Current & Future Trends in CRNA Education

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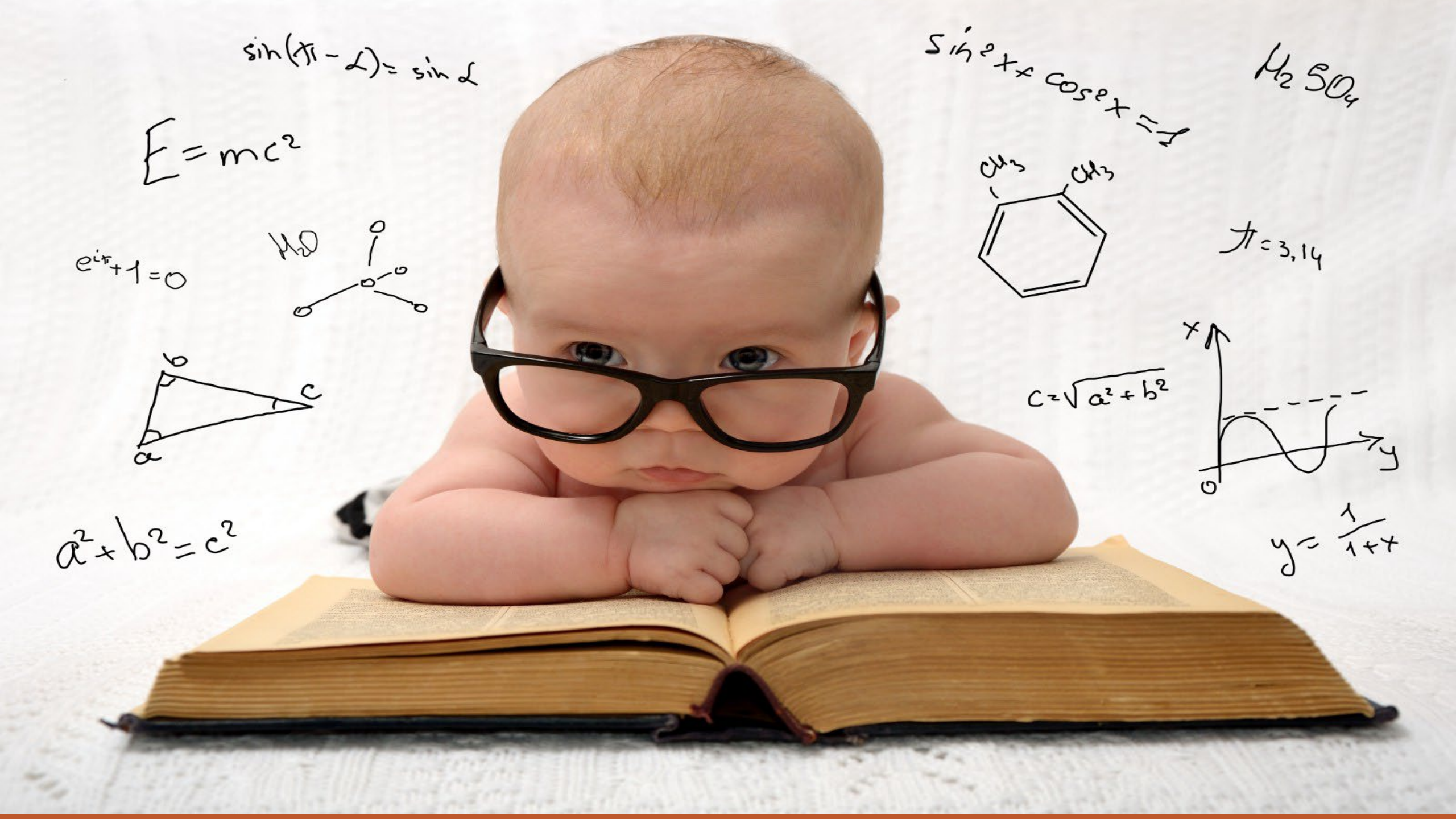
Objectives

- **The learner with understand new educational priorities for CRNA education.**
- **The learner will understand how technology impacts education.**
- **The learner will see how ultrasound and Pocus impacts the education of CRNAs.**

I have no financial interest to declare!!


sin(π − α) = sin α
E = mc²
e^{iπ} + 1 = 0
H₂O
a² + b² = c²
sin²x + cos²x = 1
H₂SO₄
π = 3,14
c = √(a² + b²)
x
y
0
y = 1/(1+x)

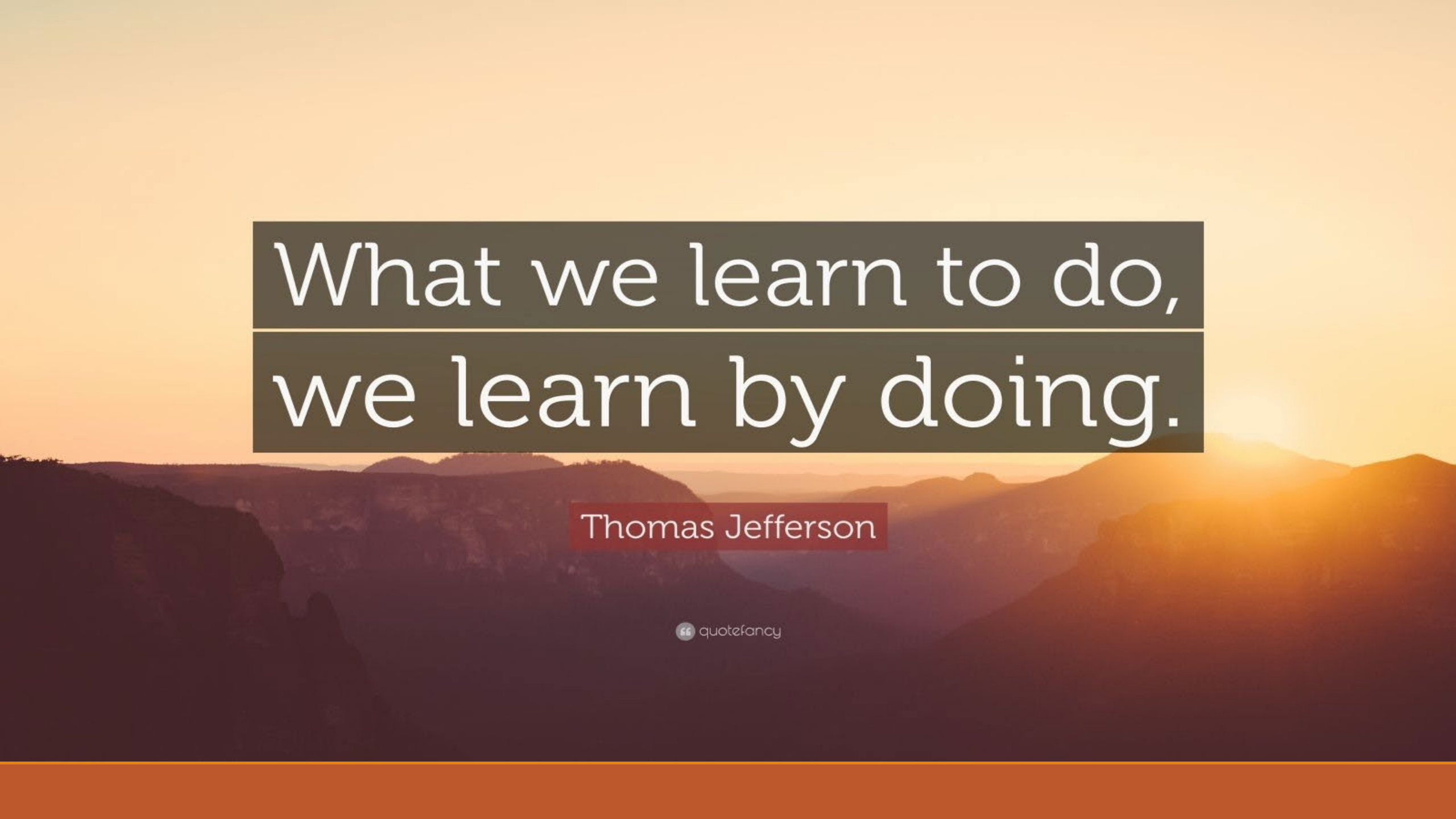
How do we Learn?

I see and I forget.

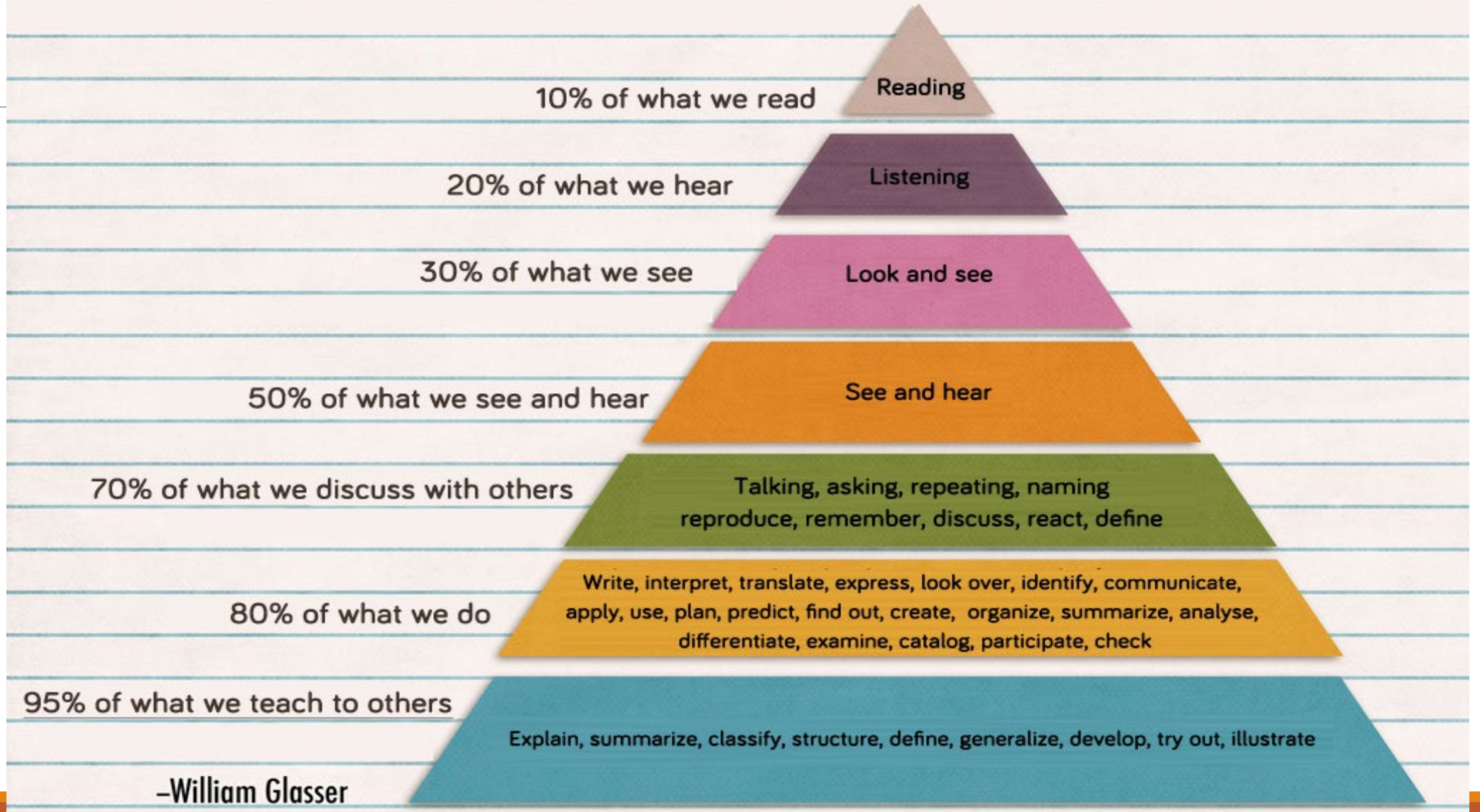
I hear and I remember.

I do and I understand.

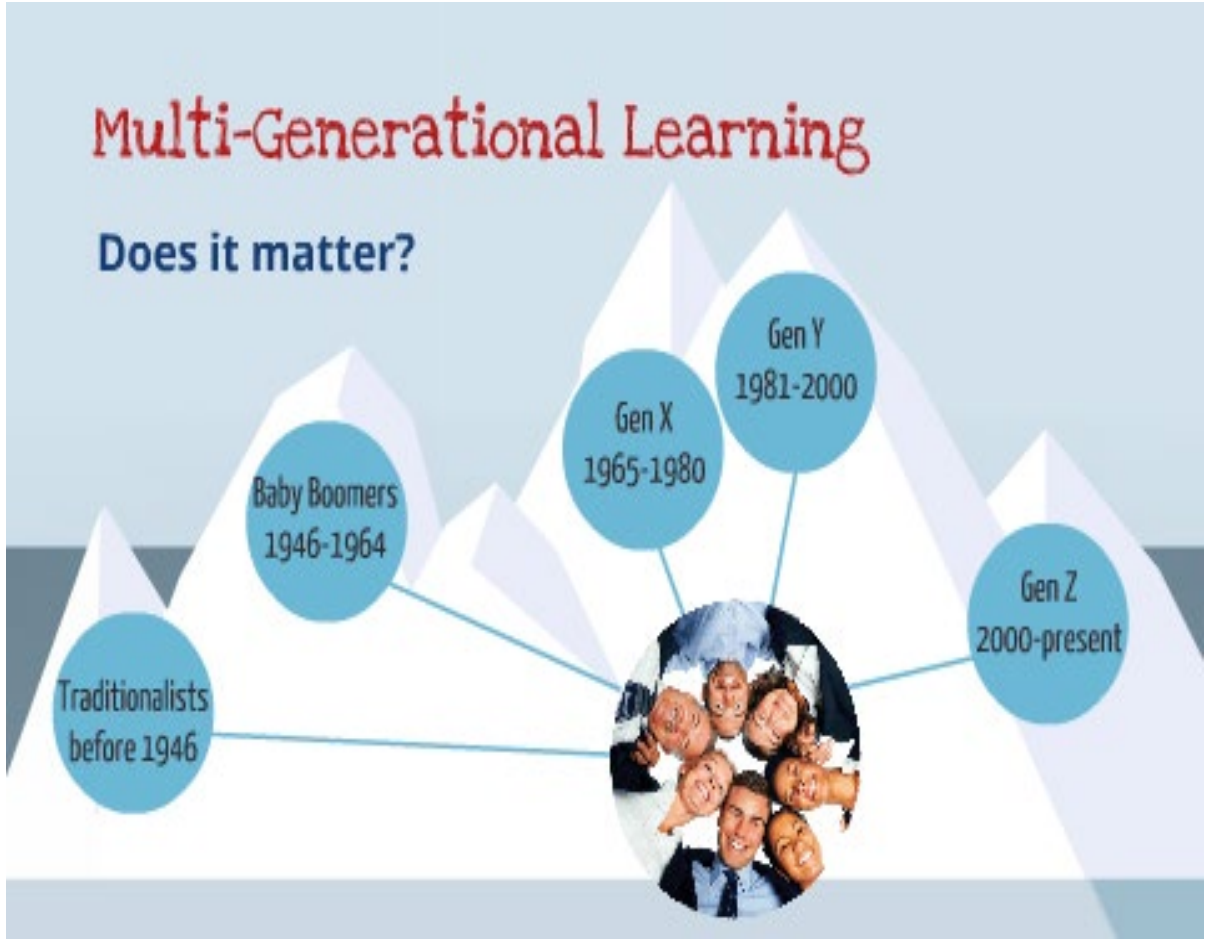
___ Confucius


What we learn to do,
we learn by doing.
Thomas Jefferson
quotefancy

How Do We Learn?



What age group do you belong to? Does it matter?

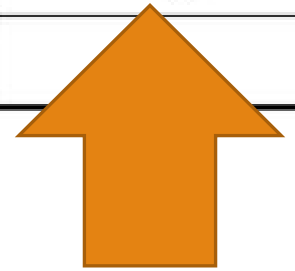


Learning Styles

Generation *Born between…*	**Traditionalist** *1922 - 1945*	**Boomer** *1946 - 1964*	**Gen X (Chris)** *1965 – 1976*	**Gen Y (Chloe)** *1977 – 2000*
Training	The hard way	Too much and I'll leave	Required to keep me	Continuous & expected
Learning style	Classroom	Facilitated	Independent	Collaborative & networked
Communication style	Top down	Guarded	Hub & Spoke	Collaborative
Problem-solving	Hierarchical	Horizontal	Independent	Collaborative
Decision-making	Seeks Approval	Team informed	Team included	Team decided
Leadership style	Command & control	Get out of the way	Coach	Partner
Feedback	No news is good news	Once per year	Weekly / Daily	On demand
Technology use	Uncomfortable	Unsure	Unable to work without it	Unfathomable if not provided
Job changing	Unwise	Sets me back	Necessary	Part of my daily routine

Lancaster, L.C. and Stillman, D. When Generations Collide: Who They Are. Why They Clash. How to Solve the Generational Puzzle at Work. Wheaton, IL. Harper Business, 2003.

Generation	Seniors	Boomers	Gen Xers	Gen Yers	Gen Zers
Born	1922 - 1945	1946 - 1964	1960 - 1980	1975 - 2000	1995 - 2009
Training	The hard way	Too much and I'll leave	Required to keep me	Continuous and expected	Playing Life
Learning style	Classroom	Facilitated	Independent	Collaborative and networked	Pocket mobile internet based
Communication	Top-down	Guarded	Hub and spoke	Collaborative	Electro-social, highly connected
Problem-solving	Hierarchical	Horizontal	Independent	Collaborative	Global Tribe / Independent
Decision-making	Seeks approval	Team informed	Team included	Team decided	Sonar / Individualistic
Leadership style	Command and control	Get out of the way	Coach	Partner	RSS Protagonist
Feedback	No news is good news	Once per year	Weekly/Daily	On Demand	Continuous social sonar
Technology use	Uncomfortable	Unsure	Unable to work without it	Unfathomable if not provided	Lifelong use
Job changing	Unwise	Sets me back	Necessary	Part of my daily routine	



We as educators need to evolve and adapt to the students we teach!!

- Invest in our student and ourselves
- Utilize or innovate new methods and technology
- Simulation is a must
- Attuned to the needs of our Students and Faculty

We must be open to:

Static Versus Immersive

What are we doing at RFU?

- Invested in a 30K square foot Simulation Center with 3 ORs for High Fidelity Sim
- Pediatric, Adult, and OB high fidelity mannequins
- Invested in trainers for CVP, Epidural, Art Line, Spinal, F/O intubation, and recently added POCUS and ECHO trainers.
- Several free-standing Ultrasounds and enough IQ Butterflies and iPads for each student in sim.
- Faculty training for the technology
- Creating a “Serious Games” library
- Creating our own Pod Cast channel and Library
- Anatomage Table
- New Hands on Anesthesia based Anatomy course with hands on Ultrasound and Pocus Training.

Cadaver Lab

Physical specimens on the same day as hands on Echo and Ultrasound

TTE Training

Hands On Training with live models (fellow Students)

Anatomage Table

Sleep EZ
POD CAST

Apple Podcasts Preview

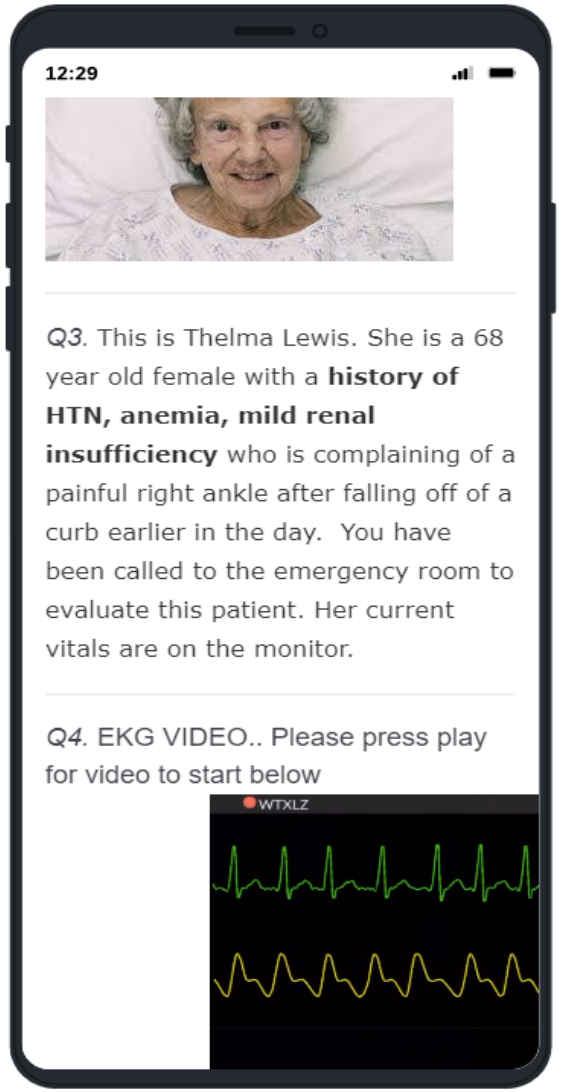
7 episodes

Welcome to Sleep EZ, an Anesthesia podcast created to help providers of all levels review and learn clinical anesthesia concepts. Episodes are delivered in under 15 minutes to provide listeners with a quick review of specific anesthesia topics. Additional, longer episodes have also been created to address various topics of discussion within the world of Anesthesia. We hope you enjoy!

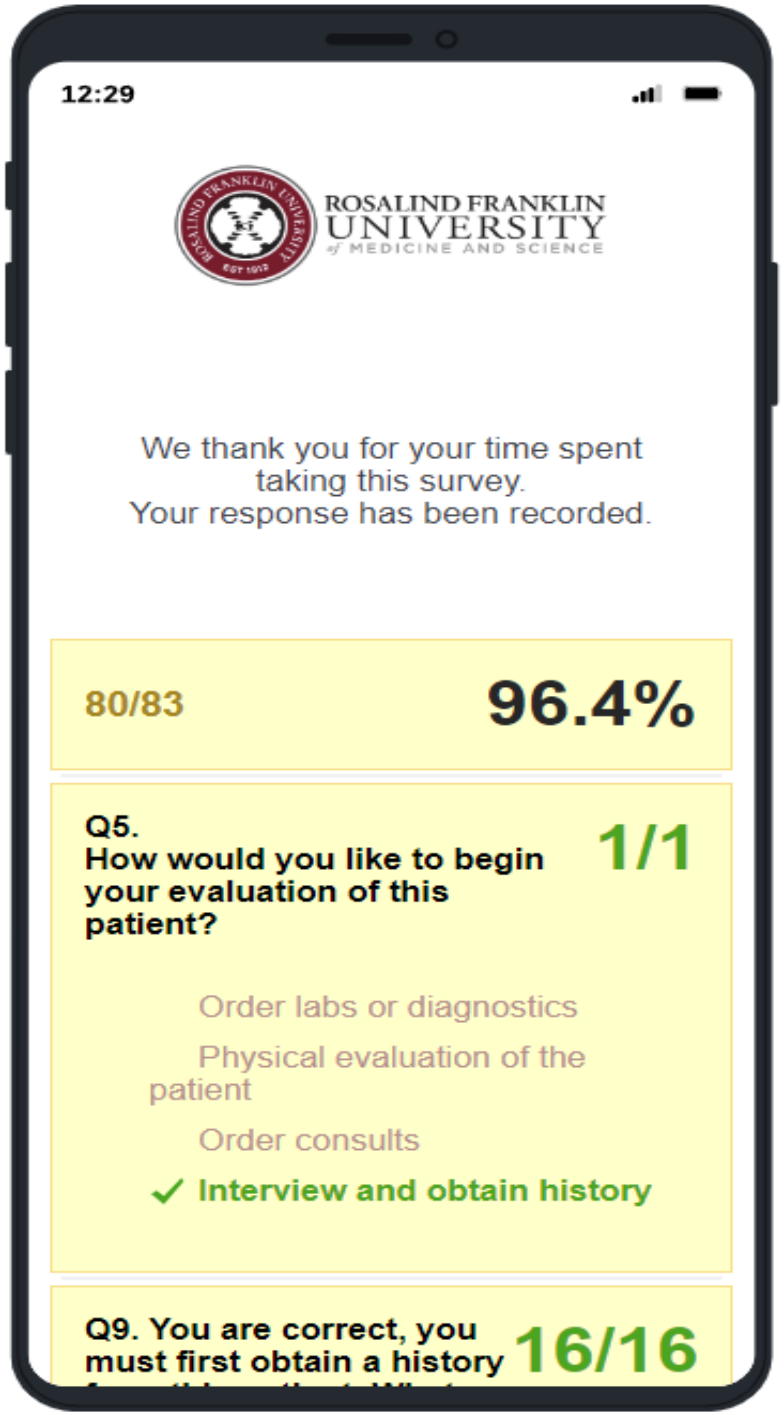
SERIOUS GAMES

Q3. This is Thelma Lewis. She is a 68 year old female with a **history of HTN, anemia, mild renal insufficiency** who is complaining of a painful right ankle after falling off of a curb earlier in the day. You have been called to the emergency room to evaluate this patient. Her current vitals are on the monitor.

Q4. EKG VIDEO.. Please press play for video to start below

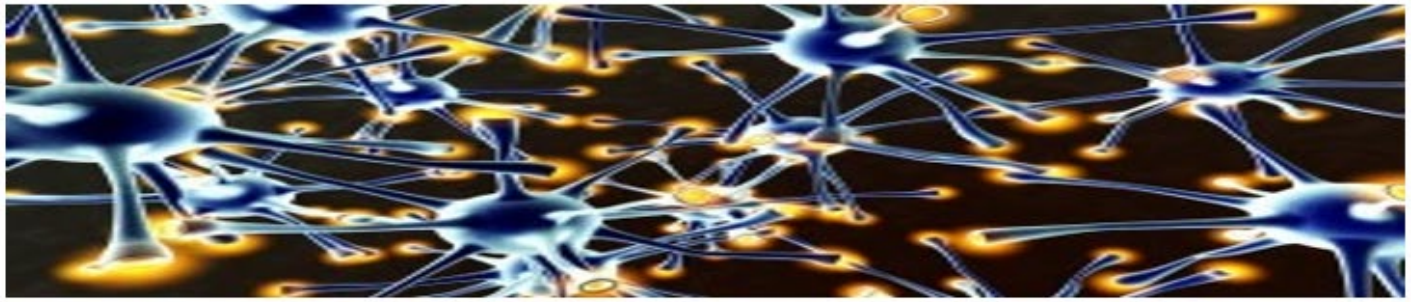


Cont. Scoring




TRY
FAIL
SUCCESS

Multi-Sensory Learning



Multisensory learning is when a student has multiple senses stimulated at the same time. When learning, the body can use each sensory system to receive information:

- Vision (sight)
- Auditory (hearing)
- Gustatory (taste)
- Olfaction (smell)
- Vestibular (balance/movement)
- Somatic sensation (touch)

http://www.yourtrainingedge.com/3-reasons-why-you-should-be-using-multisensory-teaching-techniques/

Simulated Environments

Interactive 3D Virtual Simulations for Learning and Assessment

American Heart Association.

HeartCode® ACLS

00:07
SCENARIO TIME

00:00
CODE CLOCK

HR
-?-

PETCO2
-?-

SpO2
-?-

NIBP
-?-

Temp
-?-

RESPONSE | AIRWAY | BREATHING | CIRCULATION | EXAMINE | DRUGS & MANAGE IV/IO | LAB & DIAGNOSTICS | MISC

Questions: General

What happened?
When did the symptoms start?
What were you doing when the symptoms started?
Do you have difficulty breathing?
What other symptoms do you have?
Are you allergic to anything?
Do you take any medication?
Do you have any medical problems?
Have you had anything to eat or drink today?
Do you feel better now?
Have you had any of the following: a stroke, a bleeding disorder, internal bleeding, recent surgery, or trauma?

Questions: Pain

Do you have any pain?
Does anything lessen the pain or make you feel better?
Does anything make the pain worse?
Can you describe the pain?
Does the pain go anywhere?
On a scale of 0 to 10, how bad is the pain?

Questions: Orientation

Are you awake?
What year is it?

Response


Tap and shout


Check breathing and pulse


Check for normal breathing


Check carotid pulse

Call code


Medical record


Transfer patient

Researchers in China tested the effects of VR on children's performance in school.

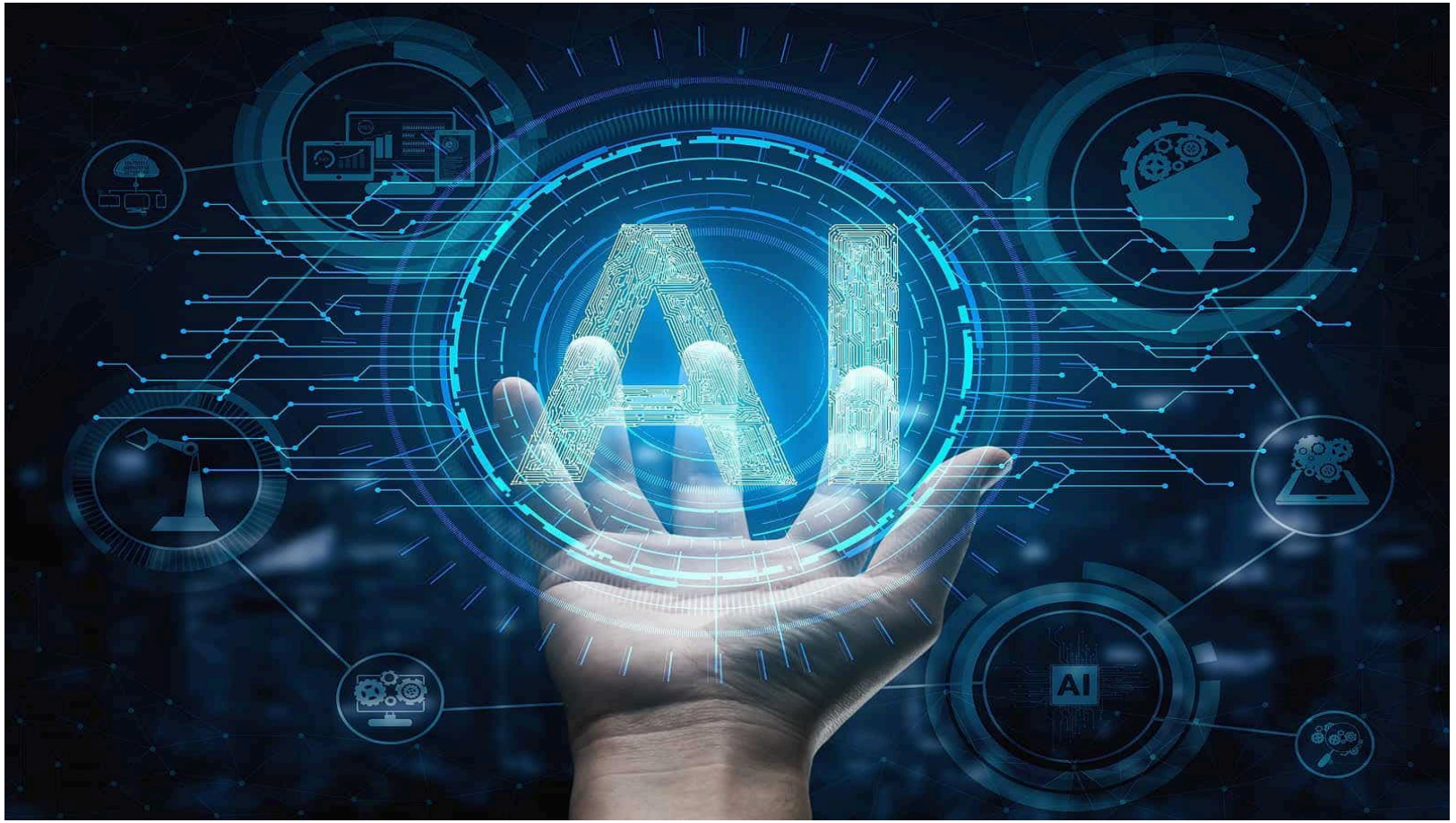
- Astrophysics with and without VR.
- 90% of the students who learned with VR passed their test vs. 40% of students from the other group.
- Both short-term retention(+27%) and long-term memorability (+32%) improved.

https://arvrjourney.com/expert-view-3-ways-vr-is-transforming-learning-development-487a021e8334

Virtual Environments-VR

10% of the population will not be able to tolerate VR as it is is today.

AND WHAT ABOUT AI?



What's Available?

What can (AI) do?
So, I asked Copilot.

1. **Personal Assistants**: AI-powered virtual assistants like **Siri**, **Alexa**, and **Google Assistant**

2. **Recommendations and Personalization**: AI algorithms analyze your preferences and behavior to provide personalized recommendations.

3. **Healthcare**: AI assists in medical diagnosis, drug discovery, and personalized treatment plans, and even help doctors during surgeries.

4. **Natural Language Processing (NLP)**: AI enables chatbots and language translation services. It powers tools like **ChatGPT** and **DALL-E**, which generate human-like text and images.

5. **Autonomous Vehicles**: AI plays a crucial role in self-driving cars, improving safety and efficiency on the roads.

6. **Financial Services**: AI algorithms analyze financial data, detect fraud, and optimize investment portfolios.

7. **Climate Modeling**: AI helps scientists model climate change, predict extreme weather events, and find sustainable solutions.

8. **Entertainment and Creativity**: AI generates art, music, and literature. **MuseNet** composes music.

9. **Security and Surveillance**: AI enhances security by detecting anomalies, monitoring surveillance footage, and preventing cyberattacks.

10. **Education**: AI-powered tools assist in personalized learning, adaptive assessments, and automating administrative tasks for educators.

AI Image Generation

Design an image of and operating room with a surgeon and Anesthesia Provider and Anesthesia Machine. The surgeon is a penguin dressed is scrubs. The patient on the table is frightened.

Do AI chatbots improve students learning outcomes? Evidence from a meta-analysis

Rong Wu, Zhonggen Yu
First published: 03 May 2023
https://doi.org/10.1111/bjet.13334
Citations: 15

Conclusions

- This study found that AI chatbot designers could make AI chatbots better by equipping AI chatbots with human-like avatars, gamification elements and emotional intelligence
- Practitioners and/or teachers should draw attention to the positive and negative effects of AI chatbots on students.
- Considering the importance of ChatGPT, more research is required to develop a better understanding of the effects of ChatGPT in education.
- AI chatbots could have a large effect on students' learning outcomes.

AI for Students

Students using AI to help write DNP Projects…

- What are your thoughts?
- Several schools of thought
- There are hundreds of AI platforms to use……. even ones determine if AI was used

"The only thing we know about the future is that it will be different."

Peter Drucker

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