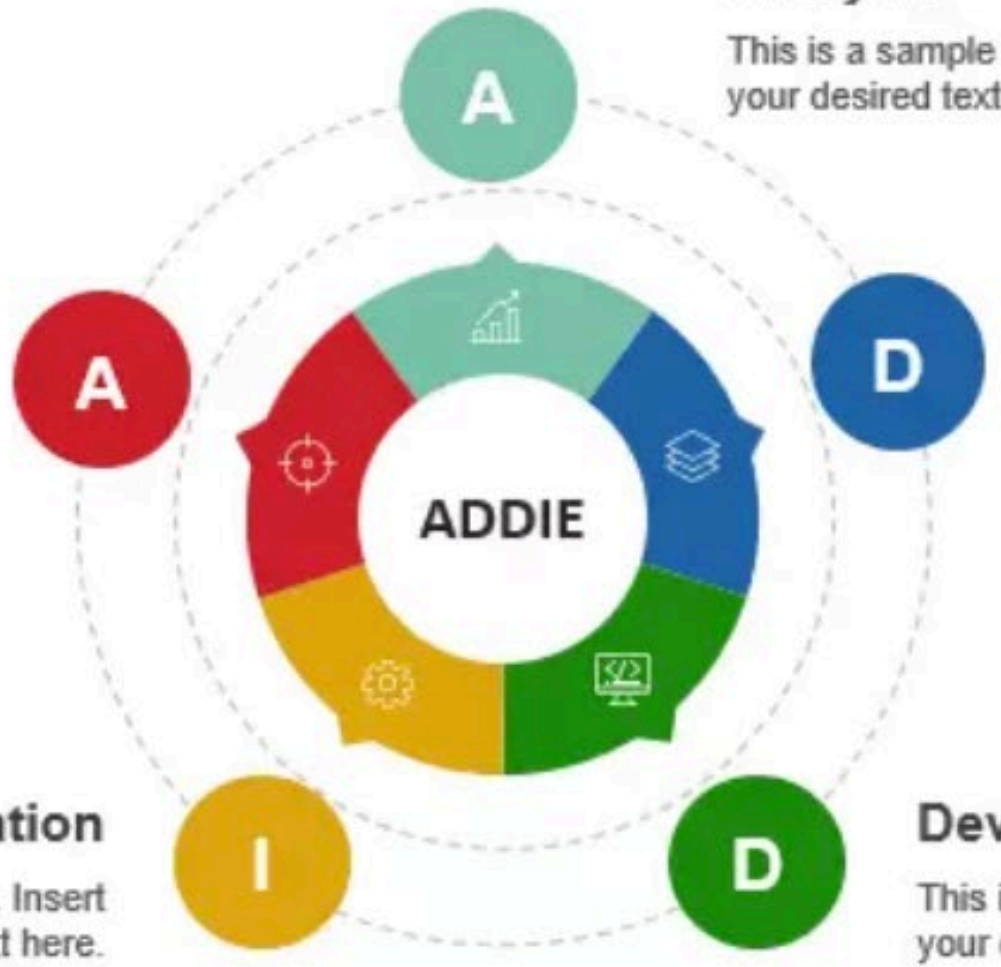
ADDIE Model



Analysis

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Design

This is a sample text. Insert your desired text here.

Development

This is a sample text. Insert your desired text here.

Implementation

This is a sample text. Insert your desired text here.

Evaluate

This is a sample text. Insert your desired text here.