A Novel Web-Based Immersive Art Therapy Studio Experience for Individuals with Epilepsy

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1. SPECIFIC AIMS

The primary goal of this project was to generate an animated interactive art therapy studio website for an immersive self-directed educational experience for patients with epilepsy living in rural communities. The targeted audience included patients and family members living in a Northeastern Illinois community (McHenry, IL).

Ils development relied heavily on digitizing precise total body movements, facial motion capture and audio of the actual artists diagnosed with epilepsy. These animated personas described their canvas-based art work, and motivation for creating them.

2. METHODS

The methodology combines the following innovative components:

* Mobile hardware consisting of a 17-accelerometer body tracking system (Xsens), and infrared facial motion recognition hardware (Dynamixyz).

* Animation development software (Autodesk) was used to generate human avatars. Human avatars were capable of connecting fluid facial and body motion data.

* Artwork obtained from the Studio E: THE EPILEPSY ART THERAPY PROGRAM (Lundbeck & Epilepsy Foundation of America) was imported into the website museum scene.

* Data generated by the artist’s animation suit was allocated to the avatar upon importing into Autodesk Motion Builder.

* These animated avatar datasets were them imported into a Unity 3D web-based scene and given components for an immersive gaming experience.

* Pediatric and adult patients followed in a rural community telehealth outreach (McHenry County, IL) were invited to browse the website.

* The user data: 1. traffic origin, 2. traffic location, 3. traffic over time (see Figure 3 below), 4. equipment used, and 5. connectivity monitored using the Web Stat applet.

* An interactive experience milieu provides a novel incentive for individuals with epilepsy to interact with the personas of participating artists.

3. ANIMATED INTERACTIVE EXPERIENCE

- Data generated by the artist’s animation suit was allocated to the avatar upon importing into Autodesk Motion Builder.

- These animated avatar datasets were imported into a Unity 3D web-based scene and given components for an immersive gaming experience.

- Pediatric and adult patients followed in a rural community telehealth outreach (McHenry County, IL) were invited to browse the website. Website visits were tracked over a 3-month period.

- Number of unique visits and visit times were tracked in the virtual room.

4. RESULTS

- The use of wireless whole body accelerometer trackers and infrared facial motion recognition hardware provided accurate 3D output of participating artists as avatars with complex body and face movements.

- *Website Traffic Over a 4 Month Period:*

- Website visits were tracked over a 3-month period.

- *This immersive art therapy web-based experience demonstrated a proof-of-concept for an individual-specific self-guided patient experience.*

- *An interactive experience milieu provides a novel incentive for individuals with epilepsy to interact with the personas of participating artists.*

- *The user-guided experience more readily connects the experiences and challenges of artists living with epilepsy with those of the end-user.*

- *The visualization-intensive strategy can be capitalized on to provide a self-paced immersive and interesting educational experience for the end-user.*

- *The website can be accessed at: http://www.synapticom.net/videos/.*

5. CONCLUSIONS

- *This immersive art therapy web-based experience demonstrated a proof-of-concept for an individual-specific self-guided patient experience.*

- *An interactive experience milieu provides a novel incentive for individuals with epilepsy to interact with the personas of participating artists.*

- *The user-guided experience more readily connects the experiences and challenges of artists living with epilepsy with those of the end-user.*

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