

41. Learning with your body as interface

Learning in the 21st century puts high value on cooperation, personal involvement and creativity on the one hand, and digital skills on the other hand. In most of these digital skills the human body hardly plays a role, apart from typing on a keyboard. However, it is well known that the body does play an important role in learning. The mind uses and grows out of such bodily capacities.



Especially for the use at schools, we have developed three balance objects (Rolling Stairs, Cylinder and Seesaw) that help teenagers to learn with their body as an interface. Each object has sensors and is connected to an audio box. Teenagers can stand on an object and try to reach a balance. Depending on their movements, they hear different musical sound as a feedback. The sounds motivates them to change their posture. The objects evoke body awareness and emphasize the natural functionality of our bodies, like standing up, climbing, stretching and balancing. All objects aim to be silenced by the user, as silence is taken as the ideal state-of-mind to focus on the embodied self.

ICT science question

How to design interactive devices in which the body itself becomes the interface? What do we learn about the borders of the body while it interacts with these sensory devices? How easily does the body consider these objects as part of itself?

Comparing our prototype objects with other devices, using the body as interface like Wii Fit Plus, the feedback loop that we use is unique. The participant is not only focused outwards, towards the screen, but the objects constantly lead the focus back to the sensation of the moving body itself.

Application

All our balance objects have a different purpose in an interactive game between the user and the object. The Cylinder is an empowerment tool focused on finding balance. The participant discovers



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the sensation of grounding the body while making different power poses like stretching up. Cylinder and Kinect camera are programmed to trigger loud noise when 'the performer' is not standing in the desired position on the object. When standing and moving in the right manner, it quiets down. The Rolling Stairs are a way to explore collaboration between two users. Interaction is focused on 'balancing' between different types of collaboration. The Stairs are programmed to trigger single notes or parts of melodies. Collaboration may lead to melodic lines, rhythms, musical compositions and finally silence as the ultimate composition. Our balance objects have great potential for use in special needs education (e.g. related to performance anxiety, ADHD and concentration problems), mental health care (anxiety and obsessive-compulsive disorder) and children's rehabilitation (cooperation, motivation, motor development, neuromotor impairments).

Alternative Application

The found knowledge can be applicable in ICT and other domains, like rehabilitation, physical exercise, personal coaching, presentation, leadership training, etcetera.

Nice to know

Our project was screened in the NTR TV education special '10x Beter': <http://waag.org/nl/nieuws/embodied-learning-op-tv>. Our project was nominated for the IPON Award 2014: <http://event.ipon.nl/genomineerden-ipon-awards-2014>



Cylinder, Rolling Stairs, and Seesaw are a series of balance objects, developed to enhance corporal literacy.



We aim at providing a feedback loop that stimulates focus on the moving body itself.



The concept of natural interaction with technology has a great potential for special needs education, mental health care and rehabilitation.



We promote natural interaction with technology through incorporating senses and the body.



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Kennisnet

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