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Enhancing Student Engagement and Performance Through Oculesics-Informed Virtual Reality Implementation

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eLearning Africa, Tanzania

What is VR?

1. Computer-generated environments
2. Immersive
3. Interactive

Reality-Virtuality Continuum

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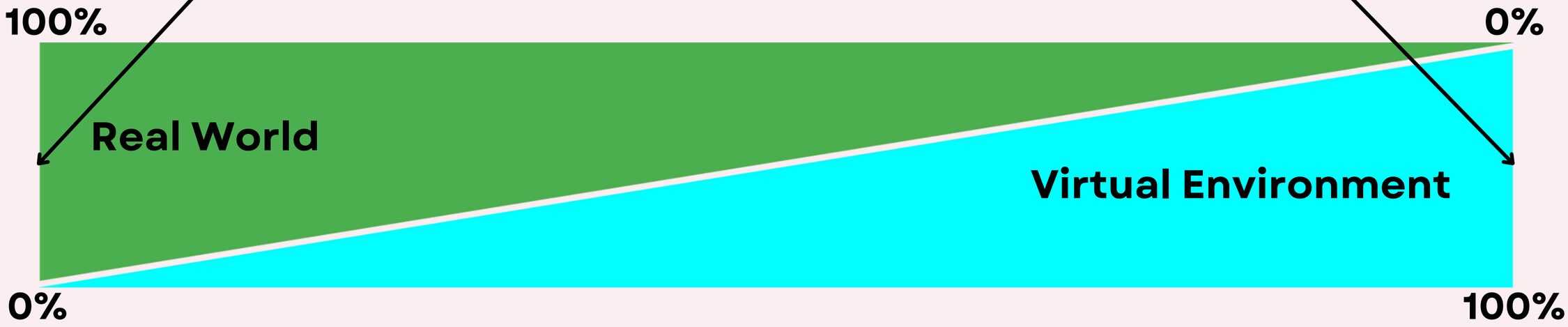
Newtonian Reality
- 0% Virtual Environment
- 100% Real World

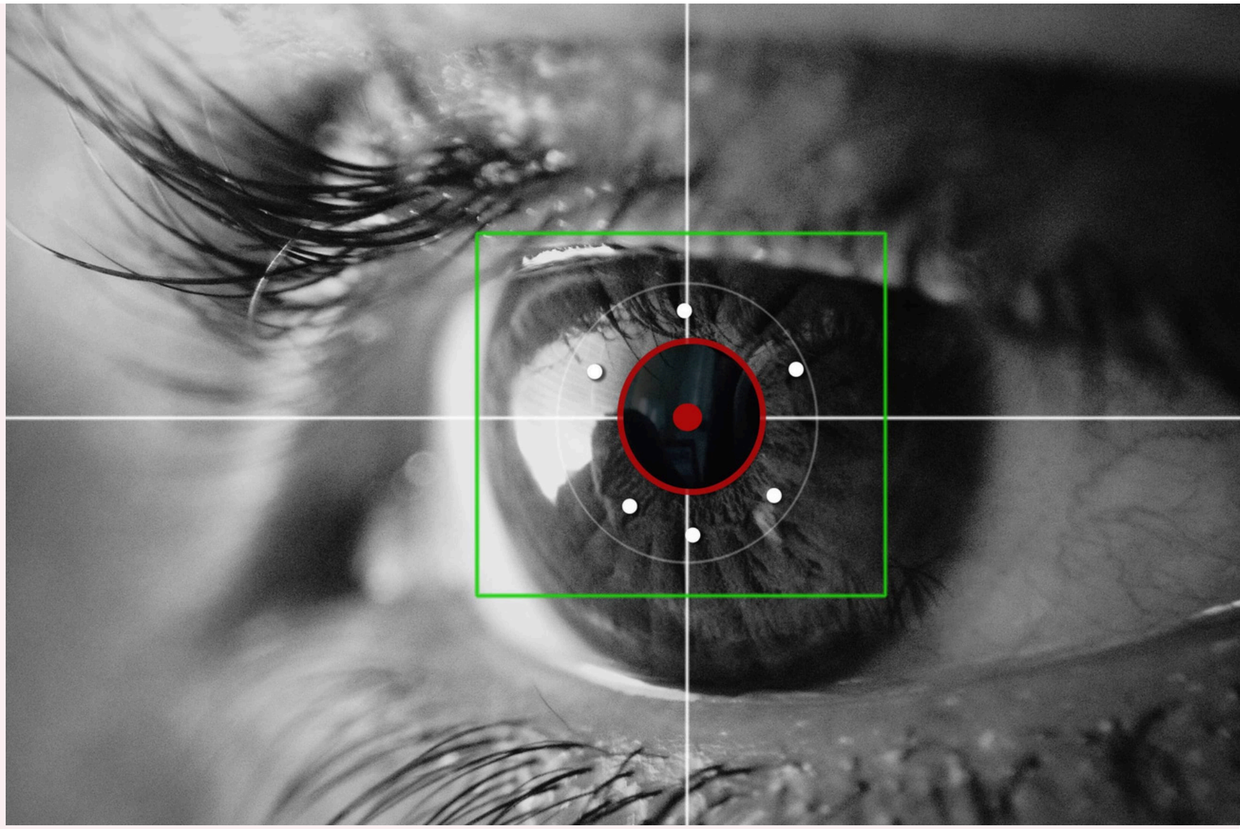
Virtual Reality
- 100% Virtual Environment
- 0% Real World



Mixed Reality (MR)
- <100% Virtual Environment
- <100% Real World

Oculesics

1. Study of eye-related behavior
2. Indicator of cognitive processes
3. Enables real-time instructional feedback



Why VR?

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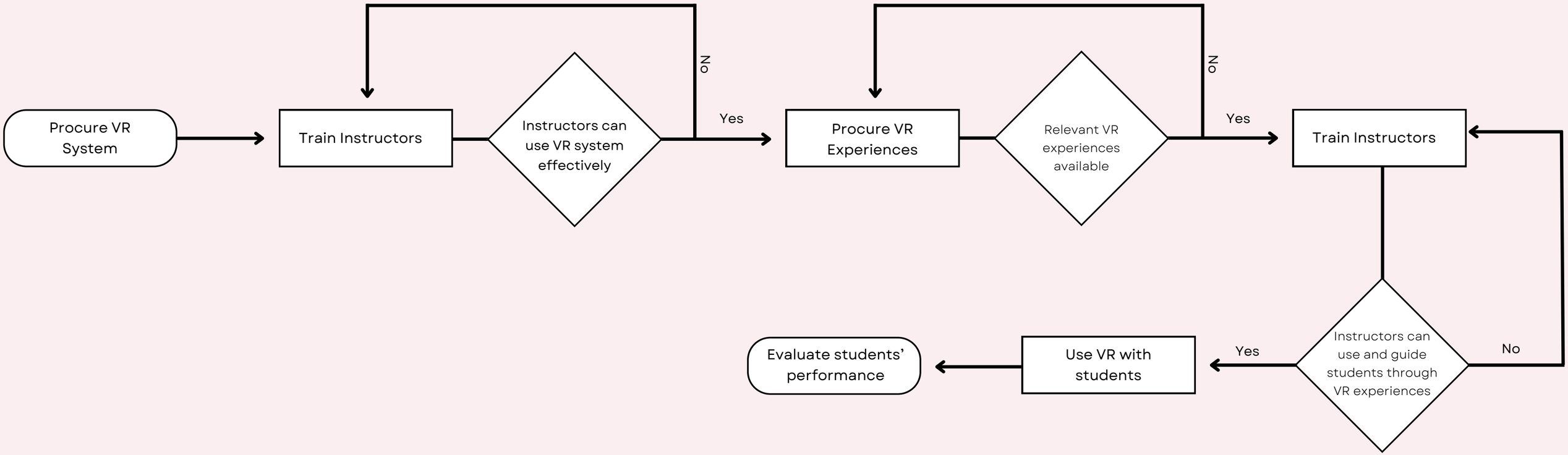
1. 3-dimensional representation
2. VR provides Kinesthetic experience
3. Safe environment
4. Rapid deployment

How to adopt VR



Pilot Study

1. May–August 2024
2. 5 groups of 6 students each
3. 1-hour sessions
4. CPR Training

Outcomes

1. Most students practiced CPR once
2. VR fosters calm, low-pressure skill building
3. Navigation and usability issues
4. Blind Maze Effect

Limitations

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1. Users' eyes obscured
2. Inexperience with VR
3. Limited instructor visibility into student VR
4. Inconsistent VR controls confuse users

Follow this link to watch a sample oculesics observation

https://www.youtube.com/watch?v=V9H-bj4CxDE

Findings

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1. Pupil size reflects divided, sustained, or heightened attention
2. Oculesics in VR produces more complete analysis that on-screen

How oculesics enhances student engagement and performance

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1. Improves efficacy of VR in classrooms
2. Offers deep insights into students' attentiveness