

COMP 210 Research Journal

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1 VR Interfaces and Evaluation

Mentzelopoulos *et al* researched hardware interfaces for VR [1]. They said that a VR interface should be spontaneous and allow the player to understand it with no explanation. They say that a VR system should provide the user with a full field of display, position and body tracking and little delay to player input.[1] Meehan also says that latency is an important factor in VR. Meehan describes high latency as an effect that can hinder or break the player's sense of presence in a virtual environment. Their study showed that in virtual environments designed to cause stress participants with low latencies had larger increases in heart rate and nausea [2]. Their study involved participants playing with either Xbox controllers or Razer motion controllers. The study found the game that used motion controllers to be more. However this could be due to the game not necessarily the controller itself. The study only used 18 participants all of which were computing or computer science which may have led to invalid results. However they stated that the results of the study were unclear and that more research is necessary.

The interface can be evaluated using a heuristics analysis [3, 4]. The analysis can be used identify weaknesses in the interface and improve on them. Pinelle *et al* created a series of heuristics specific to game usability. These heuristics can be used to analysis a VR interface. However Pinelle’s heuristics were not designed for use in VR games some heuristics may not apply or need to be altered. Sutcliffe presented a method based on Nielson’s heuristics to analyse virtual environments [5].

[6]

2 VR Controls

The Frustration — Aggression model says that aggression is caused by a person being blocked from reaching their goals [7]. This can be applied to games as some factor can prevent the player from obtaining their in game goal. Przybylski *et al*’s work showed that it is not necessarily violence in video games that causes player aggression and frustration. They suggest that it is instead competence impeding controls that cause aggression [8, 9]. These competence impeding controls block that player from performing their desired in game action causing frustration.

With VR

Controlling avatars different to own body -link to incompetence - [10]

References

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