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The California State University

CAL STATE 2018 TECH CONFERENCE

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Virtual Reality and Student Success: From Design Pedagogy to Embodiment

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Session Objectives

- Discuss design principles for educational VR
- Explore the integration of immersive virtual experiences, including student response
- Identify considerations with design and implementation of virtual reality

Immersion

Extended reality (XR): Technologies that mediate experiences by combining digital and biological realities.



360-degree video:

Viewers can look around in all directions



AR:

Users experience the real environment augmented by computer-generated sound, video, or information



MR:

Allows interaction between real environments and digitally superimposed objects



VR:

Users experience and interact with and within a fully digital environment

XR: Pedagogical value



- Vivid, engaging and realistic learning experiences
- Immersion into inaccessible spaces and eras
- Stronger emotional attachment to topics
- Increased social empathy
- Critical thinking in experiential situations

Project Ambrosia

- Series of VR archeological “gamified” simulations produced at CSUSB
- Students learn how to do archaeological surveys; how to find things; and how to develop their archaeological skills
- Students learn how to use artifacts as clues to discovering the past

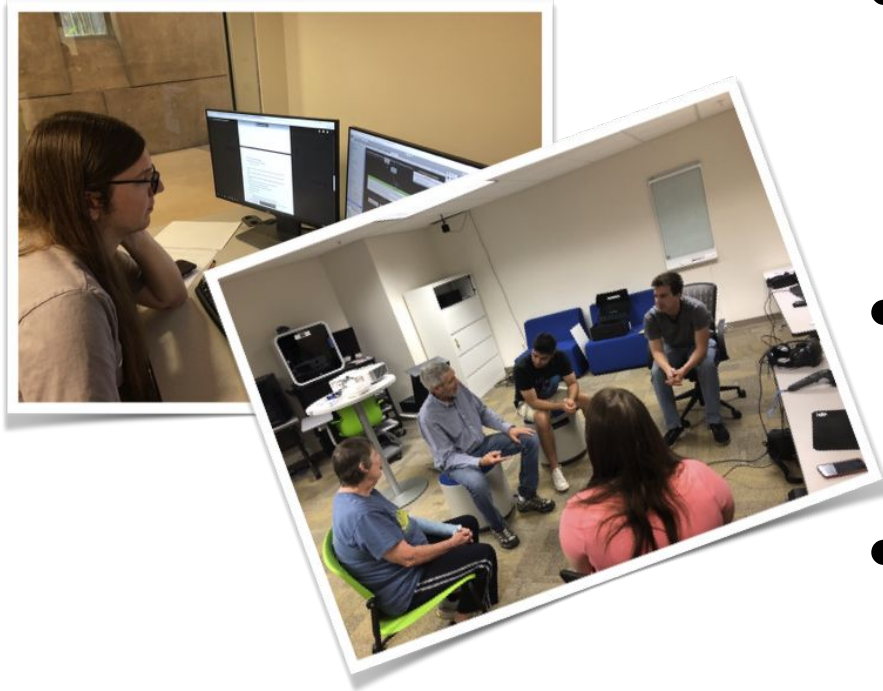


Real life archeological site



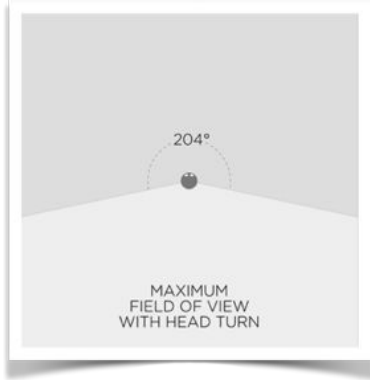
VR simulation

Project philosophy

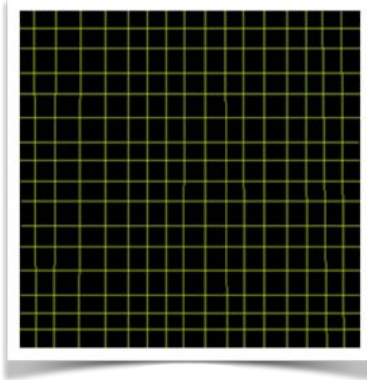


- Project takes advantage of the medium affordances (e.g., presence, immersion, point of view and perspective)
- Partnership between faculty across departments, student programmers, and ITS
- Asset production embedded in the curriculum

Elements of design



*Storyboarding
from the
audience's
perspective*



*Grid-based
learning
objectives*



*“Peer” guidance
(avatars orient
action and provide
clues)*



*Embedded
instruction and
assessment*

Implementation



The Immersive Virtual Experience

Sophomore Nursing Students (n = 41)

Enrolled in Medical-Surgical Course

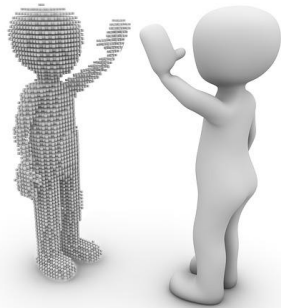
Embodied Labs “Alfred” Lab (1)

Senior Nursing Students (n = 36)

Enrolled in Critical Care Course

Embodied Labs “Alfred” Lab (2)

Embodied Labs “Beatriz” Lab (3)



Meet Alfred

74-year old African American male with
macular degeneration and hearing loss



Meet Beatriz

A middle-aged Latina woman who progresses through early, middle, and late stages of Alzheimer's Disease

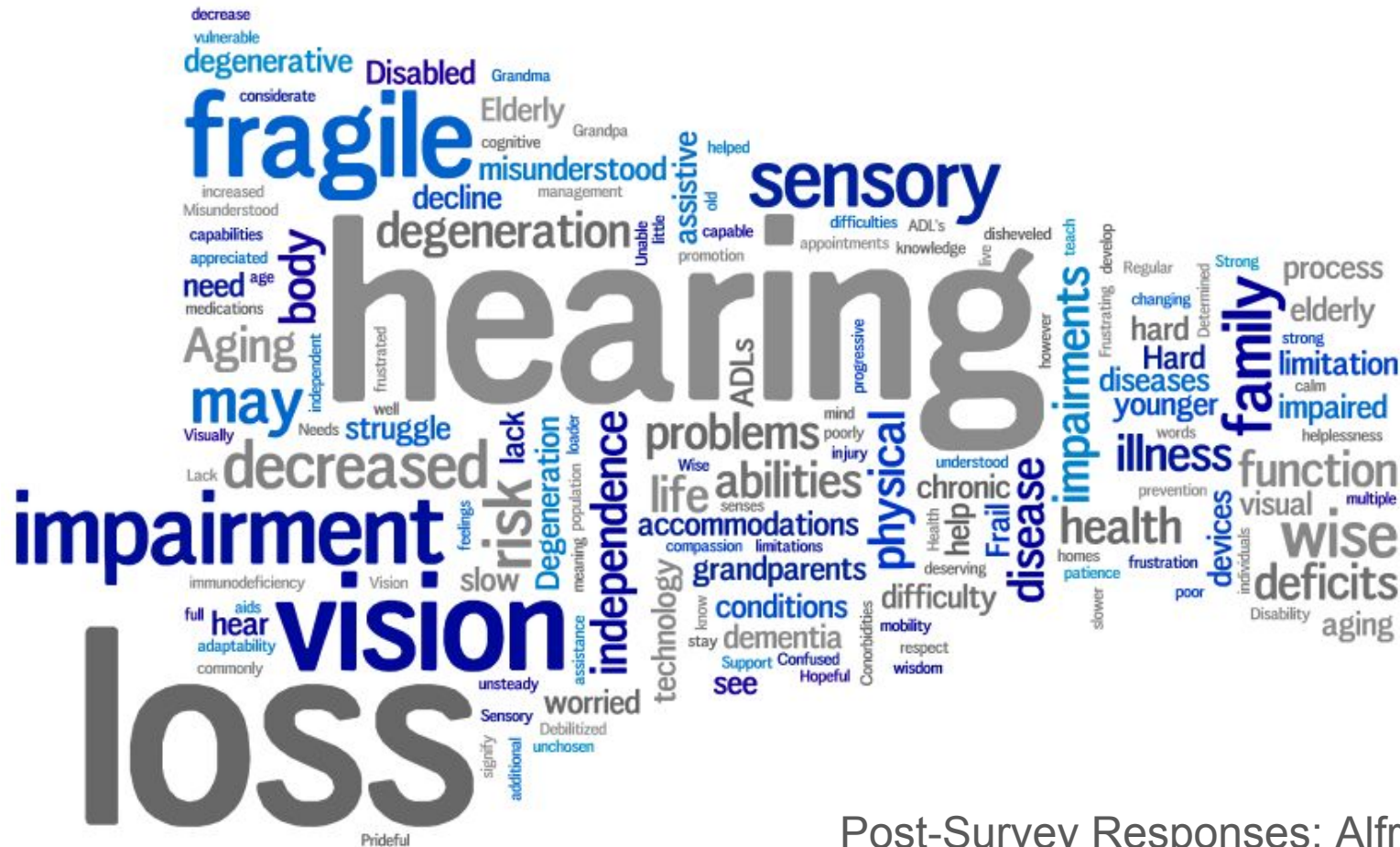


Embodied Labs

Virtual reality patient experience labs for healthcare

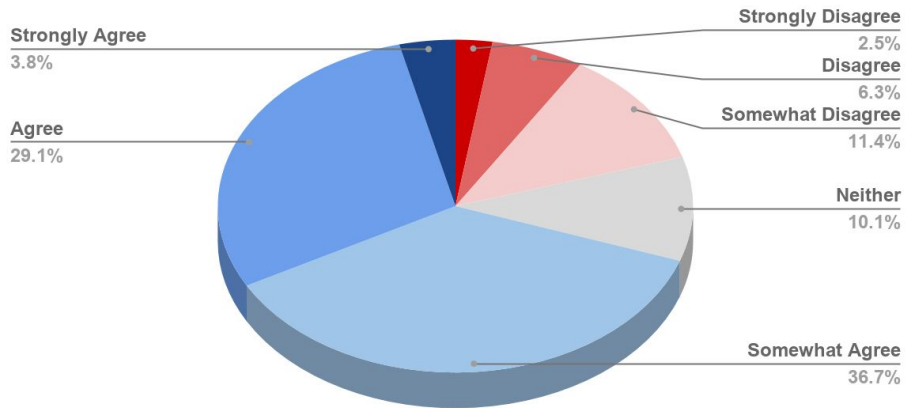
**What words or phrases come
to mind when you hear
'geriatric' or 'older' patient?**



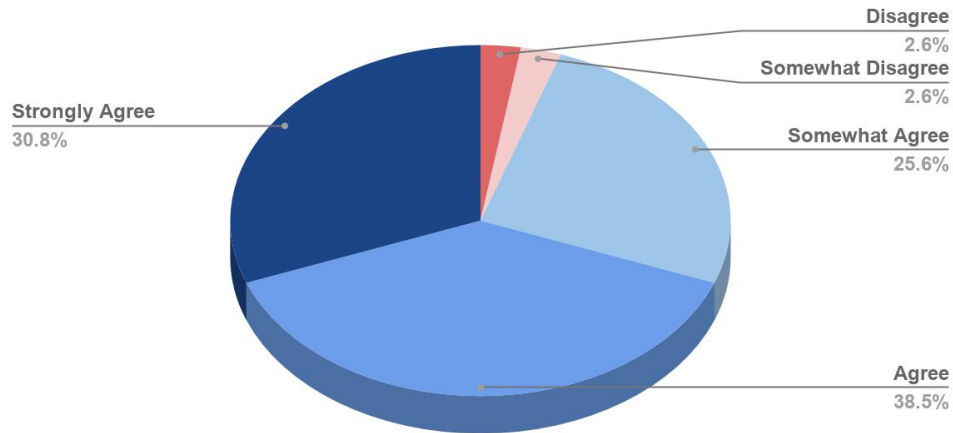


I understand the perspective of an older adult.

Pre

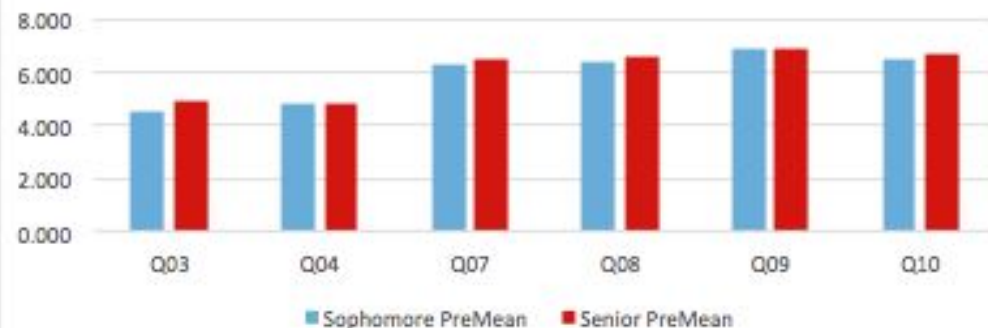


Post

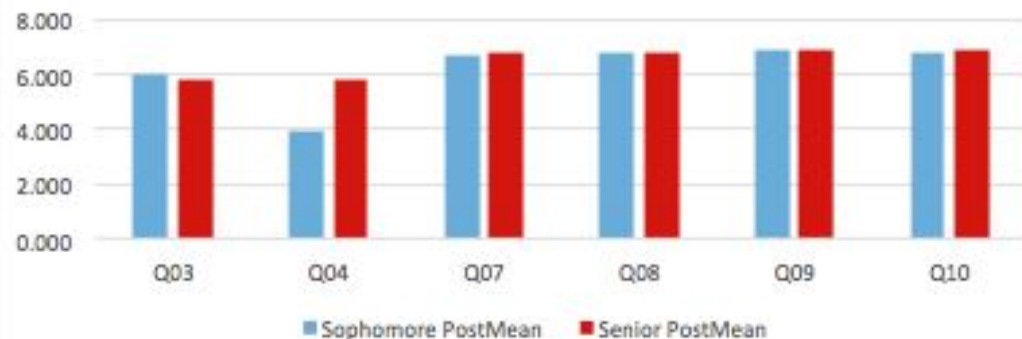


24%

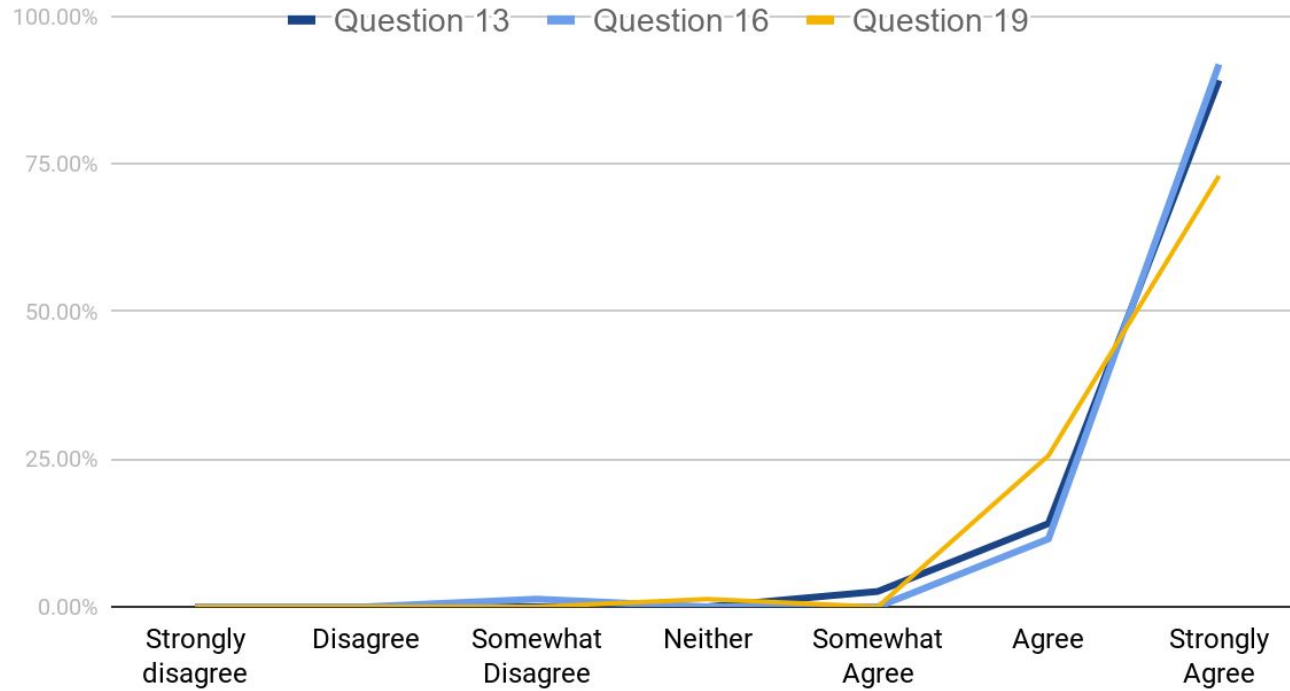
Alfred Sophomore & Senior Cohorts Pre-Mean Comparisons



Alfred Sophomore & Senior Cohorts Post-Mean Comparisons



Post-Survey Student Responses: Alfred

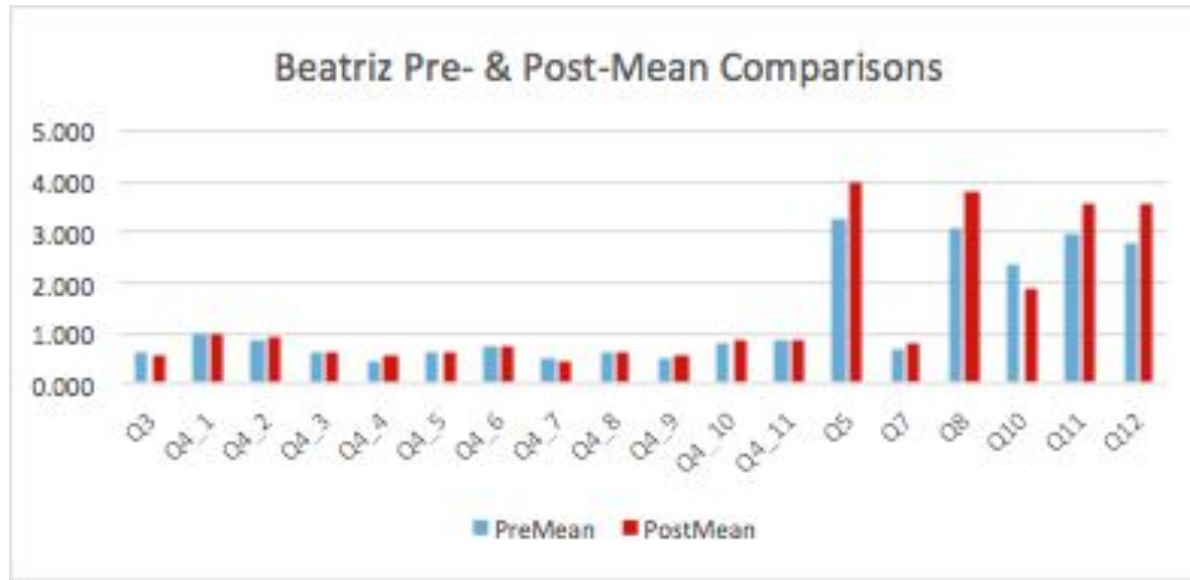


Question 13: This experience positively impacted my preparation for the nursing profession.

Question 16: Virtual reality patient experiences, such as the experience as Alfred, can support the development of empathy for nursing students.

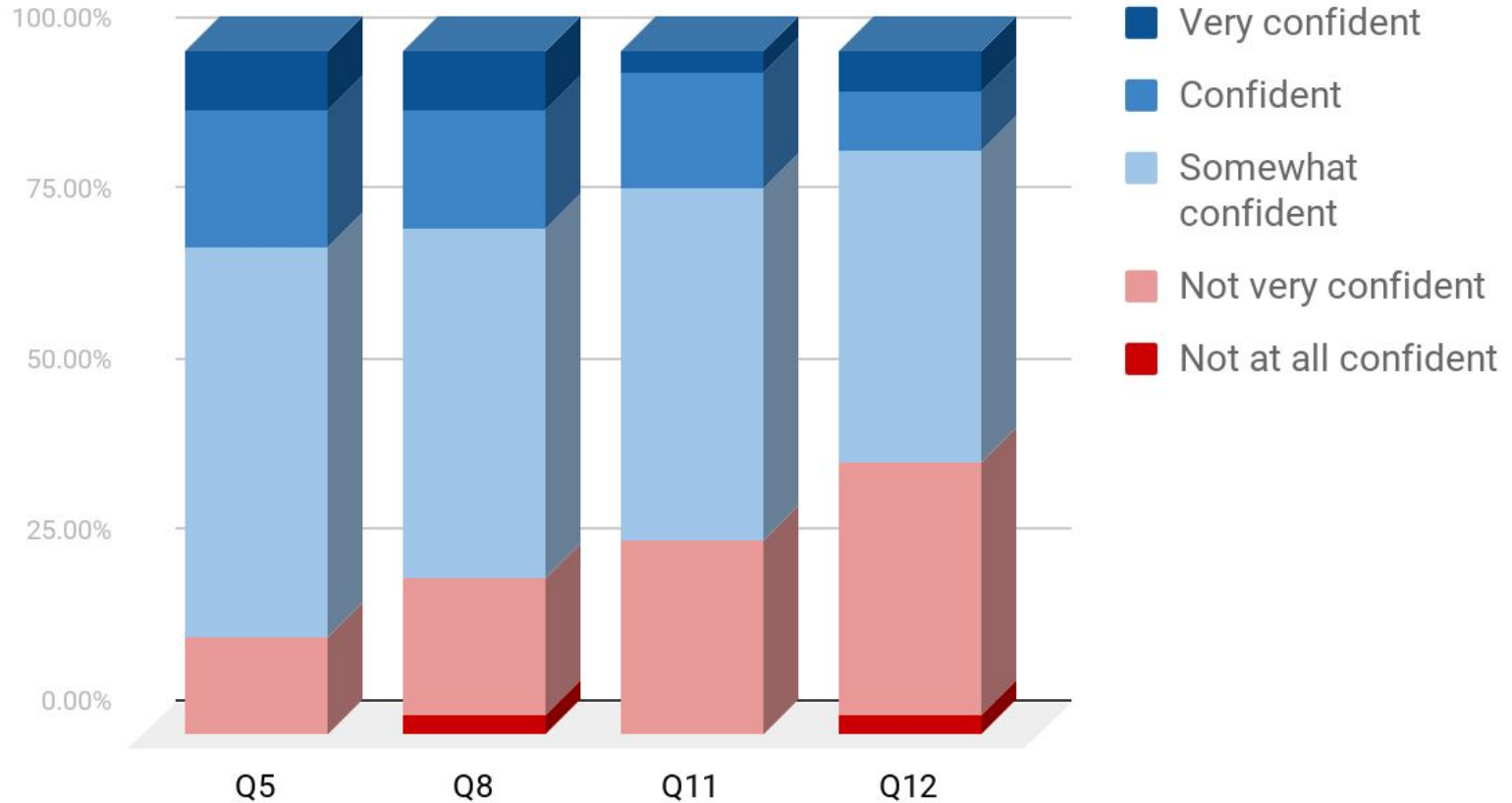
Question 19: I have an improved understanding for how to care for patients with vision loss



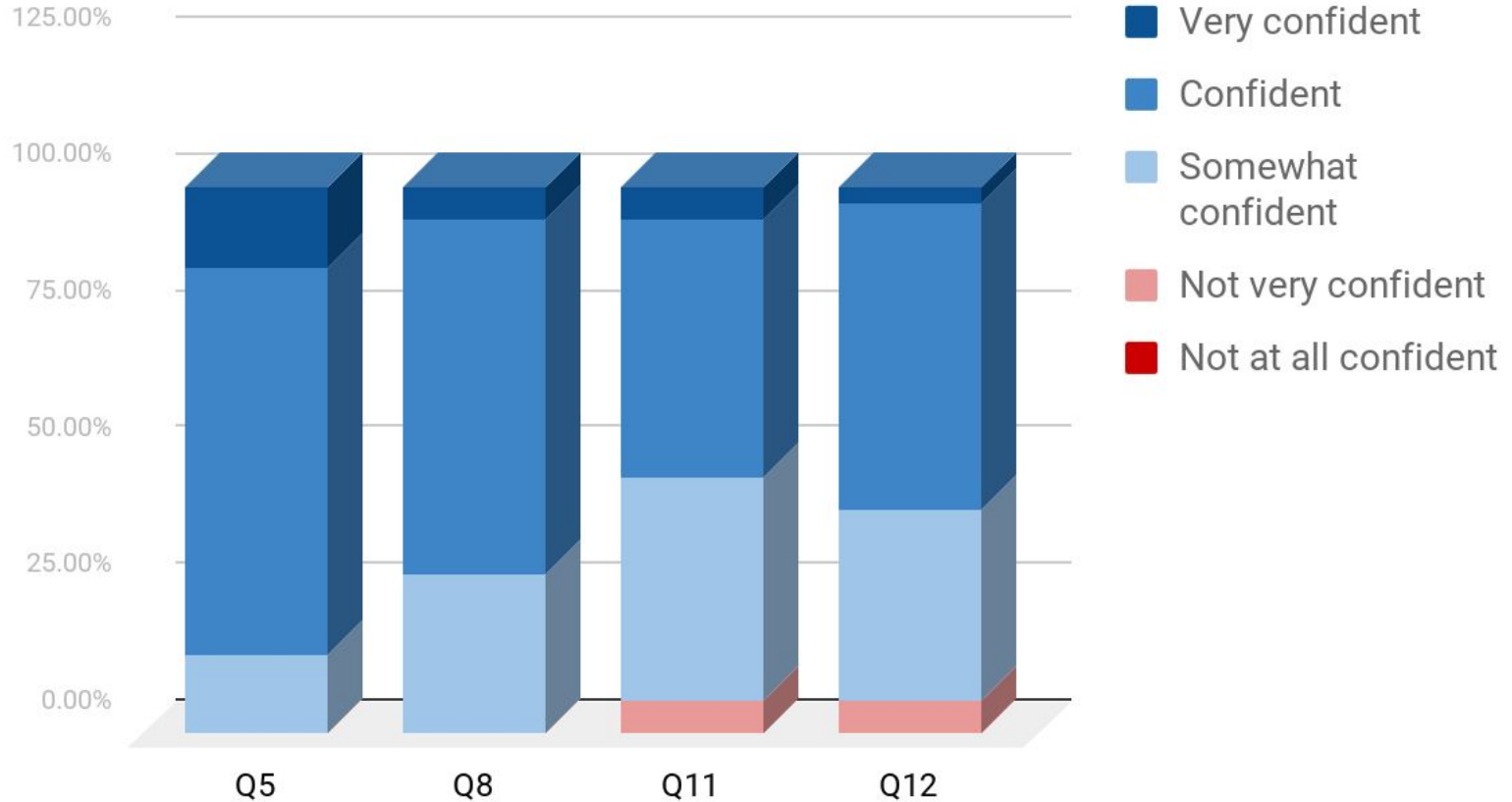


Longer pre- and post- survey, as compared to Alfred
Senior nursing students only (N=34)
Knowledge, confidence, and perception questions

Confidence Pre-Survey: Beatriz



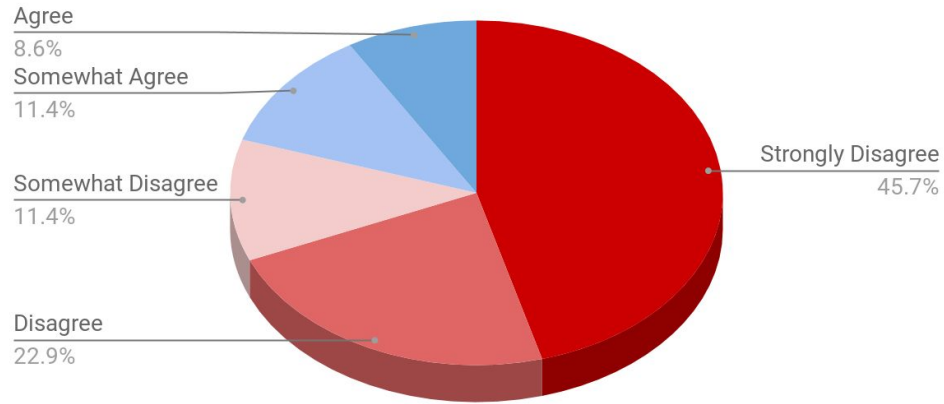
Confidence Post-Survey: Beatriz



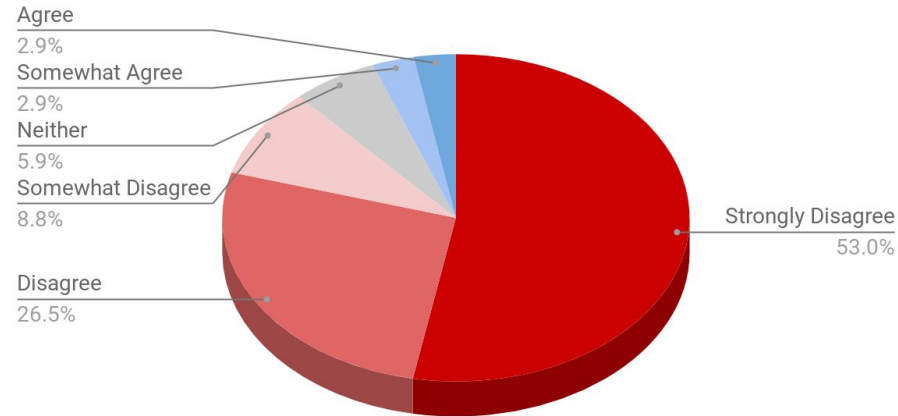
To what extent do you agree with the following statement?

"Once a person cannot recognize their family and friends, they no longer are able to feel emotions like love, friendship, hope, or connection."

Pre-Survey Responses: Beatriz



Post-Survey Responses: Beatriz



100%

**Virtual reality patient experiences,
such as the experience as Beatriz, can support the
development of empathy for nursing students.**



Resources and Support Needed

Ordering Equipment: its okay to break the rules sometimes! Just do some research before making procurement mad!

Oculus Headset + Controllers = **\$400**

Leap Motion Controller = **\$ 80**

Alienware Laptop = **\$1,600**

Product License = **\$6,000**

Staff/Tech Support = **Student Assistants** are approx **\$15/hr** in **California + caffeine. Maybe order one or two?**

TOTAL = \$8,080 (not including tax, s&h, Student Assistants)

Student Impact? = Priceless



Multiple
conference calls

+ \$\$\$\$ =

Multiple unneeded
options



A working brick by
any other name is
still a brick

"Your PC is not ready for rift"



Deciding to beg for
forgiveness if it goes
wrong

+ Google + \$\$ =

A quick Google search
to see company's
recommendation

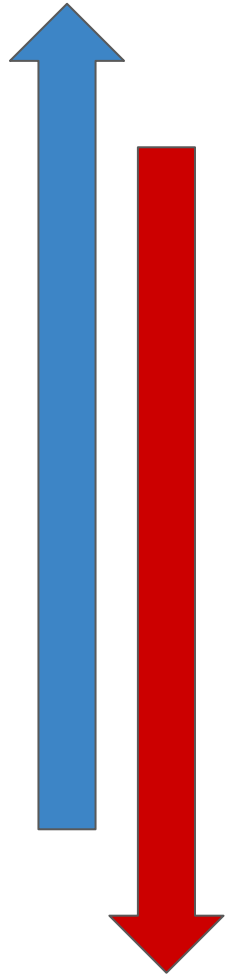
Pricing out a mid-term
gaming laptop
(still Dell)



A VR
experience
that works

Considerations

- Learning curve related to VR technology and setup
- Be prepared for some techno babysitting during lab periods.
- Scheduling student rotations can be a tricky process
- Students may have disabilities than can be challenging in experiencing scenarios. *Ex: Visual, claustrophobia, physical*



Future Wish List

- Virtual Lab
- Multi-discipline
- Dedicated staff
- Additional “labs”



Questions?



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