Sonic Thinking in VR: Incorporating sound into the S.T.E.A.M curriculum and Data-Driven Installations

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Abstract

While most people are aware of the importance of the sonification of VR gaming feedback (or in an immersive virtual experience), an awareness of the importance of sound in a true interdisciplinary approach to learning in STEAM-centric VR education platform is often overlooked. As educators and artists working in industry and at a university, we understand that game sound is essentially data sonification—it notifies the participant where they are and what they are doing. We believe that the sonic portion of a gaming environment should be taught as an integral portion of the curriculum for any VR class. At VRWorld we are using Maxwell Harper's *Harmony Space* because it enables students to quickly sonify space in itself, drawing the students attention to sonic feedback and the possibility of integrating musical cues. Many emerging media and edu-tech programs under-employ sonic elements in their curriculum which profoundly under-serves students in working with technology that is designed to incorporate sonic elements. *Harmony Space* is an application that "is a musical thinking tool. It remaps one's spatial sense to their auditory sense. Users positional coordinates, X (left,right), Y (up, down) and Z (forward, back), become pitch-shift controllers of 3 separate, respective musical tones. This allows users to traverse musical-chord-space or as Max Harp title it, 'harmony-space.' " Our own artist collective arts.codes often works in an educational content, and we rely heavily on sound to provide feedback and relay information. We use data to undergrid as many elements of our installations as possible: in our VR experience and physical installation **háček**, IP data logs were visualized, sonified and lightly gamified, and in our VR project with Brookhaven National Laboratories, **glass_menagerie,** we will use sound as an integral portion of the sensual experience of the collection data on nanoparticles. It is possible to create a compelling soundscape and/or musical environment that can also add an understanding of data to a VR experience, and these tools should be taught as a comprehensive portion of VR education.

References:

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