A Survey on AR/VR Games for Mental and Physical Public Hearth

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• Problem definition and research aim
• Research questions
• Background concepts
• Method
• Results
• Discussion
• Conclusion
PROBLEM
AND AIM

• Increasing AR/VR games in public daily life

• Aim: usage
  • benefits and problems
  • future feature
• RQ1: What is the usage experience of AR/VR games of the public?

• RQ2: What are the publics’ perceived benefits and problems of AR/VR games for mental and physical health?

• RQ3: What features would the public like to see in future AR/VR games for mental and physical health?
Background concepts
METHODS

- Online questionnaire
- Email, LinkedIn, Twitter
- General information
- Topic-related questions
RESULTS

- 74 answers
  - 18-24 year-old: 17
  - 25-30 year-old: 52
  - 35-44 year-old: 4
  - Over 45 year-old: 1

**TABLE I**
The AR/VR game usage situation out of possible four options.

<table>
<thead>
<tr>
<th></th>
<th>Q3/Q32</th>
<th>Q10/Q39</th>
<th>Q17/Q46</th>
<th>Q24/Q53</th>
</tr>
</thead>
<tbody>
<tr>
<td>VR</td>
<td>38</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>AR</td>
<td>21</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**TABLE II**
The usage frequency of the mentioned AR/VR games.

<table>
<thead>
<tr>
<th>(a week)</th>
<th>VR</th>
<th>AR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q4</td>
<td>Q11</td>
</tr>
<tr>
<td>Less than once</td>
<td>35</td>
<td>4</td>
</tr>
<tr>
<td>2-3 times</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Over 3 times</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Action game</td>
<td>Genres</td>
<td>Games</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>Shooter game</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Rhythm game</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Adventure game</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Role-playing game</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Simulation game</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Strategy game</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Casual game</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: In the "Name/Feature" columns, the italic names are real games, whereas the other ones are only a type of game feature. The number in "[ ]" means the total number of participants mentioning such games.
Benefits

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neither Agree or disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>VR Mental</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>6</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>VR Physical</td>
<td>4</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>AR Mental</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>AR Physical</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>13</td>
</tr>
</tbody>
</table>

Legend:
- VR Mental
- VR Physical
- AR Mental
- AR Physical
Benefits of AR games

• Motivating the player to go outdoors
• Do not need additional equipment
• Good visual experience
• More novel and immersive

Benefits of AR games

• Exercise
• New and improved game experience
• Reduce the limitation of entertainment
• Avoid real danger of experience in a danger-like situation
• Online social community
**Problems**

- **AR games**
  - Addiction
  - Not as much fun as VR games
  - Device problems
  - Risk of traffic accidents

- **VR games**
  - Physical discomfort
  - Device problems
  - Impact on real world
# Future features

<table>
<thead>
<tr>
<th>Purpose</th>
<th>AR</th>
<th>VR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Training and treatment for mental and physical health (depression, stress relief, avoid sitting long time, eye protection, fitness/sport/exercise) 2) Education and communication in health and telemedicine.</td>
<td>1) Train and treatment for mental and physical health (social barriers, autism, Alzheimer, release pressure, promote/improve sleep, help disable people, recover muscle activation). 2) Extreme games, sport, and exercise (skydiving, VR gyms, live football). 3) Education and learning in health ()</td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>1) Better realism and immersion 2) Better sensory experience with tactile feedback</td>
<td>1) Biofeedback. 2) More freedom and interaction, and less distance between non-player characters. 3) Multi-users</td>
</tr>
<tr>
<td>Device</td>
<td>Light AR glasses</td>
<td>1) Multi-senses. 2) Unlimited location of use (break sitting/standing playing mode). 3) Wireless/naked eye VR</td>
</tr>
</tbody>
</table>
DISCUSSION AND CONCLUSION

- The opportunities of AR/VR games in healthy
- The challenges of AR/VR games in healthy
- Limitation: participants age
THANK YOU FOR YOUR ATTENTION!

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