Modeling, Simulation and Training Procedural Skills: User experience and acceptability of a virtual reality simulator for scrub nurses in neurosurgery

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Assess acceptability and user experience of a VR simulation to train procedural skills for scrub nurses with dedicated models and validated tools.

Participants

- PhD students/students/engineers: 8 males, 8 females, mean age: 26.6 (SD = 7.54)
- Expert users in neurosurgery: 13 females, mean age: 42 (SD = 7.7)

Presence

- 4.47/7 (SD = 1.14)
- 5.10/7 (SD = 0.96)

Simulator sickness

- 3.94/33 (SD = 3.39)
- 3.15/33 (SD = 2.97)

Time

- 13.44 min (SD = 3.65)
- 14.71 min (SD = 19.25)

Discussion and Conclusion

- Acceptability of the VR simulator was demonstrated for all participants.
- No statistical significant differences regarding age, gender and expertise.
- Most participants stressed its pedagogical interest, fun and realism.
- VR simulator was validated for initial and vocational training.

Limits

- Small sample size.
- Experts from only one specialty and department.

Following steps

- Measure transfer of skills to the OR.
- Development of Non-Technical Skills (NTS) scenarios.
- Intercultural studies.

Materials & Methods

- Scenario based on annotated video observations recorded in the OR.
- 150 surgical instruments and 50 different interactions.
- Acceptability assessed with the Unified Theory of Acceptance and Use of Technology (UTAUT) questionnaire.
- User experience assessed with NASA TLX (workload), SUS questionnaire (presence) and SSQ (simulator sickness).
- Qualitative data from post test interviews and logs.

Introduction & Purpose

- Assess acceptability and user experience of a VR simulation to train procedural skills for scrub nurses with dedicated models and validated tools.

Results

- Non-expert users: 8 PhD students/students/engineers, mean age: 26.6 (SD = 7.54)
- Expert users: 13 females, mean age: 42 (SD = 7.7)

Presence

- 4.47/7 (SD = 1.14)
- 5.10/7 (SD = 0.96)

Simulator sickness

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