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Facultad de Medicina  
Clínica Alemana - Universidad del Desarrollo



# VR In Orthopedic Residency: A Pilot Study On Satisfaction & Procedural Self-Confidence

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# Faculty Disclosure Information

- Dr. Rodrigo Guilloff
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  - Program Committee Orthopaedic Residency CAS-UDD, Chile
- Dr. Rafael Calvo
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  - Personal fees from Stryker, Smith and Nephew, and Conmed
- Dr. David Figueroa
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  - Director of Revista Chilena de Ortopedia y Traumatologia
  - Editorial Board of the Journal of ISAKOS
  - Board Directors of ISAKOS.
- Dr. Alex Vaisman
  - Program Committee Orthopaedic Residency CAS-UDD, Chile
  - Personal fees from Arthrex



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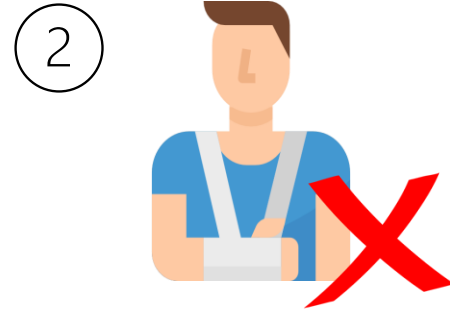
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# Introduction

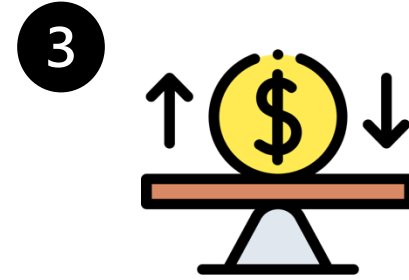
VR ➡ Valuable academic tool for surgical residencies



Improve Surgical  
Skills



Patient-safety



Cost-effective

**Evidence remains limited concerning user satisfaction and perceptions of its educational value.**



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# Objective

Evaluate **satisfaction** and **self-perceived confidence** in orthopaedic surgery residents, following virtual reality (VR) simulation training in anterior cruciate ligament reconstruction (ACLR)



## Hypothesis

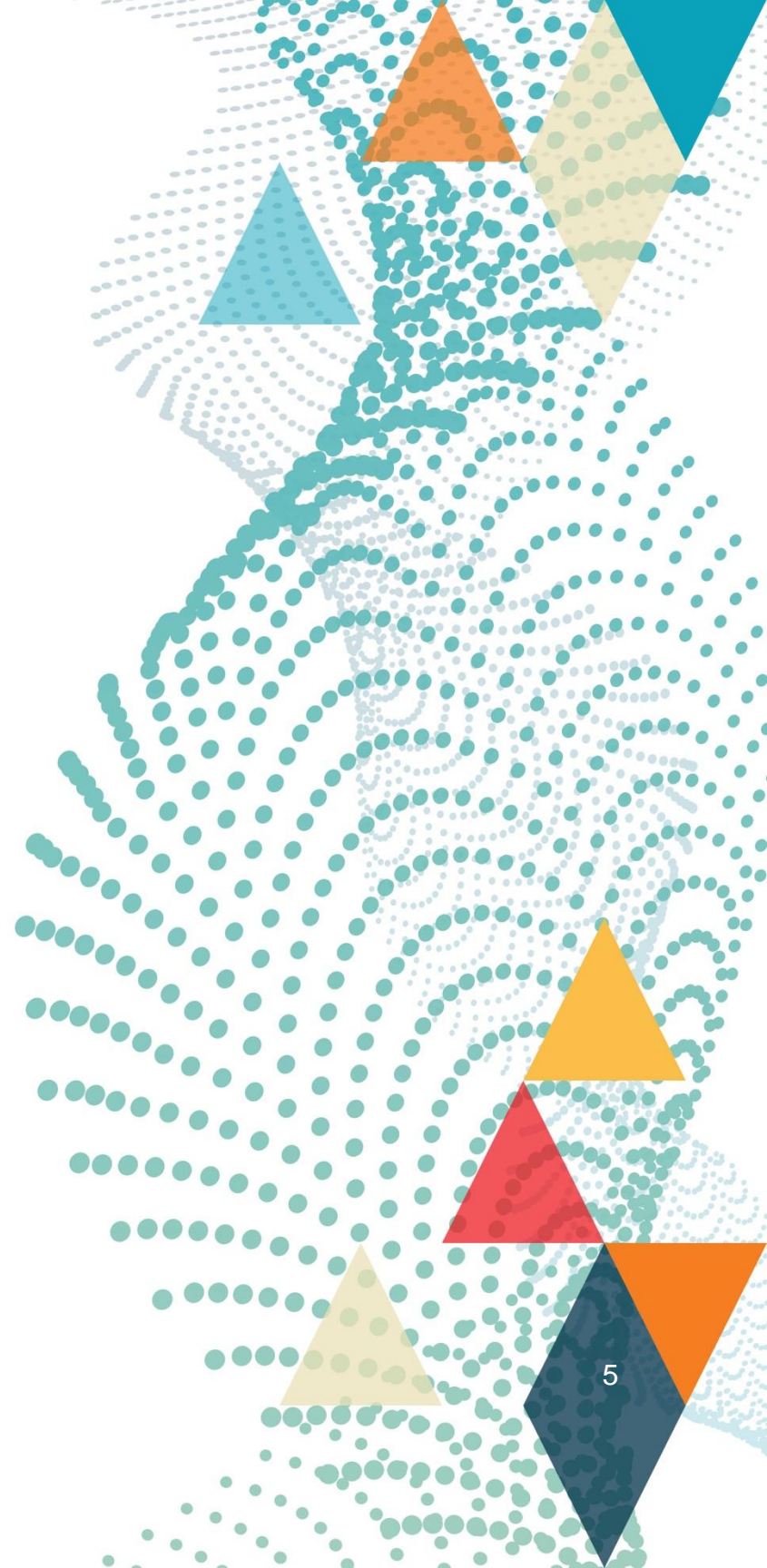
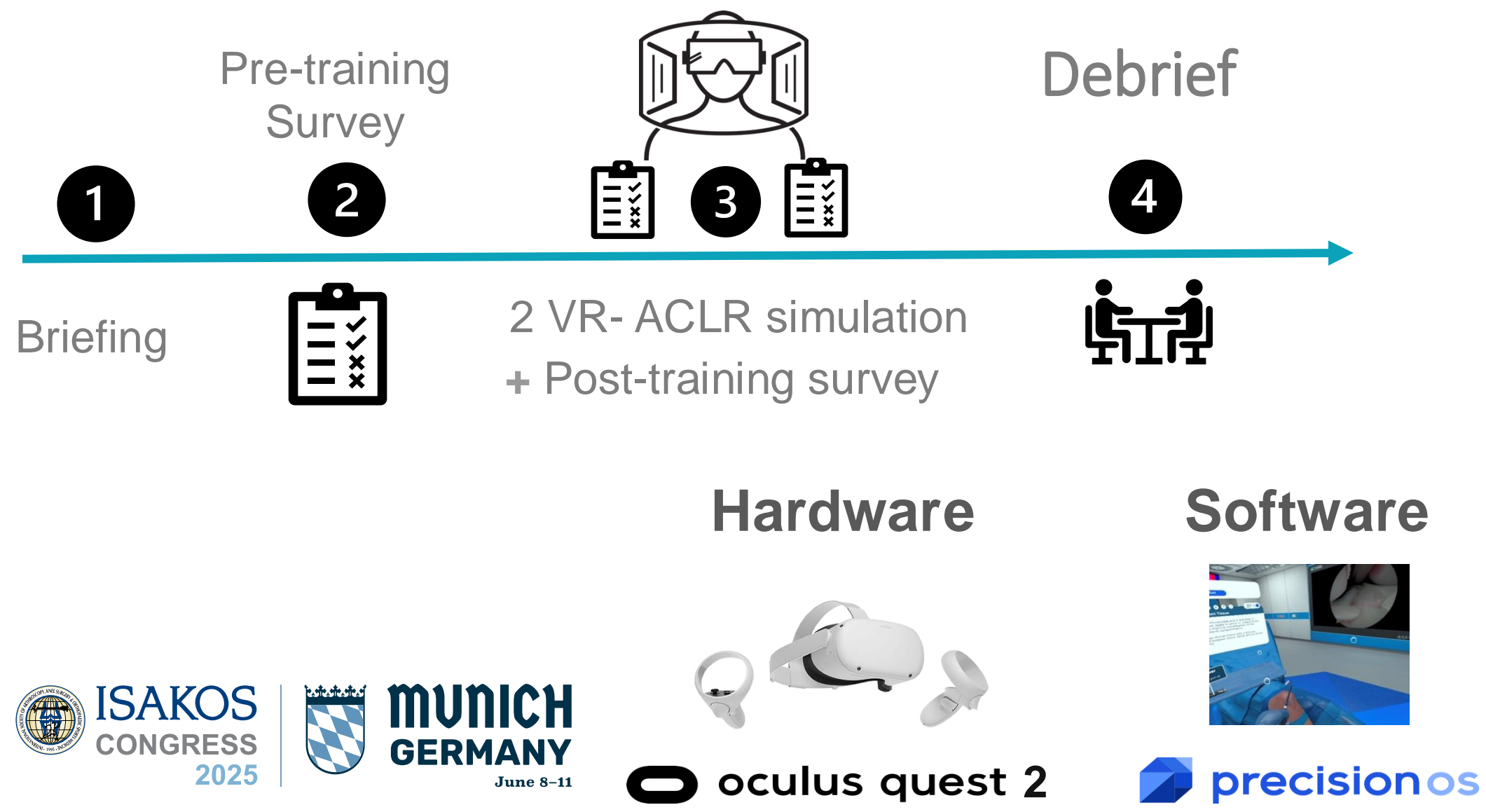
VR training is positively received and enhances residents' self-confidence in executing confidence in performing an ACLR



# Methods: Cross-sectional pilot study

12 orthopaedic surgery residents (4 per PGY)

Exclusion: Prior VR simulation experience





# Methods: Survey



## Satisfaction & Self-Perceived Confidence

- ✓ **Validated** Expert Committee (n=8): 95% approval rating
- ⚙️ **Internal consistency:** Cronbach's  $\alpha = 0.92$  (excellent)

ENCUESTA DE AUTOCONFIANZA/SEGURIDAD EN EL APRENDIZAJE

17. Respecto a tu experiencia en el simulador en XR y el tema estudiado, indica qué tan de acuerdo estás con las siguientes afirmaciones: \*

	Muy en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Muy de acuerdo
Confío en que estoy dominando el contenido de las actividades de simulación que me fueron impartidas en la sesión	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estoy seguro de que a través de la simulación estoy adquiriendo conocimientos que me permitan desenvolverme	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### LIKERT



13. ¿Qué probabilidades hay de que recomiendes esta experiencia a un compañero? \*

0 1 2 3 4 5 6 7 8 9 10

Nada probable Muy probable

14. ¿Qué probabilidades hay de que repases nuevamente este procedimiento con este simulador? \*

0 1 2 3 4 5 6 7 8 9 10

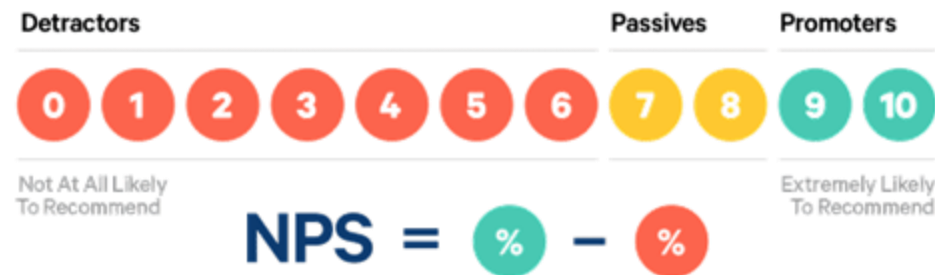
Nada probable Muy probable

15. ¿Sientes que fue una forma entretenida de aprender? \*

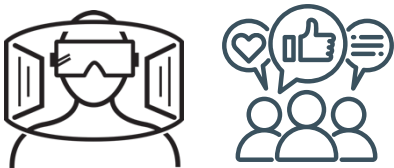
0 1 2 3 4 5 6 7 8 9 10

Nada entretenida Muy entretenida

16. ¿Crees que este tipo de experiencias es un aprendizaje recomendable para el estudio de la Medicina? \*



# Results: VR-Simulation



↑ understanding of performing ACLR



>80%

↑ application of knowledge in ACLR

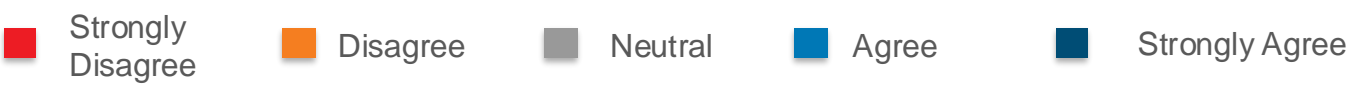


>80%

Realistic and immersive



>70%



>80%

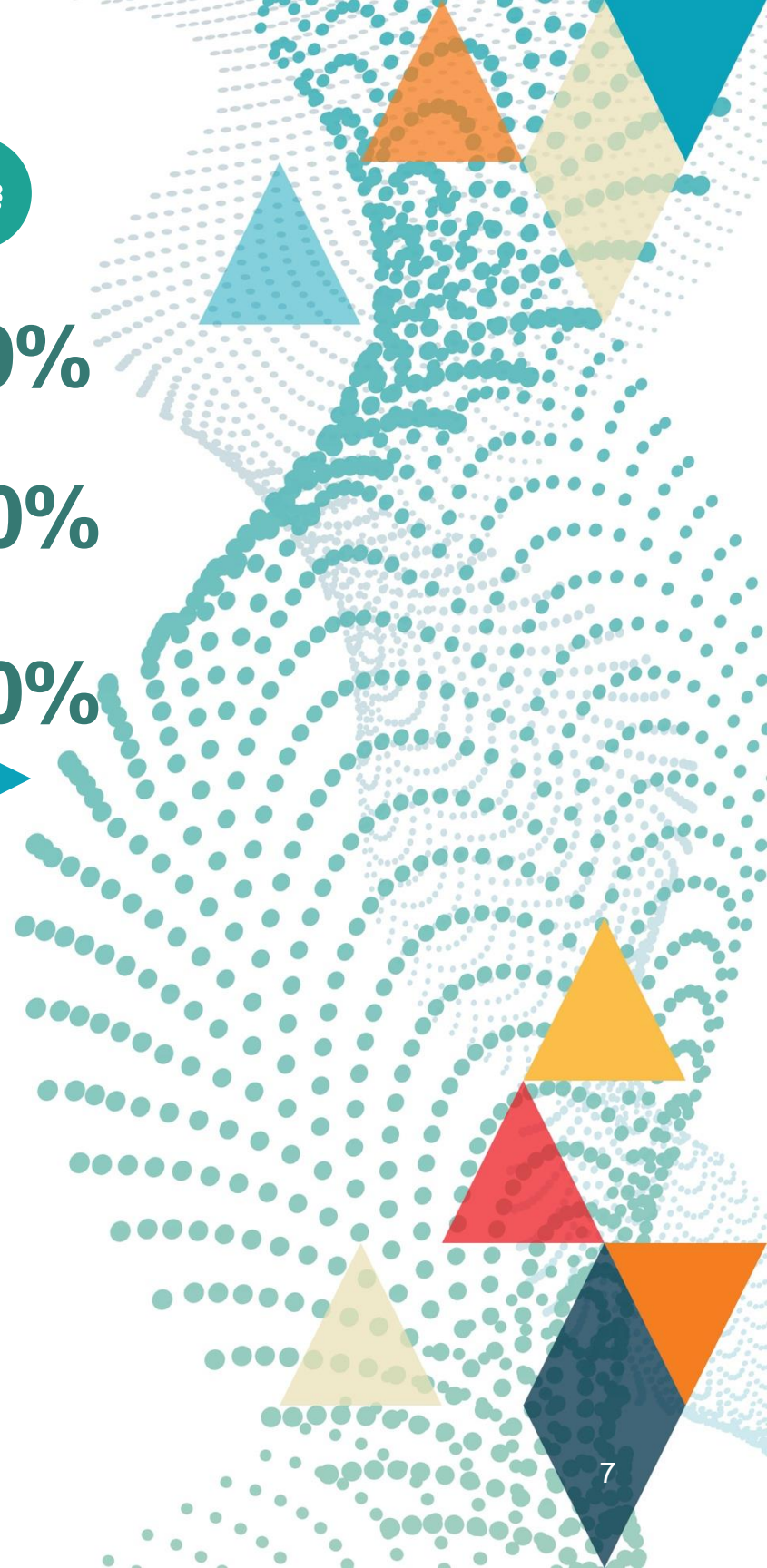
Would practice in VR again

>90%

Recommendable for surgical training

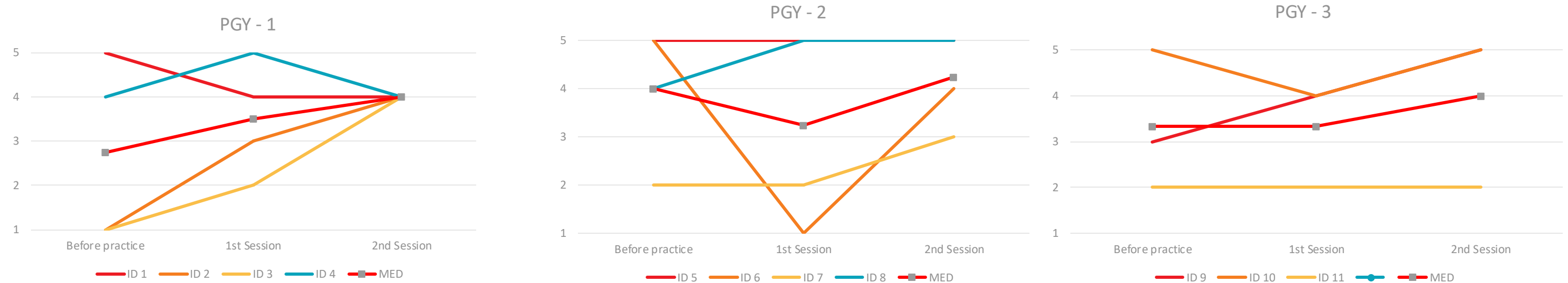
100%

VR beneficial for medical education  
Enjoyable way to learn

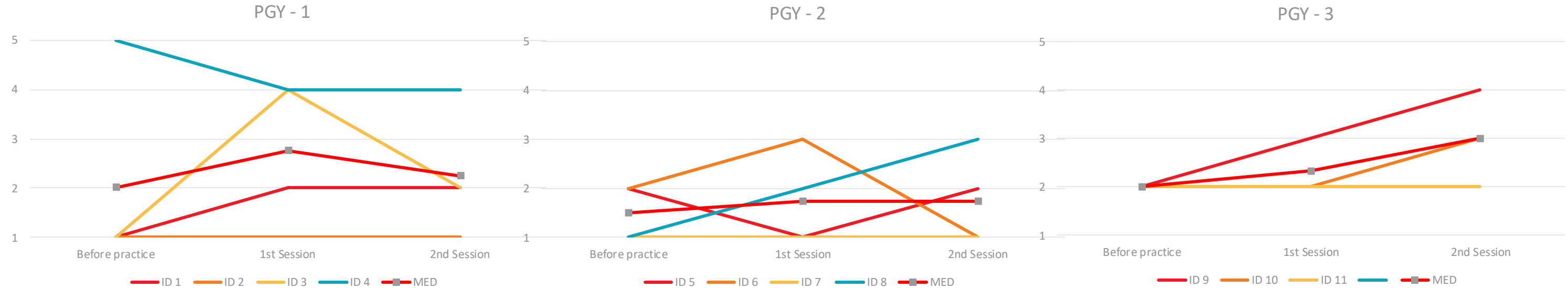


# Results: Self-Perceived Confidence for ACLR

To **perform** as an **assistant** according to year of residency

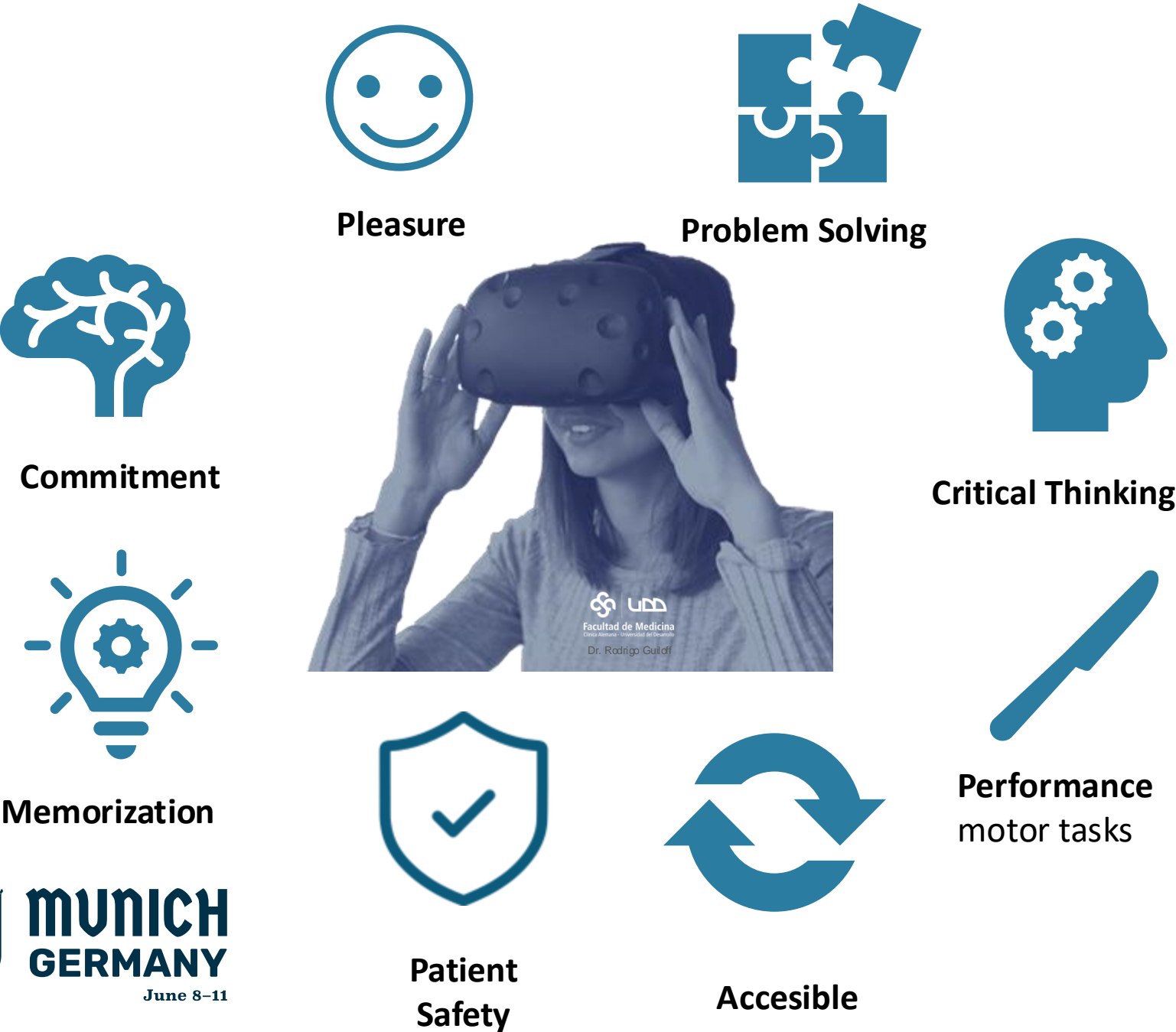


To **perform** as **primary surgeon** according to year of residency





# Discussion: VR Promotes Education



# Strengths

1<sup>st</sup>



VR Latin-American Study

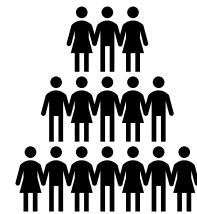


Satisfaction & Confidence



Validated Survey

# Limitations: Pilot study



# participants  
1 institution



# sessions for a plateau?



Long term performance?



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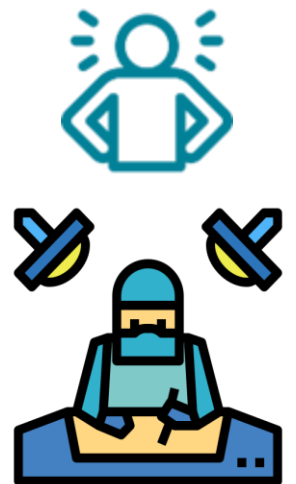


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# Conclusion: VR-ACLR Simulation

- **Positively** evaluated by orthopaedic surgery residents
  - Enjoyable self-directed learning activity
  - Facilitates application of theoretical knowledge
- **Improved** self-perceived **confidence** to perform ACLR as both **assistant** and **primary surgeon**



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