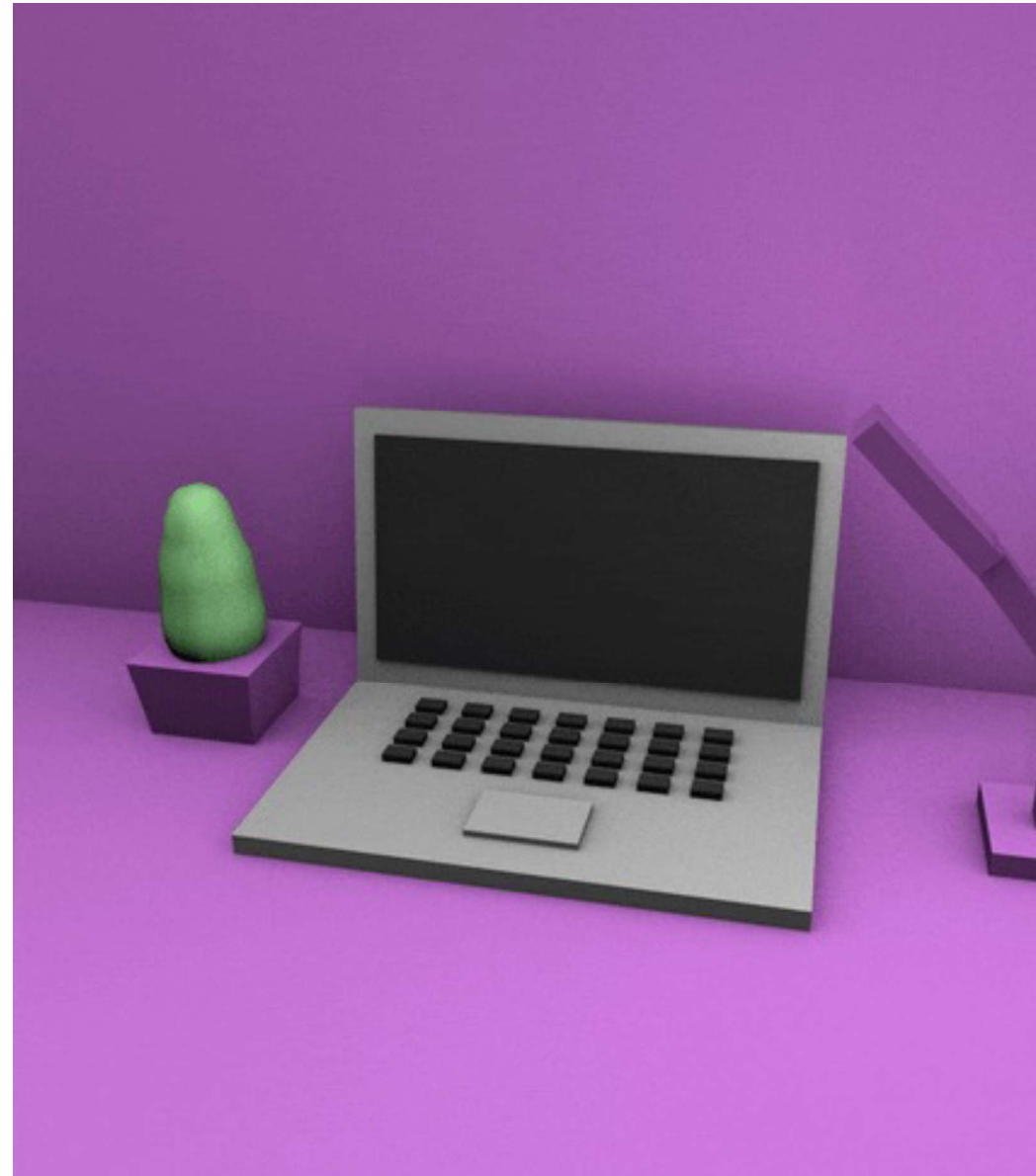


# Cutting edge technology-assisted educational models for students with ADHD

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*Hosted by Chesapeake Bay Academy, in partnership with the Children's Hospital of the King's Daughters*



# Technology for Students with Learning Differences

- **Social cues:** May be mediated more effectively (Ke et al., 2022).
- **Cognitive/processing:** Can be made efficient using assistive technology (Andersen & Sorensen, 2017).
- **Focus/attention:** Can be fostered by creating engaging learning environments that mirror students' real lives.



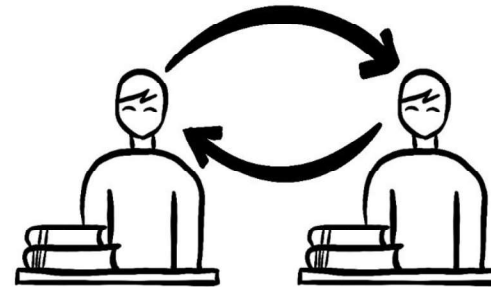
# Learning Strategies fostered through technology



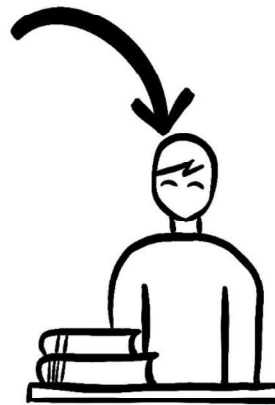
Structure & overview



Shielding & Focus



Knowledge building



Comprehension & Differentiation



Production & Dissemination

# Technology, ADHD, and Learning Strategies

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<b>ADHD Diagnosis</b>	<b>Hypertext Markup</b>	<b>Gamification</b>	<b>Extended Reality</b>
<b>Structure and Overview</b>	Sorensen & Andersen, 2017	Lincoln et al., 2024	Parsons et al., 2007
<b>Comprehension and Differentiation</b>	Sorensen & Andersen, 2016	Pede, 2017	Romero-Ayuso et al., 2021*
<b>Collaboration and Knowledge Building</b>	Sorensen & Andersen, 2017	Redondo et al., 2019	
<b>Shielding and Focus</b>	Cibrian et al., 2020	Harrison et al., 2019	Romero-Ayuso et al., 2021*
<b>Production and Dissemination</b>	Sorensen & Andersen, 2017		

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*\*Indicates a meta analysis or review study.*

# What does this all mean?

- That learning technologies (we have focused on as hypertext markup, gamified avenues and extended reality) can:
  - Allow increased content acquisition
  - Facilitate collaboration
  - Immerse the learner, foster engagement
- We need to design online learning environments and in-person learning environments that mirror the structure of real life!



# The CadetNet Program

- Common Core Standards.
- Incorporates hypermedia, gamification, and extended reality.
- Facilitates individual, collaborative, and immersive learning.
- Supports learning differences through assistive tools.



# A Theoretical Interpretation

- The five learning strategies we focused on to design our curriculum can be interpreted as drawing from:
  - Sociocultural theory
    - Participant observation
    - Personal histories, narratives and perspectives
    - Collaboration, conversational practices
    - Change in thinking about topics learnt (Glassman et al., 2023)
  - Self determination theory
    - Autonomy to learn in ways suiting each learner best
    - Competence and domain specific skill acquisition
    - A healthy culture of Relatedness (Tilak et al., 2022)

# Immersive Realities: An Example



<https://www.spatial.io/s/Cadet-Net-Prototype-Minimal-6577ced580731e97234ee900?share=6910042744265889926>



# AI for Expedient, Reflective Course Design

- **MagicSchool AI**

- Allows generation of course plans.
- Teachers can collaborate in groups to iterate upon these.
- Teacher co-agency (Mishra, 2023) can help filter falsehoods.



- **Discord's Image Generation Bot**

- Can help teachers generate 2D immersive images
- Requires careful prompting



- **Current Efforts:** Participatory action project to understand mechanisms of teacher-AI collaboration (Tilak et al., under review)

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