Virtual Education

It Doesn't Have to be Boring!

Poll

- In your experience, what is the biggest challenge in virtual teaching right now?

AGENDA

1. Challenges & Research Findings
2. Synchronous Strategies
3. Asynchronous Strategies
4. Instructional Design & Tools
5. Health Science Applications
6. Q&A

Learning Objectives

By the end of our discussion, you should be able to:

Identify

- key challenges in delivering effective online health science education

Apply

- evidence-based engagement strategies for synchronous and asynchronous instruction

Analyze and Evaluate

- how instructional design principles—including active learning and gamification—can enhance learner engagement in virtual settings

Create

- an actionable plan to integrate at least one new tool or strategy into your virtual health science curriculum

Why Virtual Education Matters

Online learning can be as effective as face-to-face[1]

Blended learning often outperforms purely face-to-face[1]

High-level of interactivity and well-structured design are critical to success

U.S. Department of Education. (2010). Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies. Retrieved from https://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf

Synchronous Engagement Strategies

Frequent Interaction

Instructor as Facilitator
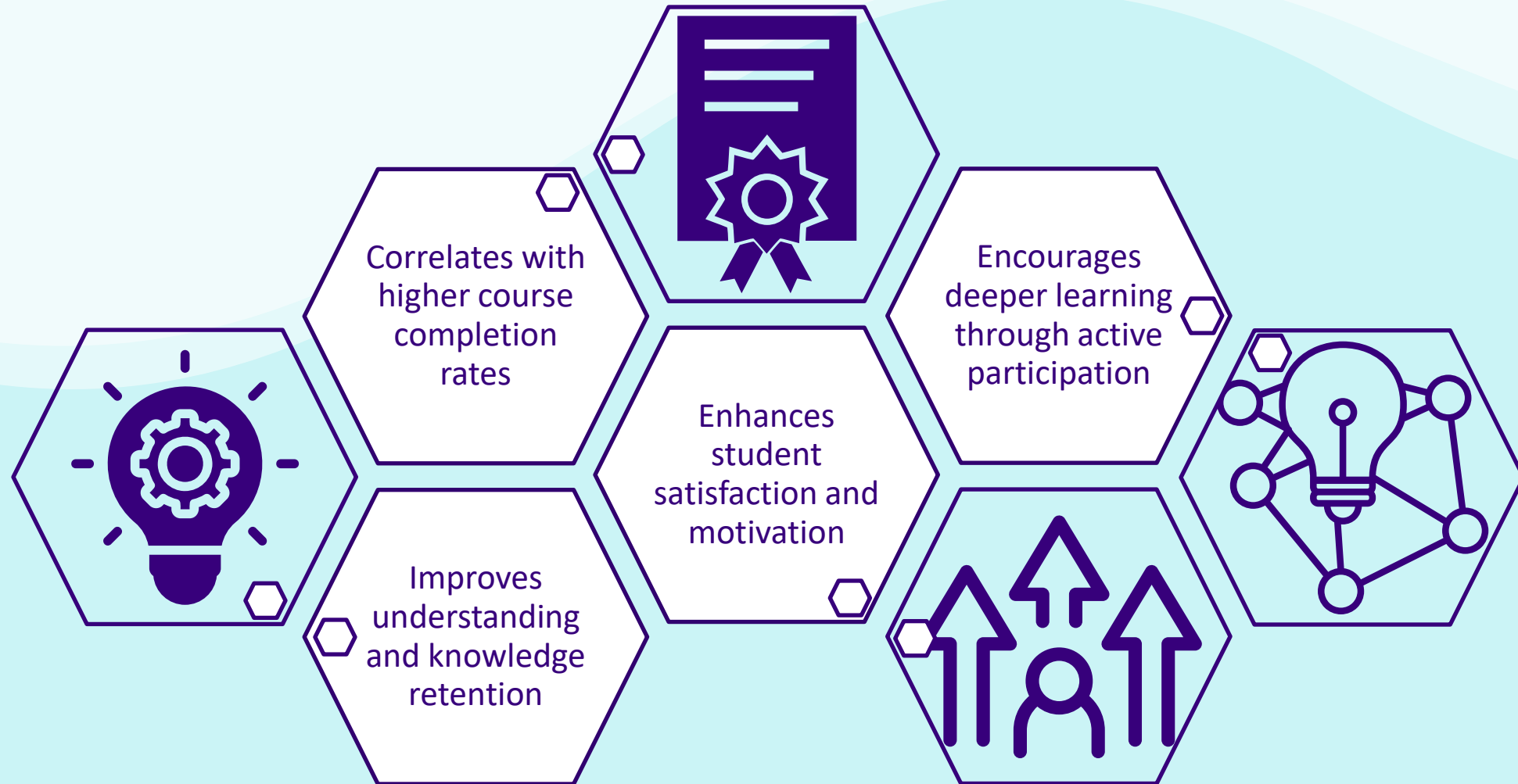
Interactive Tools
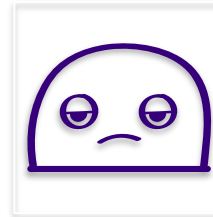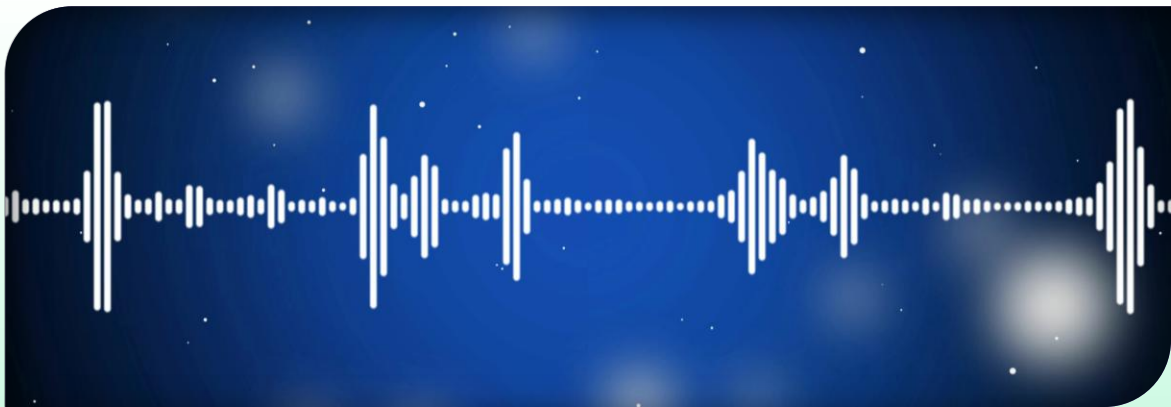
Clear Structure & Pacing

Building Community

Managing Technical & Cognitive Load

Impact of Interaction on Learning Outcomes

Correlates with higher course completion rates

Encourages deeper learning through active participation

Enhances student satisfaction and motivation

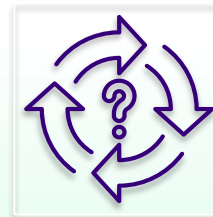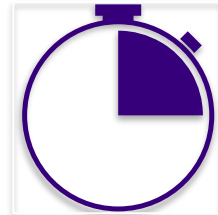Improves understanding and knowledge retention

Finding a Good Rhythm

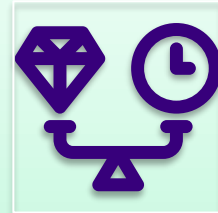- What is the ideal frequency of engagement?

Attention wanes after 10-15 minutes

Insert short interactive elements every 10-15 minutes

High-frequency questioning can boost alertness

Balance frequency with quality

Methods & Strategies for Effective Interaction

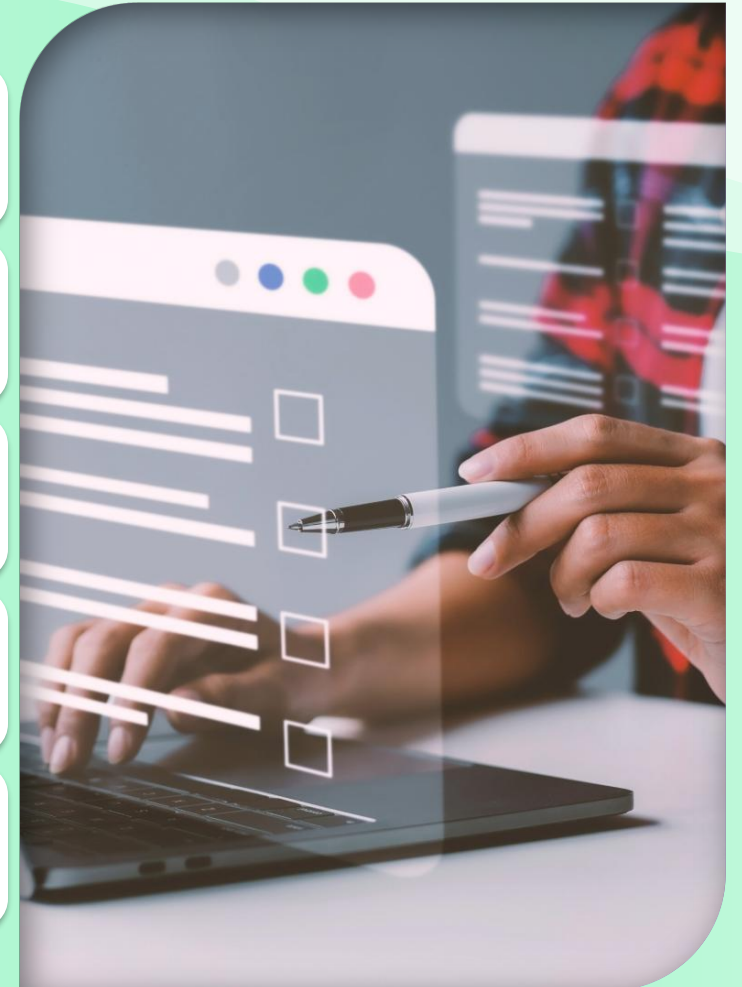Live polls & low-stakes quizzes

Structured questioning & discussions

Breakout rooms for peer collaboration

Multimodal tools (chat, emojis, shared docs)

Social & emotional check-ins

Synchronous Engagement Best Practices

Plan frequent, purposeful interactions

Balance quality & quantity of engagement

Use a variety of formats

Establish clear participation norms

Foster a supportive online environment

Asynchronous Engagement Strategies

Clear, Organized Content (modules, easy navigation)

Short, Focused Video Lectures (5–15 mins)

Active Learning Assignments (case studies, reflection)

Timely Feedback & Peer Interaction

Regular Deadlines & Community Building

Instructional Design Principles

Active Learning
- Problem-solving, case studies, interactive modules

Gamification
- Points, badges, and competitions

Adaptive Learning
- Personalized pathways

Cognitive Load
- Manage multimedia carefully (Mayer's Principles)
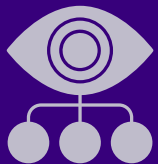
Chunking Content: Manageable Learning

Present course material in short, focused segments (5–10 minutes each)

Reduce cognitive overload by limiting each segment to a single concept

Insert quick knowledge checks (mini-quizzes or reflection prompts) after each segment

Use visual cues (headers, icons) to clarify topic boundaries

Discussion Boards

Facilitating Reflective Dialogue

- Provide open-ended, thought-provoking prompts
- Set clear participation guidelines (due dates, length, quality criteria)
- Encourage meaningful peer responses, not just "I agree" statements
- Summarize or "wrap up" discussions to highlight key themes.

Asynchronous Video

Bringing Social Presence Online

- **Use video-based discussion tools to enhance social presence**
- **Keep individual video responses under 2 minutes for ease of viewing**
- **Provide clear prompts and guidelines (topic focus, time limits)**
- **Incorporate captions or transcripts to ensure accessibility.**

Collaborative Documents: Building Knowledge Together

Assign group tasks using tools like Google Docs or Wikis

Establish clear roles or guidelines for contributions

Use revision history to monitor individual participation

Incorporate peer feedback through commenting features.

Other Communication Tools

- Quick instructor response keeps students supported

  Emails/LMS Messaging

- Weekly wrap-ups and previews maintain momentum

  Announcements

- Student's critique each other's work, deepening learning

  Peer Review Platforms

- A casual space for peer support and informal Q&A

  Student Lounge

Active Learning

Case Studies	Problem-Based Learning	Reflection Journals	Virtual Labs
Diagnose and propose solutions to real-world scenarios	Small groups tackle open-ended health science problems	Help to connect theory and learning to experience	Simulate clinical or experimental settings
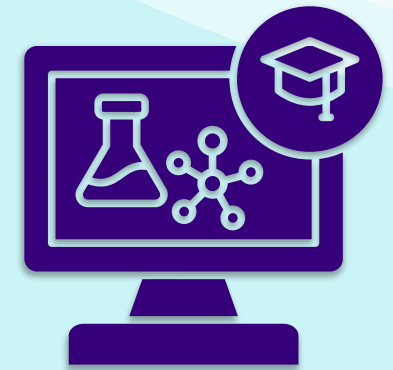
Practical Tools & Platforms

High-Quality LMS

- User-friendly, integrated discussion/forums

Key Features

- Quizzing, analytics, adaptive pathways

Simulations & Virtual Labs

- Essential for Health Sciences)
- VR/AR: Future-forward, optional integration

Application in Health Science Education

Peer-Led Reflection on Dispensing Errors

Students pair up to review each other's short reflections on real or simulated dispensing errors.

Provide timely peer feedback (via shared docs) about preventing future mistakes and clarifying standard protocols.

Pharmacology Asynchronous Video Discussion

Students record 2-minute video "mini-demonstrations" of drug mechanism explanations (e.g., how beta-blockers function).

Classmates watch and post follow-up questions or clarifications.

Discussion Board: Drug Interactions

Prompt: "Share one drug-food interaction and explain the mechanism behind it."

Require students to comment on at least one peer's post with additional research or clinical considerations.

Key Takeaway

Interaction + Presence + Active Learning = Engagement

Next Steps

Implement 1 new synchronous or asynchronous strategy

Explore 1 new tool that supports active learning

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Contact Me | I would love to hear from you, whether you have questions or feedback.

aaron@pharmacytechscholar.com

Linkedin.com/in/aaronemmel