

# Gamification of Learning in Physiotherapy Education for the Tik Tok Generation

Tik Tok世代のための理学療法教育における学習のゲーミフィケーション



**DR. MICHAEL WONG**

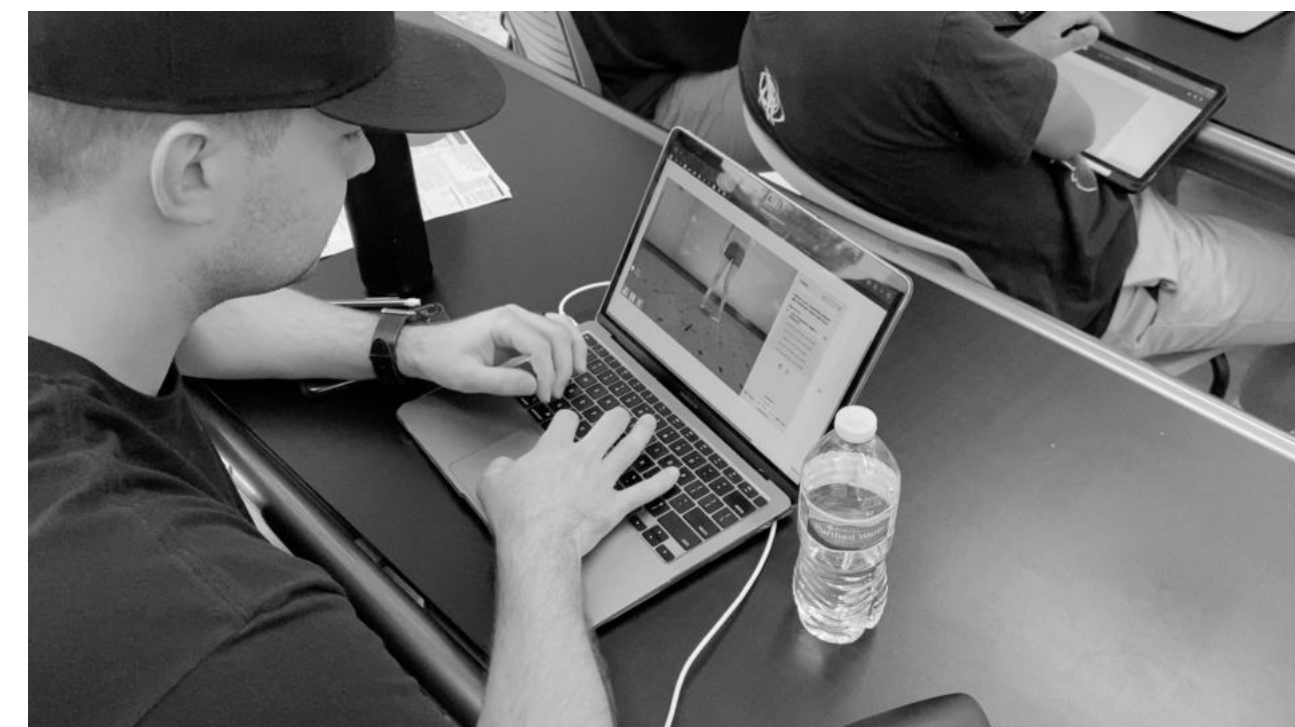
Associate Professor, Azusa Pacific University

Founder, PhysioU

**DR. MAIKO MOROTANI**

President, Nexus Motion / Learn Movement System

Education Lead Japan, PhysioU

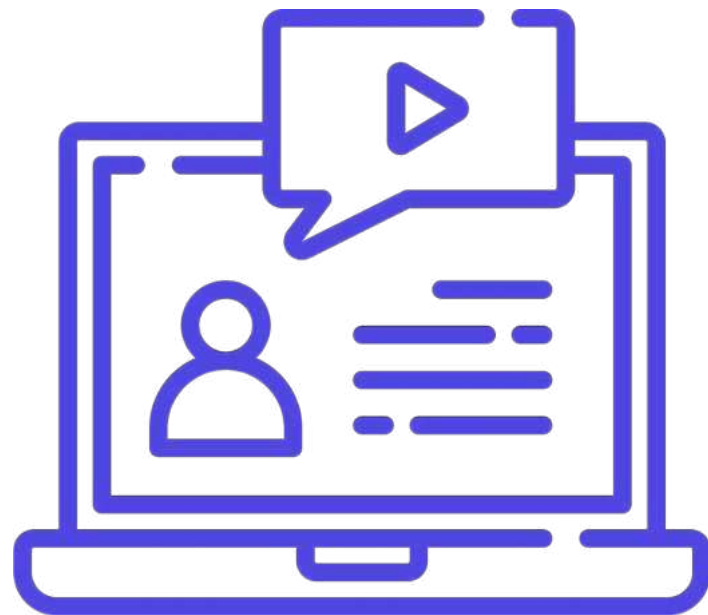


# OBJECTIVES:



Brief review of literature related to simulations in physiotherapy education

理学療法教育におけるシミュレーションに関する文献の簡潔なレビュー



Overview of simulations and clinical reasoning development cases in PhysioU to enhance deep learning

クリニカルリーズニングを育成するPhysioUの症例ベース・シミュレーションの全体像

# OUR SPEAKERS



**DR. MICHAEL WONG**

- Associate Professor, Azusa Pacific University
- 25 years in Physiotherapy Education
- Teaching and Learning Fellow
- Kaiser Permanente Orthopaedic Residency
- Manual Therapy Fellowship
- Faculty, Kaiser Permanente Sports Fellowship
- Chair, Institutional Review Board, Azusa Pacific University
- *James A Gould Excellence in Physical Therapy Education Award Winner 2023*



**DR. MAIKO MOROTANI**

- President of Nexus Motion / Learn Movement System
- Board certified specialist in orthopaedic physical therapy
- Lead organizer and instructor, Movement System Syndromes courses in collaboration with WashU Medicine Physical Therapy
- Educator for Japanese movement professionals
- Mentor to physical therapists in Los Angeles / Ventura counties





# EDUCATIONAL TECHNOLOGY LEADER IN THE U.S. SINCE 2013

## GLOBAL IMPACT グローバルな影響



Used in over 100 different countries  
100カ国以上が活用

## PROFESSIONAL ENDORSEMENT



Technology partner with  
#1 Physical Therapy Journal in the  
world (JOSPT)

## INTERNATIONAL ASSOCIATIONS



## EDUCATION 教育



Current use in over 50% of  
accredited universities in USA

全米養成校60%以上が活用

# STRATEGIC PARTNERSHIP- Research Implementation



PHYSIO•U



JOSPT

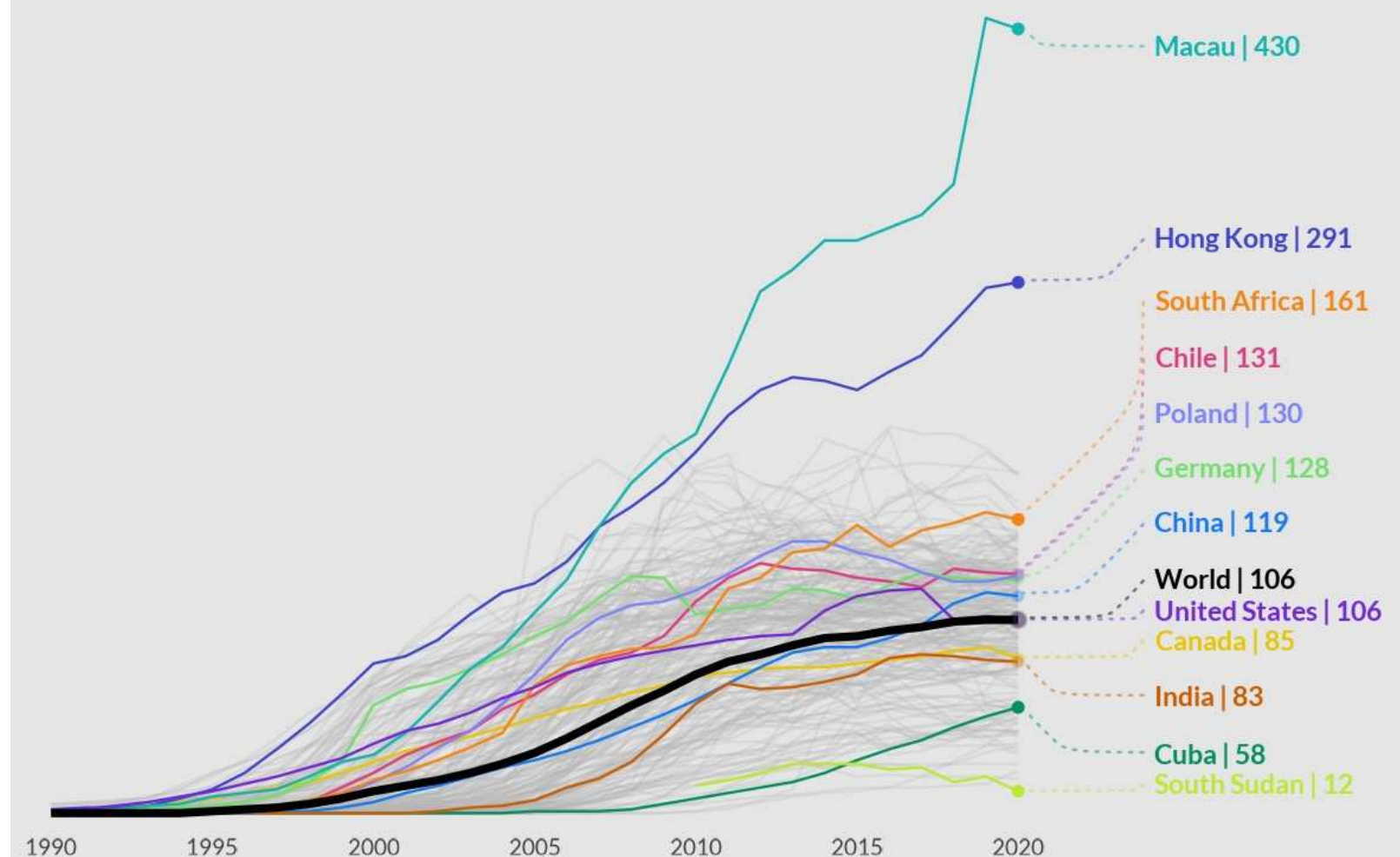


Musculoskeletal  
Science & Practice

Who are  
our  
learners?

## The Rise of Mobile Devices

Mobile device subscriptions per 100 people



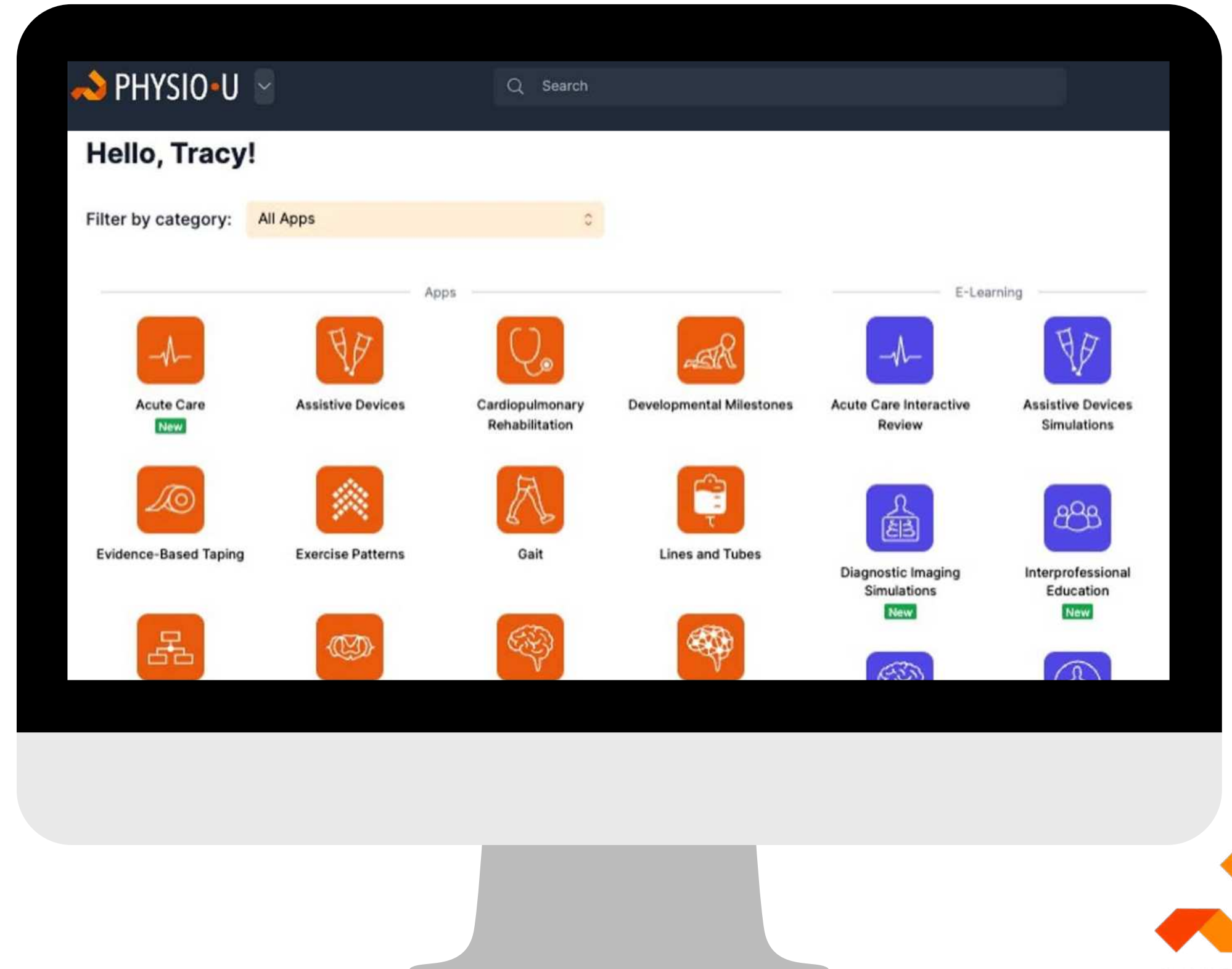
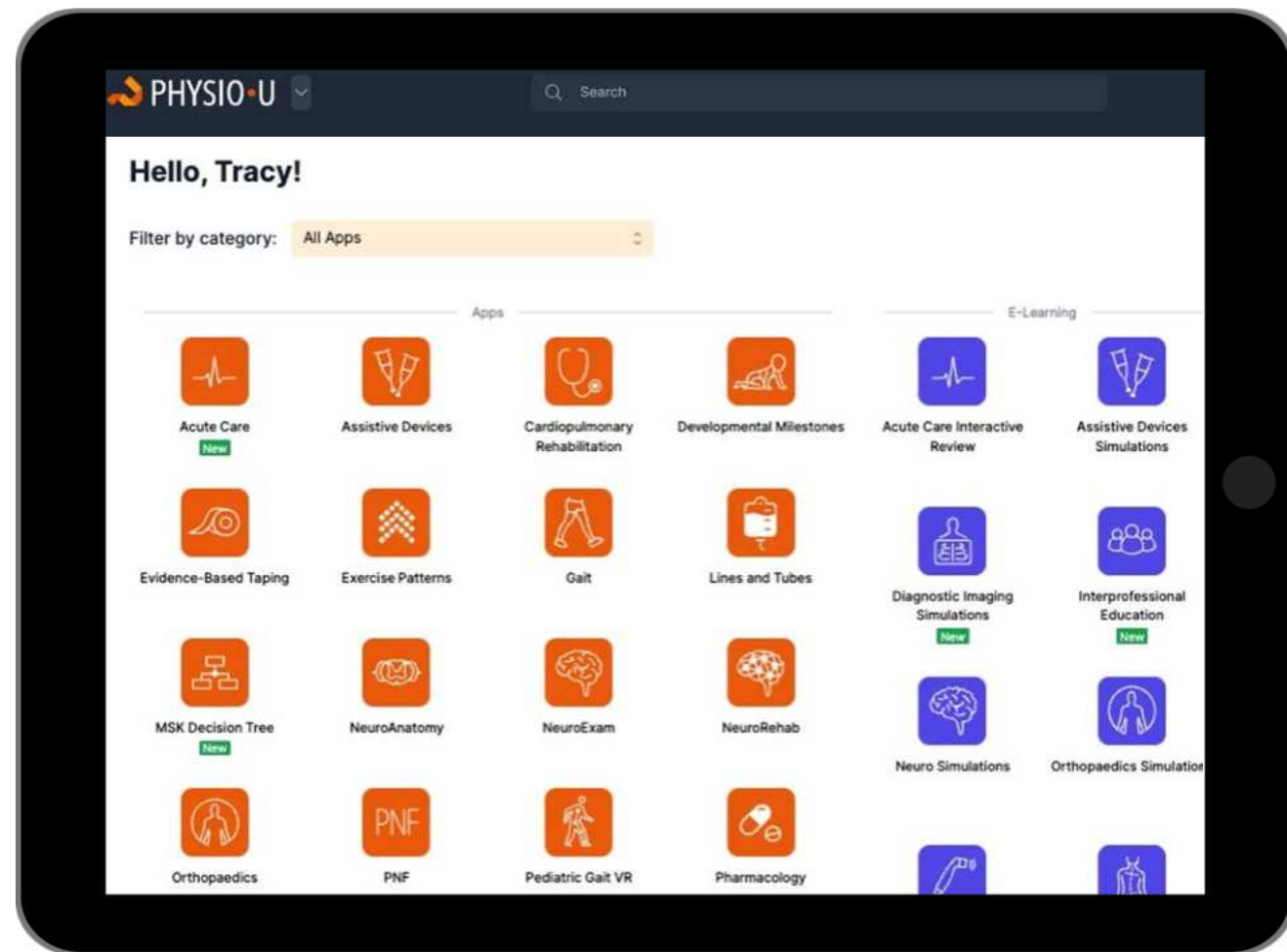
The number of mobile device subscriptions is divided by the country's population and multiplied by 100. A mobile device subscription refers to the subscription to a public mobile device service which provides access to the Public Switched Telephone Network (PSTN) using cellular technology. It includes postpaid and prepaid subscriptions and includes analogue and digital cellular systems.

Visualization by Pablo Alvarez | Source: Our World In Data

Approximately [8.6 billion](#) mobile device subscriptions worldwide as of 2021, more than there are people on the planet.



# WHAT IS PHYSIOU?



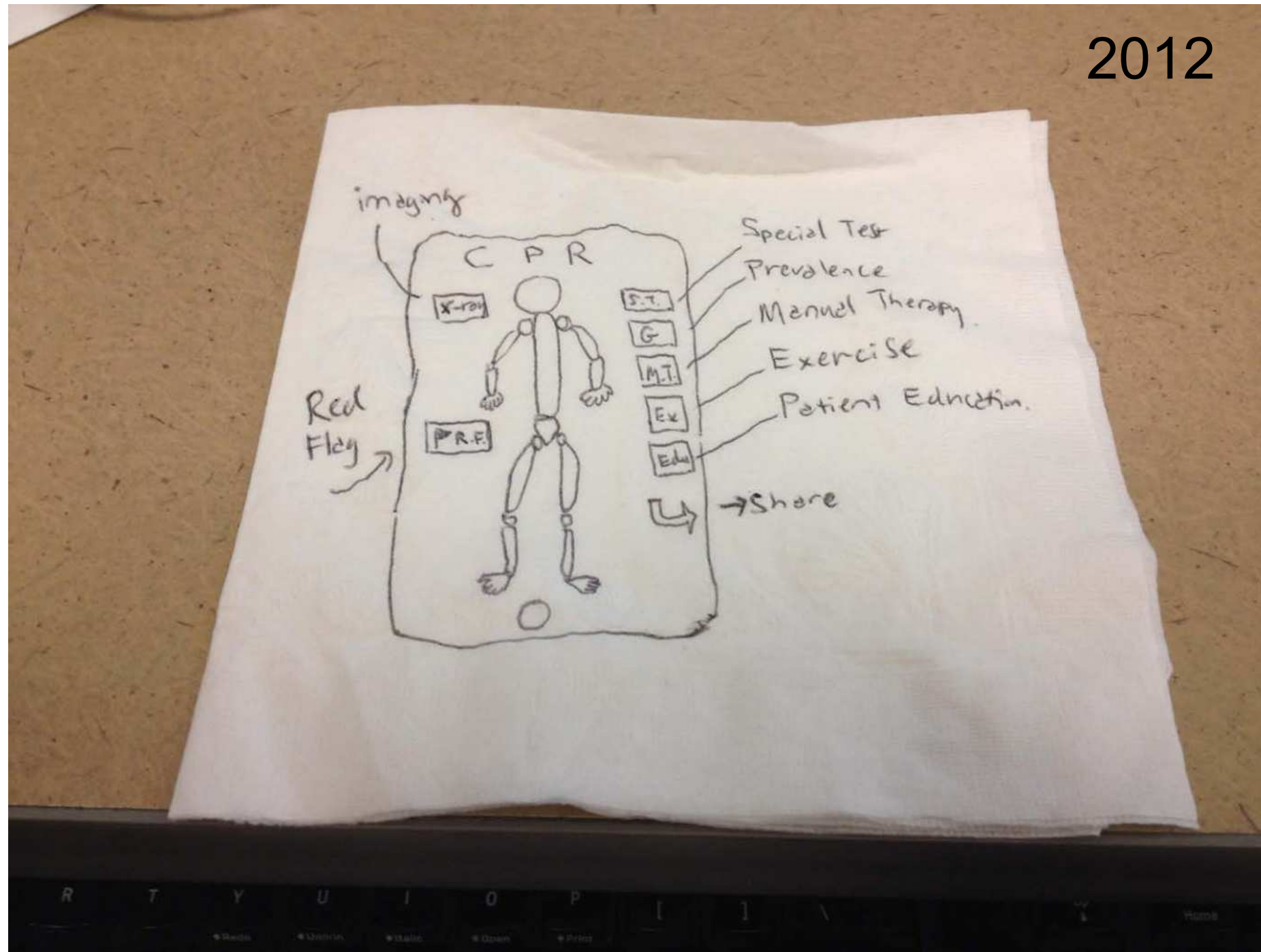
2002- Assistant Professor, Azusa Pacific University





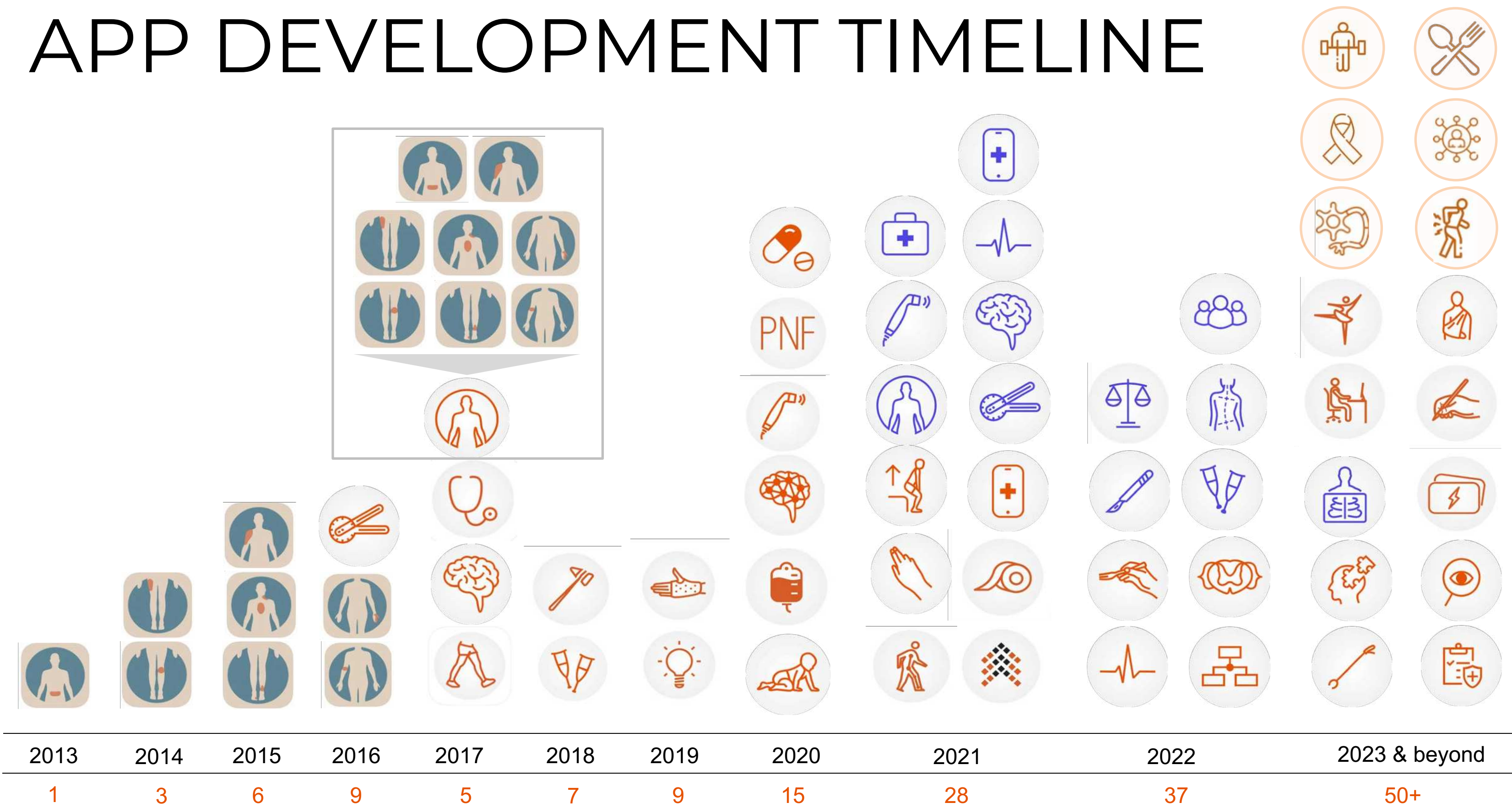
It all starts with an idea....

2012

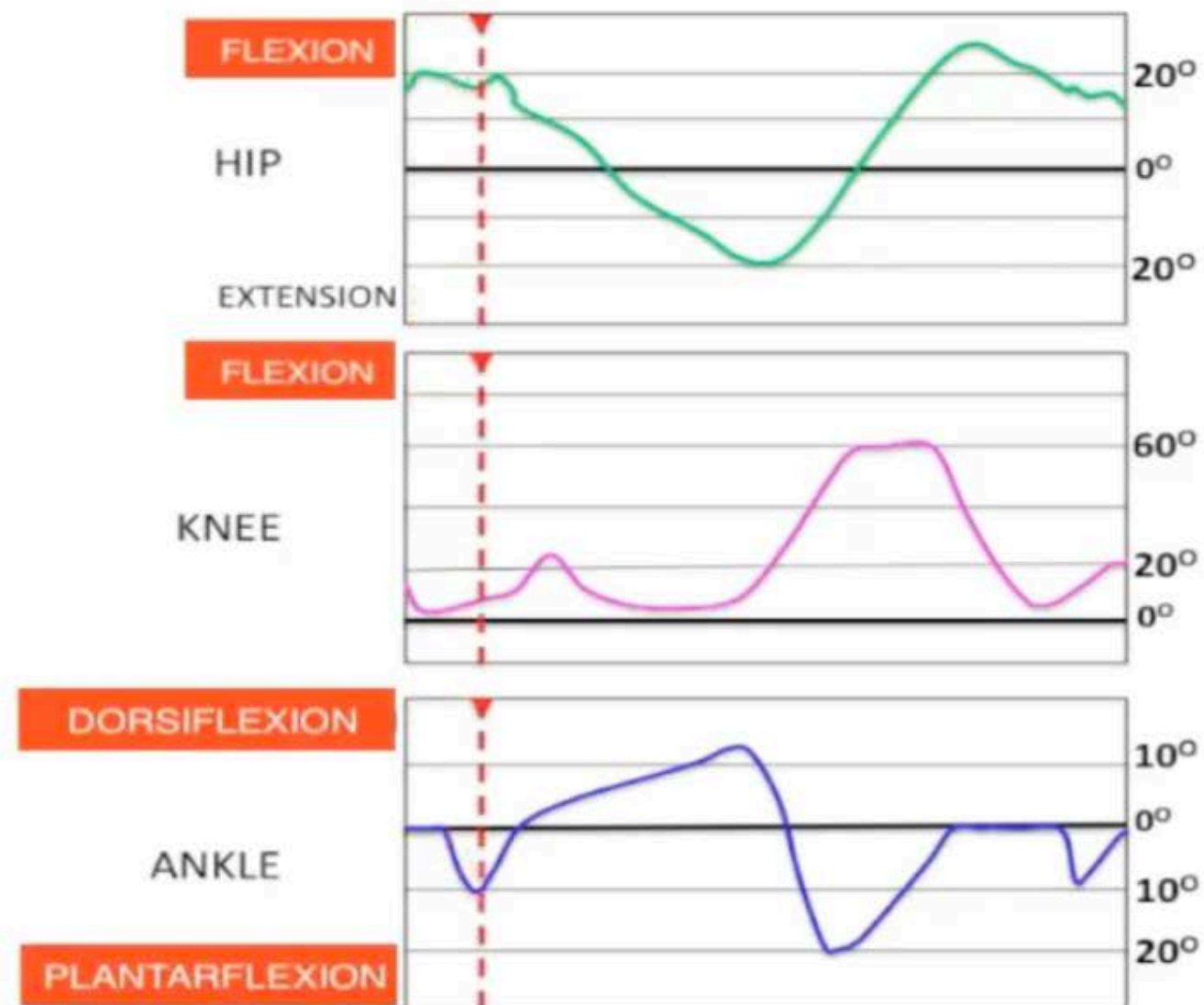




# APP DEVELOPMENT TIMELINE



# Largest Educational Physiotherapy Video Library in the World.





# Dr. Chris Patterson

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- Gait analysis



# Logging in: [www.clinicalpattern.com](http://www.clinicalpattern.com)

CLINICAL PATT

Sign In

Email

mswong@apu.edu

Password

.....

SIGN IN

Forgot your password?

Don't have an account? [Sign Up](#)

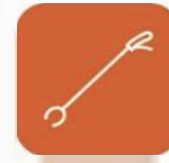
©2025 Clinical Pattern Recognition  
v2024.8.26

PHYSIO-U

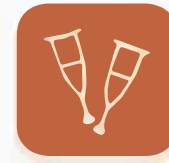
## Applications



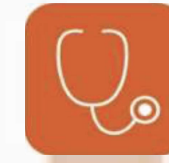
Acute Care



Adaptive Equipment



Assistive Devices



Cardiopulmonary  
Rehabilitation



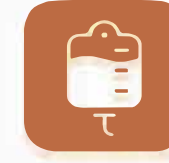
Evidence-Based Taping



Exercise Patterns



Gait



Lines and Tubes



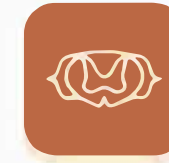
MSK Decision Tree



Medical Screening



Mental Health and  
Rehabilitation



NeuroAnatomy



NeuroExam



NeuroRehab



Neurologic Case Studies



Orthopaedics



PNF



Pediatric Development



Pediatric Gait VR



Pharmacology



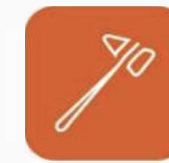
Physical Agent  
Modalities



Post-Op

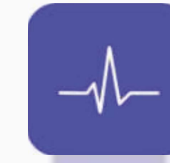


ROM, MMT, and  
Palpation

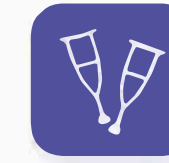


Special Tests

## E-Learning & Simulations



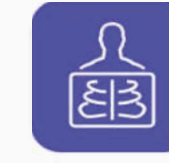
Acute Care Simulations



Assistive Devices  
Simulations



Cardiopulmonary  
Simulations



Diagnostic Imaging  
Simulations

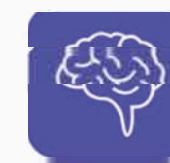


Interprofessional  
Practice



Mental Health and  
Rehabilitation  
Simulations

New



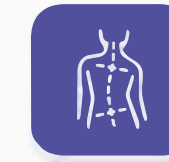
Neuro Simulations



Orthopaedics  
Simulations



Physical Agent  
Modalities Simulations



Posture Simulations





Orthopaedics



Assistive Devices



Gait



NeuroExam



Pediatric Development



Physical Agent Modalities

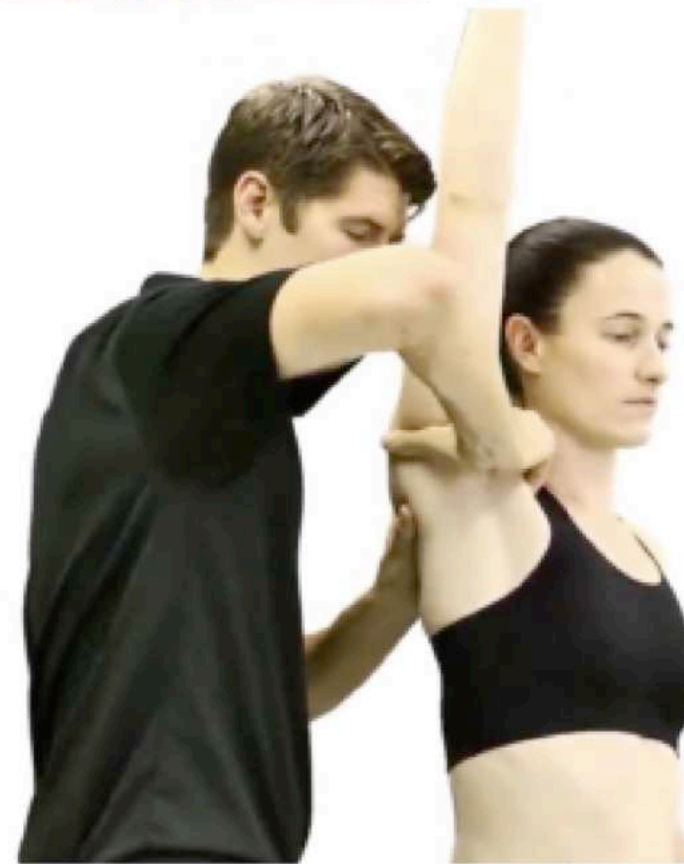


# Motorskill development: Lab handouts

## Impingement tests

### 1. Neer's impingement test

[https://app.physiou.health/app/cpr\\_ortho/t7061/](https://app.physiou.health/app/cpr_ortho/t7061/)



**Purpose:** To determine if there is impingement in subacromial region

**ICF category:** Mobility deficit/Coordination deficit/Power deficit

**Patient position:** seated

**Therapist Position:** standing in front/involved side

**Cues:**

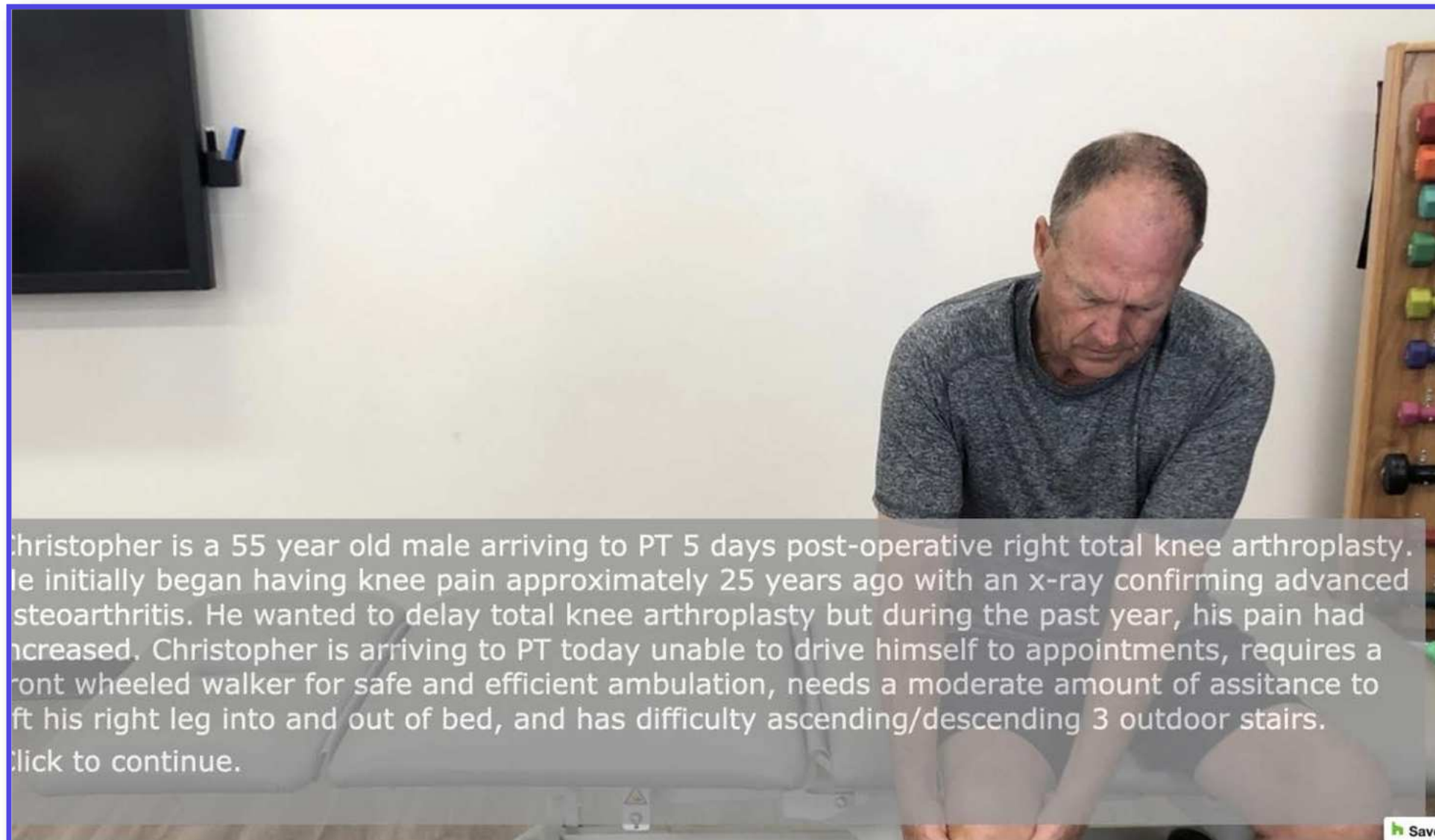
1. Passively take patient's shoulder into full flexion while maintaining internal rotation looking for pain
2. If there are no reproduction of symptoms do this motion again and add overpressure by placing one hand on the scapula and the other in the axilla near the glenohumeral joint applying overpressure into flexion and adduction
3. Positive test is reproduction of symptoms



# Gamification of Learning!



# WHAT ARE SIMULATIONS?



## SIMULATION:

A technique for practice and learning that replaces and amplifies real experiences with guided ones, often immersive in nature, that evoke and replicate substantial aspects of the real world in an interactive fashion (Lateef, 2010)

実際の体験を再現・強化する、没入型かつ指導付きの学習手法で、現実世界の重要な側面をインタラクティブに再現できることが特徴。(Lateef, 2010)

# WHO HAS BEEN USING SIMULATIONS FOR OVER A DECADE?

Nursing 看護

Pharmacy 薬学

Medicine 医学

Interprofessional  
Education  
多職種連携教育

1. Mieux et al., 2010
2. Rosen, 2008
3. Thompson, 2011
4. Lee et al., 2018



# RESEARCH REVIEW

## Physiotherapy Canada

### Use of Simulation Learning Experiences in Physical Therapy Entry-to-Practice Curricula: A Systematic Review

Physiotherapy Canada, Volume 67 Issue 2, Spring 2015, pp. 194-202

## JOURNAL OF PHYSICAL THERAPY EDUCATION

### Simulation in Physical Therapy Education and Practice: Opportunities and Evidence-Based Instruction to Achieve Meaningful Learning Outcomes

Sabus, Carla PT, PhD; Macauley, Kelly PT, DPT, CCS, GCS [Author Information](#) ☺

Journal of Physical Therapy Education: [Volume 30 - Issue 1 - p 3-13](#)

- Simulations provide feedback that can help students learn specific skills
- Computer simulations can augment the learning experience
- Human acute care simulations positively impact confidence and reduce anxiety
- Simulated learning environments can replace a portion of a full-time 4-week clinical rotation without impairing learning

# KEY TAKEAWAYS

- ◆ “Simulation opens the door for rich learning experiences that have the potential to achieve the highest quality, safe, and interprofessional practice that future health care demand.”

シミュレーションは、将来の医療現場で求められる最高水準の質と安全性、そして多職種連携による実践を実現するための、豊かな学習体験への扉を開いてくれる。

- ◆ “Simulation can be a highly effective instruction tool, but it is resource and time consuming.”

シミュレーションは非常に効果的な教育ツールになり得ますが、時間とリソースを多く必要とする。

# BLOOM'S TAXONOMY

MacroSIMs

MiniSIMs

MicroLearning



Combining parts to make a new whole

**Create**

Judging the value of information or ideas

**Evaluate**

Breaking down information into component parts

**Analyze**

Applying the facts, rules, concepts, and ideas

**Apply**

Understanding what the facts mean

**Understand**

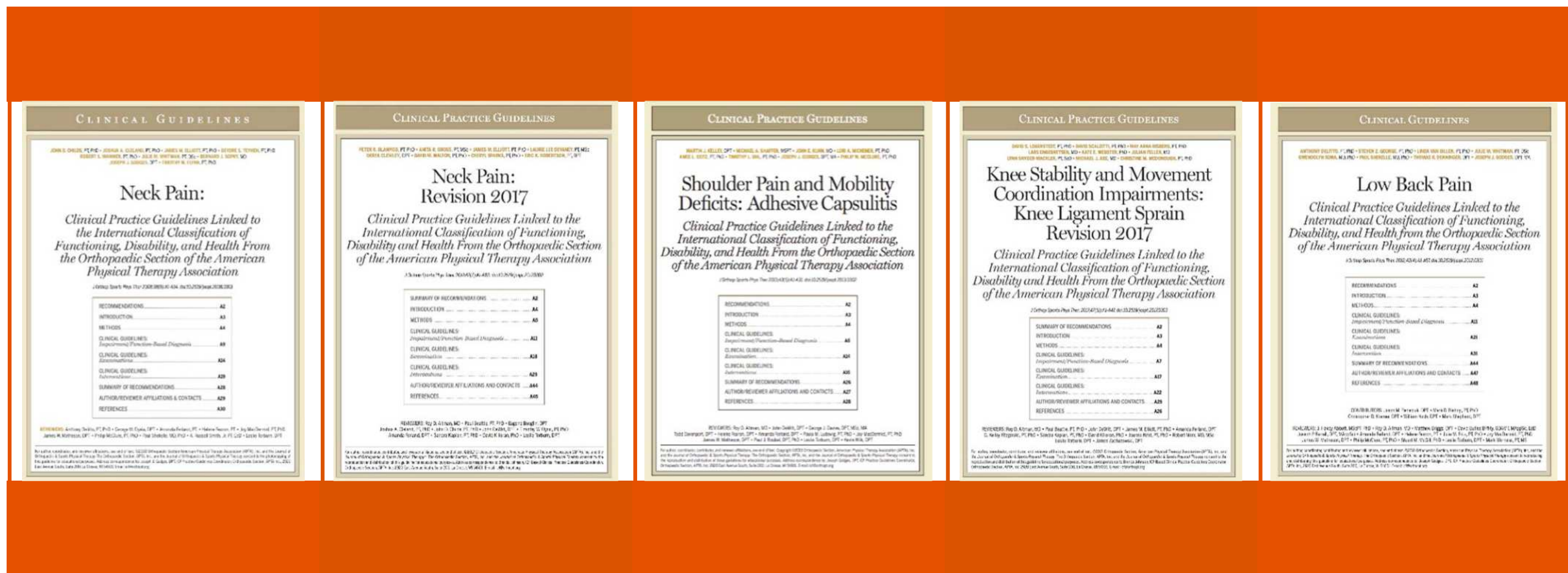
Recognizing and recalling facts

**Remember**



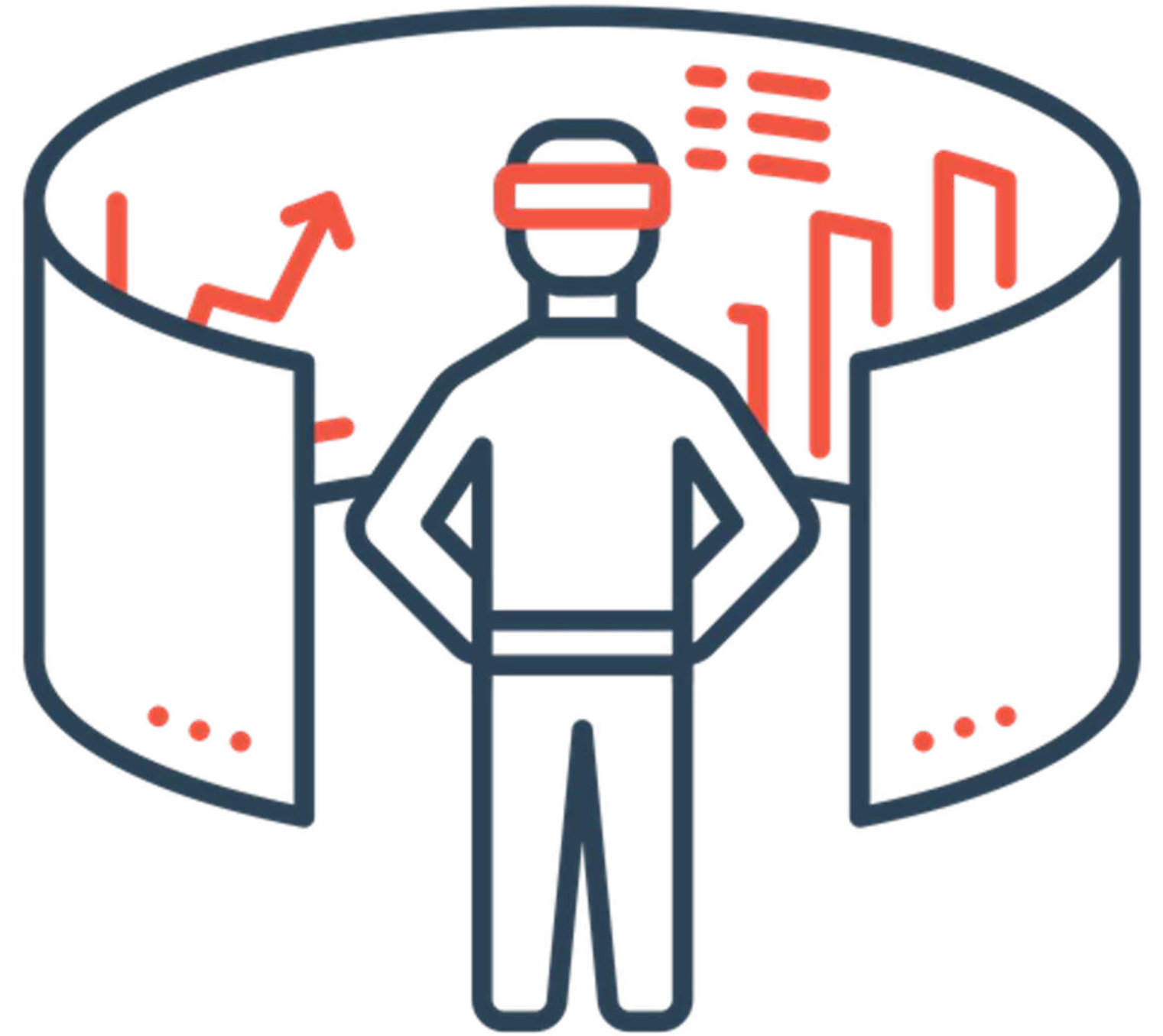
# CLINICAL PRACTICE GUIDELINES

# JOSEP



# LET'S EXPLORE PHYSIOU SIMULATIONS

PhysioU シミュレーション  
を探検しよう



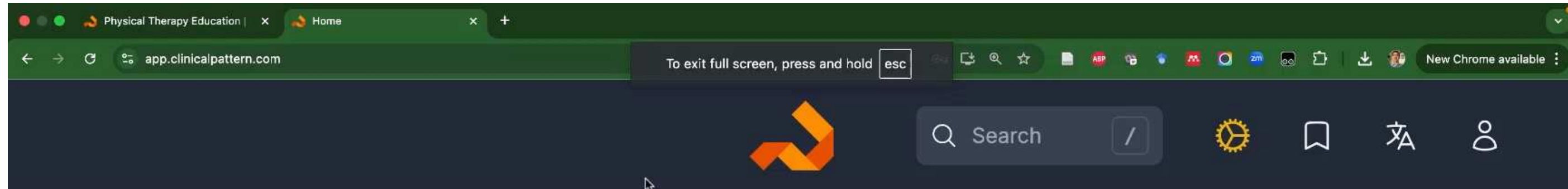
Let's Play!



PHYSIO•U



# Let's Play!



## Hello, Michael!



### Ace Your Jurisprudence Exam with PhysioU

Get access to eight simulation-based modules with quizzes and study guides, and two practic...

*Students in applicable state (3 months before and 9 months after grad month)*



### Get your PhysioU-Dynamometer Bundle Super Savings!

Step up your game! As a PhysioU user, you can save up to \$568 on your ActivForce Handheld...

*Student with lite access to PhysioU/OTu/ATu and no ActivForce*



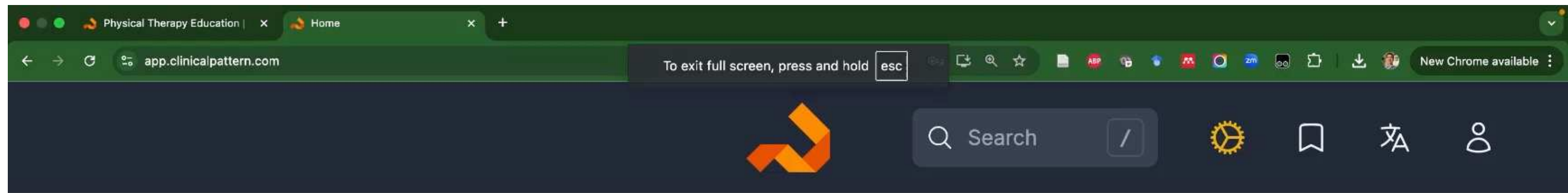
 Educator Resources (PhysioU)

[Educator Dashboard](#)

[Free Live Webinars](#)

[Quick App Tutorials](#)

[Curricular Standards Guide: NPTE & CAPTE](#)



# Hello, Michael!



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Cardiopulmonary  
Rehabilitation



Evidence-Based Taping



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MSK Decision Tree



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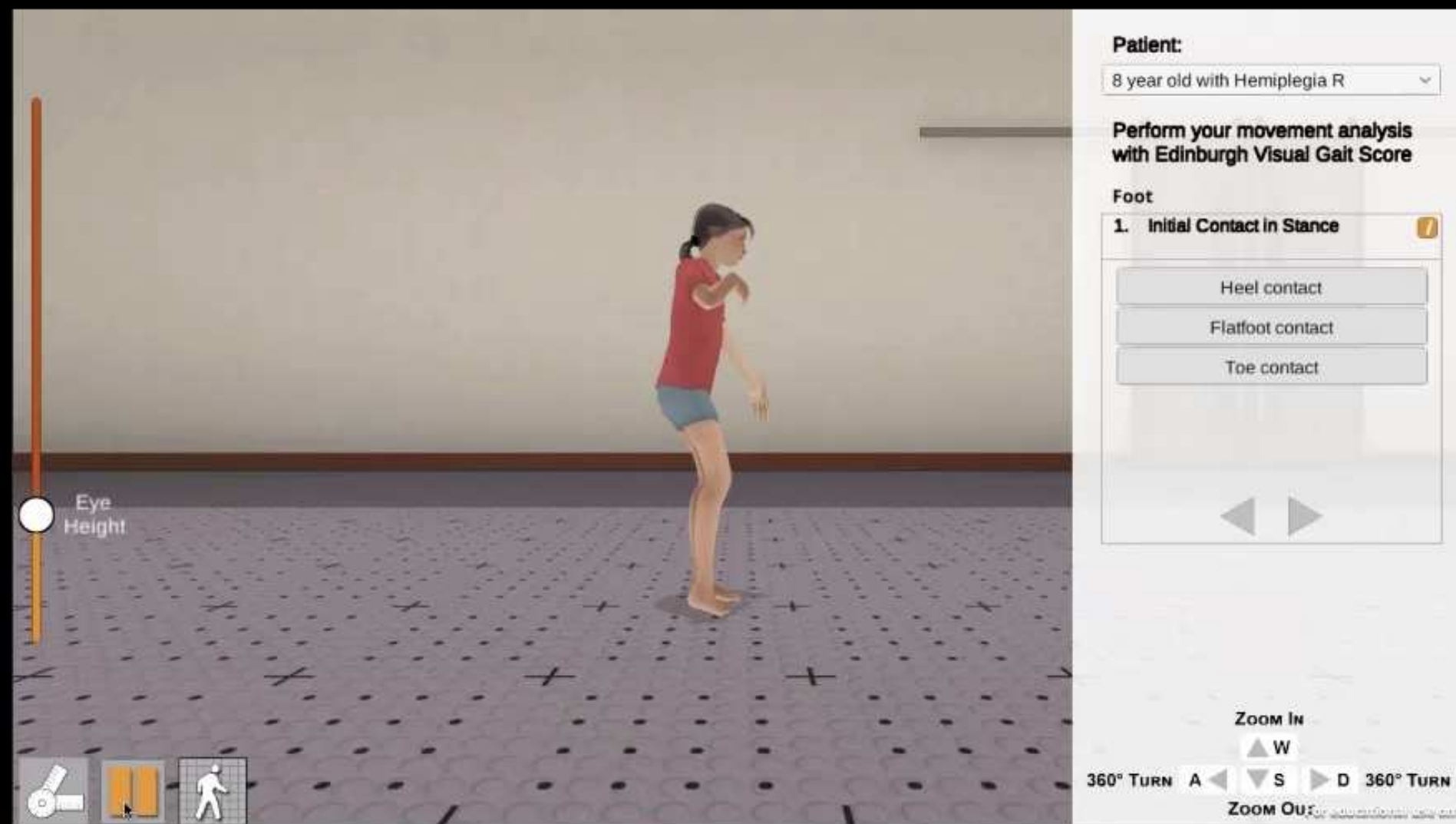


Neurologic Case Studies





# Movement analysis: Gamified in Virtual Reality



# FORMATIVE SIMULATIONS

形成的シミュレーション

Course Schedule		
Weeks Starting Jan 11	Curriculum	Readings/Online lectures
Week 1 1/11	Cervical DDx Lecture: Treatment based Classification  Active Learning <b>PhysioU Clinical Pattern Recognition:</b> Neck pain	<b>No TA's</b>  Complete PhysioU minisims 1. <a href="#">Neck Pain and Mobility Deficits: Cervical Spondylosis/Facet Syndrome</a> 2. <a href="#">Neck Pain with Movement Coordination Impairments: Whiplash Associated Disorder</a> 3. <a href="#">Neck Pain and Headache: Cervicogenic Headache</a> 4. <a href="#">Neck and Arm Radiating Pain: Cervical Radiculopathy</a>  <u>Please submit each simulation learning report by uploading in the individual "assignment" in Canvas LMS as found in each week's module.</u>
1/13	Cervical Lab	COR Ch 5  Watch: Neck rehabilitation Cervical spine part 1 Cervical spine part 2 Cervical Spine DDx+ Treatment Based Classification for Neck and Upper Quarter

# SUMMATIVE SIMULATIONS

総括的シミュレーション

<b>Week 5</b> 2/8	Shoulder DDx Active Learning PhysioU Clinical Pattern Recognition: Shoulder pain	Complete PhysioU mini sims: <a href="#">Shoulder Pain and Mobility Deficits: Adhesive Capsulitis</a>  <u>Please submit each simulation learning report by uploading in the individual assignment in Canvas LMS as found in each week's modules.</u>  <b>No TA's</b>
	2/10	Shoulder Lab  Watch: Shoulder and shoulder girdle
<b>Week 6</b> 2/15  2/17	Shoulder MSI  Shoulder check offs Shoulder Therex Post-op Lectures	Cervical Fusion/Laminectomy post-op lecture - Dr. Stacey Yates Rotator Cuff post-op lecture - Dr. Karina Smith
	<b>Week 7</b> 2/22  2/24	<b>CSM</b>  <b>CSM- No class</b>  <b>Complete PhysioU Macrosimulation:</b> <a href="#">Shoulder pain (20-year-old male)</a> <u>Please submit each simulation learning report by uploading in the individual assignment in Canvas LMS as found in each week's modules.</u>



# MINI AND MACRO SIMULATIONS



## **Acute Care** 急性期

- COPD
- Cerebrovascular Accident
- Lumbosacral Orthosis
- Traumatic Brain Injury
- Trauma
- Spinal Surgery
- Joint Replacement



## **Physical Agents** 物理療法

- Cervical Traction
- Cryotherapy
- Thermotherapy
- Interferential Current
- Iontophoresis
- Neuromuscular Electrical Stimulation (NMES)
- Transcutaneous Electrical Nerve Stimulation (TENS)
- Ultrasound



## **Orthopaedics** 運動器

- Shoulder Instability
- Cubital Tunnel
- Wrist Sprain
- Patellofemoral Pain
- Piriformis Syndrome
- Knee Osteoarthritis
- Lateral Ankle Sprain
- Lumbar Strain



## **Neurologic Rehab** ニューロ

- Case Studies:
  - Spinal Cord Injury
  - Stroke (CVAA)
  - Vestibular
- Objective Tests
  - Five Times Sit to Stand
  - Timed Up and Go
  - Ten Meter Walk Test
  - Rigidity Assessment
  - Coordination Testing



**Fostering partnerships:  
Innovative bridges between didactic and  
clinical education through the use of Guideline based mobile apps**

Education Leadership Conference, 2018, Jacksonville, Florida

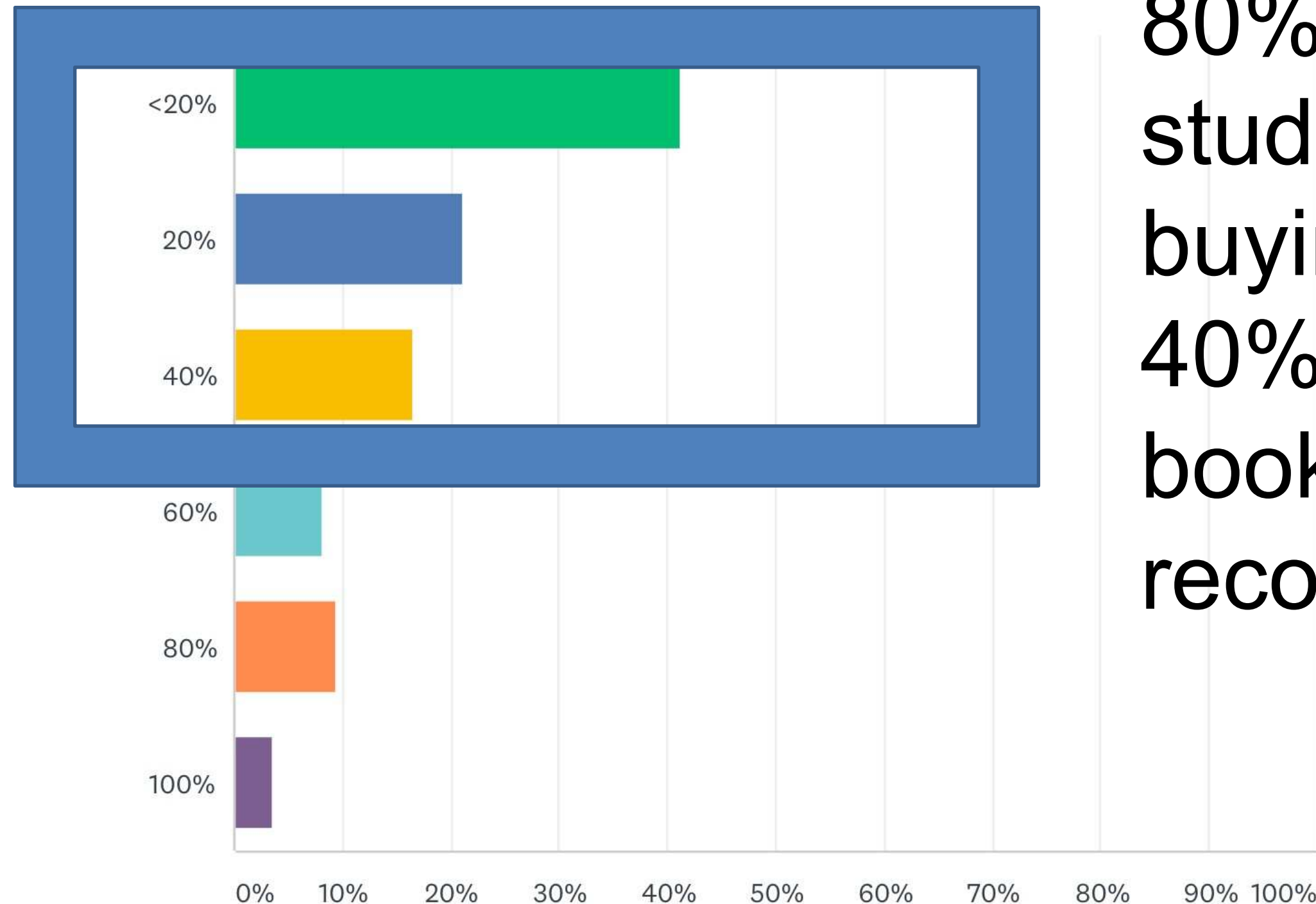
Q23

Customize

Export ▼

In the course of the DPT program, out of required or recommended textbooks, what percentage have you purchased?  
(Choose the closest percentage)

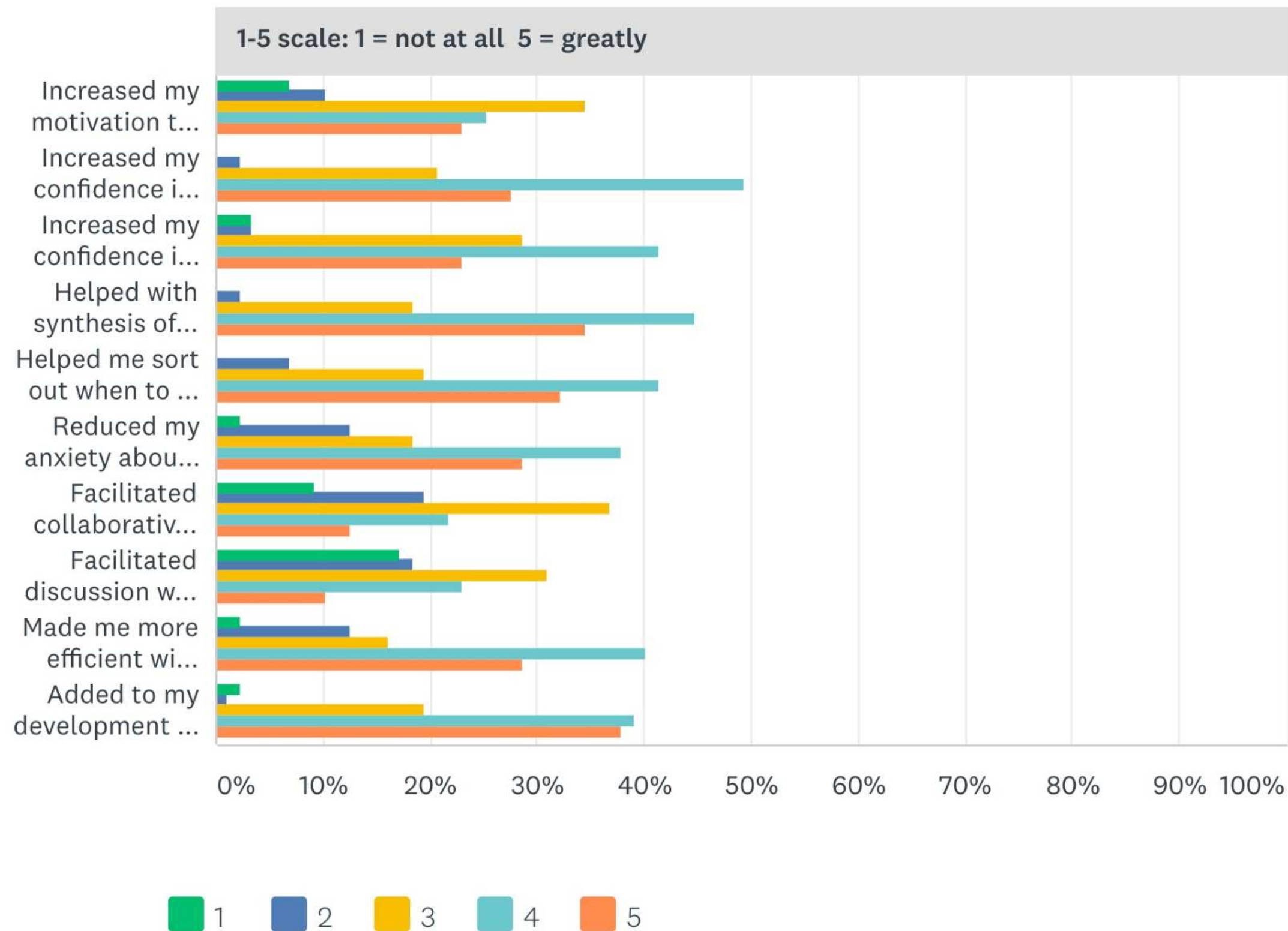
Answered: 85 Skipped: 6



80% of the students are buying less than 40% of the text books...required or recommended....



# Results: Utilization of the apps *Helped* in:



1-5 scale: 1 = not at all 5 = greatly

	1	2	3	4	5	TOTAL
Increased my motivation to learn material and be engaged in classroom	6.90% 6	10.34% 9	34.48% 30	25.29% 22	22.99% 20	87

Mastery & confidence

Increased	3.45%	3.45%	28.74%	41.38% 36	22.99% 20	
the clinic						
related with	0.00%	0.00%	10.00%	44.33% 39	34.48% 30	

Preparation for clinic

the clinic						
related with	0.00%	0.00%	10.00%	44.33% 39	34.48% 30	
the clinic						
related with	0.00%	0.00%	10.00%	44.33% 39	34.48% 30	

Synthesis in learning

the clinic						
related with	0.00%	0.00%	10.00%	44.33% 39	34.48% 30	
the clinic						
related with	0.00%	0.00%	10.00%	44.33% 39	34.48% 30	

Clinical reasoning

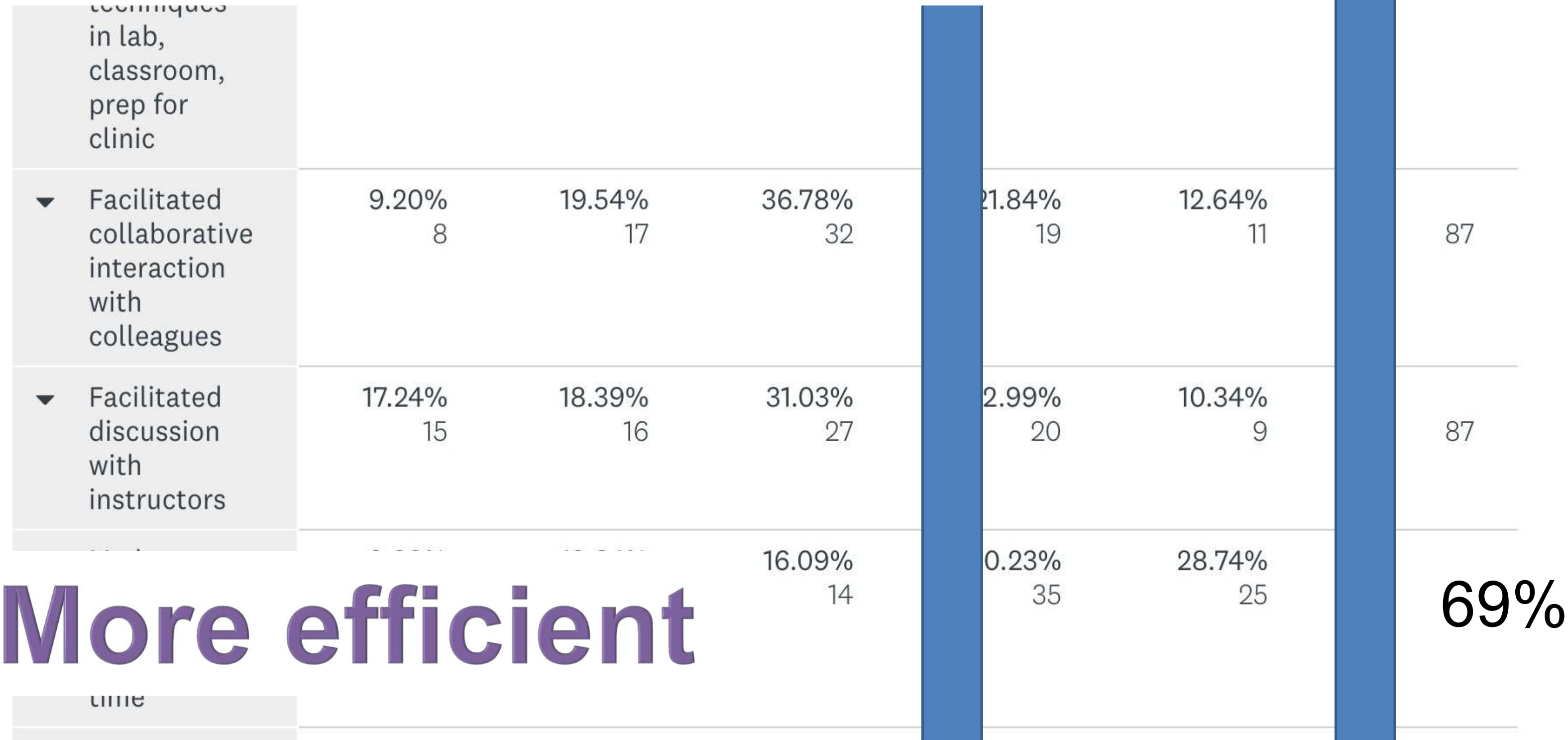
77%

64%

79%

73%

# Reduced anxiety in lab



# Development as student clinician





# **EDUCATION COST SAVINGS CASE STUDY**

- Range of Motion (\$106)
- Manual Muscle Testing (\$51)
- Surface Anatomy Palpation (\$101)
- Gait Analysis (\$139)
- Special tests (\$85)
- Orthopaedics (\$114 + \$120)
- Therex (\$105)
- Cardiopulmonary Rehabilitation (\$104)
- Assistive devices (\$134)

**\$1059 per student  
saved**

Cost to students in \$USD:

The image displays three pricing cards for student subscriptions, each with a dark blue border and rounded corners. The first card, 'Annual Subscription', has a dark blue border and shows a price reduction from \$219 to \$109, billed yearly with a 50% discount. The second card, '2-Year Plan', also has a dark blue border and shows a reduction from \$438 to \$189, pre-paid with a 57% discount. The third card, '3-Year Plan (Best Value!)', features an orange border and shows a reduction from \$657 to \$239, pre-paid with a 64% discount. Each card includes a 'Buy Now' button with a right-pointing arrow.

Plan	Original Price (\$USD)	Discounted Price (\$USD)	Discount Type	Discount %
Annual Subscription	<del>\$219</del>	\$109	Billed Yearly	50% off
2-Year Plan	<del>\$438</del>	\$189	Pre-paid	57% off
3-Year Plan (Best Value!)	<del>\$657</del>	\$239	Pre-paid	64% off

\$9.08 per month

\$7.88 per month

\$6.64 per month

# 1 Ice Coffee with whipped cream...

---

\$6.95 + tax





# How do I access this as faculty?

- Faculty access is free for educators...



PHYSIO•U



# PHYSIOU KEY ACADEMIC DRIVERS

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**Reduced Financial Burden for Students**



**Video-Based Resources for Tik Tok Generation**



**Clinical Reasoning Development:  
Gamification**



**Support Students Across the Entire Curriculum**

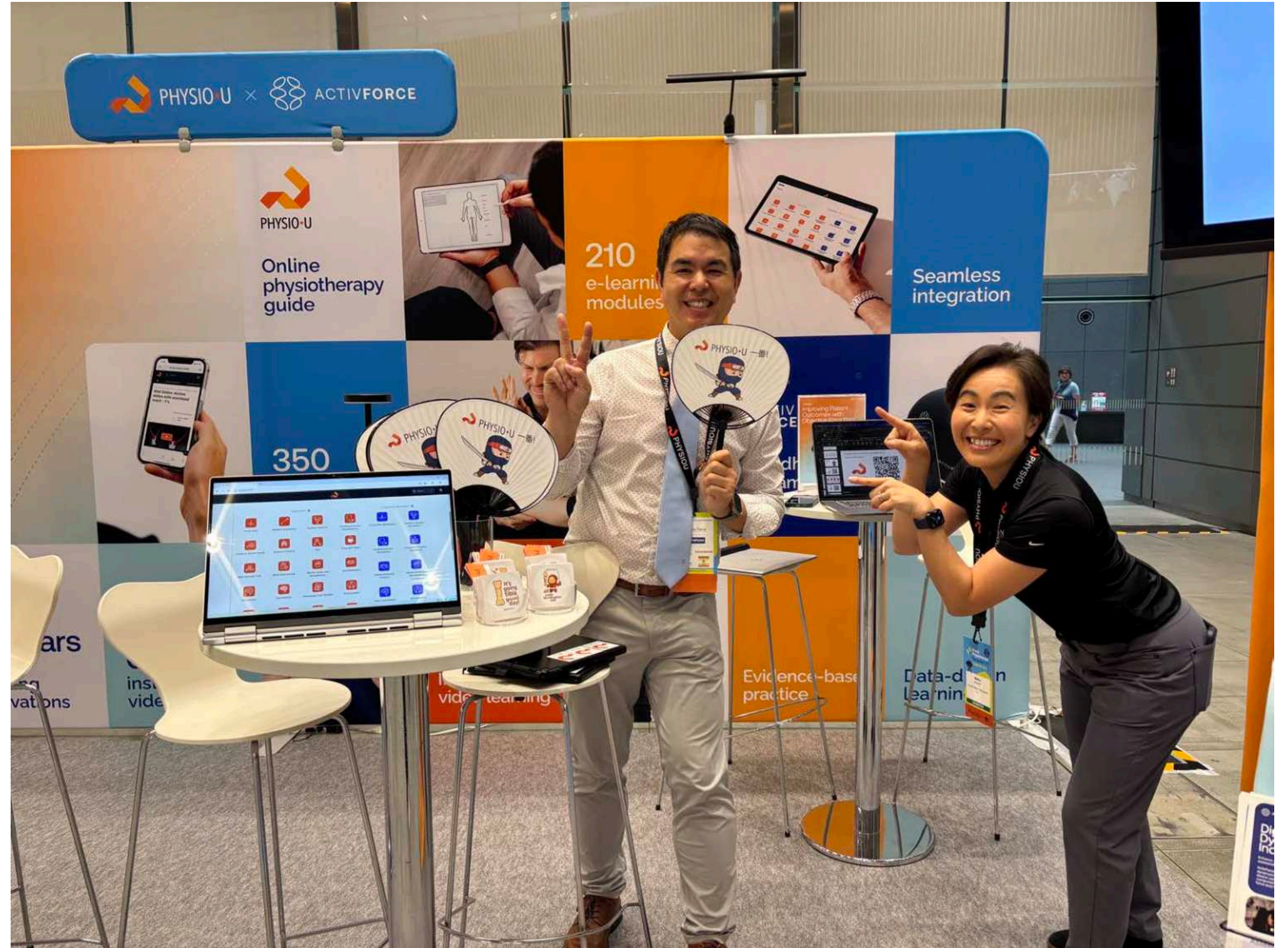






# Come play with us at Booth H1 in the Exhibit hall

- Faculty access is free for educators





THANK YOU

ありがとうございました