Perceptions of Thai Aviation Students on Consumer Grade Virtual Reality Flight Experiences

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Introduction

- Interested in Thai aviation student perspectives
- Consumer grade VR experiences (PS4/PSVR)
- Pre-existing flight software (Ultrawings)
Ultrawings Software
Methods

• Three third year aeronautical engineering and commercial pilot program international students recruited from Ladkrabang district of Bangkok, Thailand.
• Disclosure briefing on study and VR safety
• 15 minute seated PS4/PSVR Ultrawings virtual reality flight experience
• In-depth qualitative interview follow-up
• Recorded via Otter application and field notes
• Analyzed with thematic coding procedure
Results

Seven emergent themes from respondents:

1) Head mounted device (HMD)
2) Controls and Controllers (CC)
3) Plausibility Illusion (PsI)*
4) Place Illusion (PI)*
5) Embodiment Illusion (EI)*
6) Academic Value (AV)
7) Entertainment Value (EV)

*PsI, PI, and EI as defined by M. Slater, K. Kilteni, & R. Groten
### Discussion

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<th>Pros</th>
<th>Cons</th>
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<tr>
<td>• Simple and easy to use controls</td>
<td>• Limited resolution and Screen Door Effect*</td>
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<td>• Plausible experience that “felt like flying”</td>
<td>• Controls not realistic enough</td>
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<td>• Inexpensive equipment setup</td>
<td>• Lack of haptic feedback*</td>
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<td>• Suitable for a classroom experience</td>
<td>• Lack of virtual body (hands to push buttons)*</td>
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<td>• Preferable to a 3-monitor simulation setup</td>
<td>• Blacked out peripheral vision/delay*</td>
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<td>• Interesting and impressive experience overall</td>
<td>• Cartoonish graphics/aesthetic style*</td>
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<td>• Good predecessor to Redbird flight simulator</td>
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*Known limitations of the study*
Conclusion

Researchers recommend future research utilizing different hardware and software combinations to pursue higher resolution and reduced SDE, realistic physical or virtual controls, inclusion of virtual embodiment, improved haptic feedback, better peripheral vision without delay, and more realistic graphics.
References

Thank you

Q & A