Charting the Audience Perceptions of Projected 3D Media Installations

Objective
The objective of the project is to create more immersive and engaging multimedia presentations, and change from conventional 2D to 3D media by projecting the visual content on a physical object. The purpose is to develop 3D exhibition and learning material, especially for educational purposes.

Creating 3D Projection on Tangible Objects
The demonstration uses a sphere shaped object to project a visualization of rotating Earth on it. The 3D world contains five cameras according to the physical world setup, and each camera represents a projector. The 3D world contains a 3D model of the sphere, which has textures from satellite images.

Comparing audience perceptions of 2D and 3D installations
For the user study, we created 27 word pairs to describe the 2D and 3D installations. Each participant was given two sheets of paper, one for 3D and the other for 2D projection. They were asked to select 5 words that best fit their experience with each installation.

Results
The results showed that 93% of the selected words for describing the 3D installation experience were positive. The words were related to novelty and attractiveness of the presentation. The 2D projection accumulated 65% positive and 35% negative words. Experience with 2D projection is commonly described to be conventional.

Table 1. Five most common words gathered from the user study

<table>
<thead>
<tr>
<th>Word</th>
<th>3D installation total</th>
<th>3D projection total</th>
<th>2D projection total</th>
<th>2D projection percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>conspicuous</td>
<td>15</td>
<td>10</td>
<td>14</td>
<td>9.3</td>
</tr>
<tr>
<td>interesting</td>
<td>15</td>
<td>10</td>
<td>10</td>
<td>6.7</td>
</tr>
<tr>
<td>visually attractive</td>
<td>14</td>
<td>9.3</td>
<td>9</td>
<td>6.6</td>
</tr>
<tr>
<td>serene</td>
<td>13</td>
<td>8.7</td>
<td>9</td>
<td>6.0</td>
</tr>
<tr>
<td>creative</td>
<td>10</td>
<td>6.7</td>
<td>8</td>
<td>5.3</td>
</tr>
</tbody>
</table>

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