

MAKING SENSE OF BODY AND SPACE THROUGH FULL-BODY INTERACTION DESIGN: A Case Study

Marie-Monique Schaper, Narcis Pares
Universitat Pompeu Fabra, c. Roc Boronat 138, 08018 Barcelona, Spain
{mariemonique.schaper, narcis.pares}@upf.edu



PURPOSE OF STUDY

Participatory Design (PD) approach which combines bodystorming techniques, physical theater practice and low-tech prototyping activities. The aims of the study are:

- (1) enabling children to express design ideas through multiple modalities, such as crafting, oral expressions and body actions,
- (2) exploring design techniques that promote bodily and spatial awareness and could help children to integrate those qualities in their design proposals.

APPLICATION CONTEXT

Design process of a learning environment which will allow users to explore the meaning of magic through an interactive experience based on Full-Body Interaction.

The Full-Body Interaction Learning Environment (FUBILE) is planned to be displayed in the context of a theater event of Shakespeare's play *A Midsummer Night's Dream* in a culture center in Barcelona, Spain.

The goal of the FUBILE is to contextualize the core concepts of the play, i.e. to facilitate users to better understand Shakespeare's interpretations around the differences between reality and illusion.

METHODS AND PROCEDURE

Details study:

- Four consecutive weeks (one session per week) in a culture center of Barcelona
- 12 children (girls = 4; boys = 8) between 10 and 12 years old
- Each session lasted for 90 minutes (45 minutes warm-up activities and 45 minutes PD workshop)
- Our activities were built around Shakespeare's theater play *A Midsummer Night's Dream* that was being rehearsed in the theater workshops.
- The sessions were audio and video recorded.

SESSION 01 Exploring and signifying the space



- Exploration of children's interpretations and preferences towards the play.
- Children defined their favorite scenes of the play and wrote them down on post-its.
- Children were separated into groups of four and provided with one camera per group. They were asked to take pictures of spaces in the culture center in which these scenes could be enacted.

SESSION 02 Definition of the learning topic



- Children classify their own contributions (post-its and photos) from the previous session into three main topics of the theater play, namely: love, magic and dream.
- After that, we assigned each topic to one physical space of the workshop room. Through a bodily-based activity, the children selected the topic they liked the most.
- The majority of the children chose the theme "magic" as the core working topic for the design of the final FUBILE.

SESSION 03 Using small-scale models of body and space



- Children made flexible puppets with different materials.
- Each group selected one space of the culture center and produced a small-scale model of it.
- We asked them to tell us what concepts came to their minds when thinking about "magic".
- Children represented one of those concepts related to "magic" with the puppets and the small-scale model.

SESSION 04 Bodystorming in a simulated environment and in situ



- Children were introduced to two different bodystorming activities based on physical theater practice, namely: *The Machine* and *Slow-Motion* techniques.
- Children were instructed to enact specific body actions related to the narrative of their design proposal both in the workshop room and in the physical space of the culture center they selected in the previous session.

RESULTS

- (1) Through the different proposed activities, the children paid more attention to their subjective space, their proxemics and to the specific embodied constraints and affordances of the environment.
- (2) It helped them to think about initial ideas of the content, body actions and interaction between different users for the design of a FUBILE.
- (3) In all three groups, we observed that when the children enacted body actions in situ, that the quality

of their performances was positively influenced by physical objects and the specific spatial configuration of each environment.

- (4) The experience in situ primed the children in two groups in their interaction behavior and facilitated them to incorporate proxemics and certain aspects of the embodied constraints in the final group presentation without having the real environment physically present.

DISCUSSION AND FUTURE WORK

Our PD approach is effective in promoting children's awareness towards bodily and spatial aspects of their proposals. We encourage linking the design of FUBILES and Full-Body Interaction to the physical world in which they will be situated.

Questions remain about how we can translate children's interaction design ideas to the technology used in Full-Body Interaction. Further considerations should investigate design methods which bridge the gap between bodystorming in situ and how children can be allowed to translate those ideas to large-scale prototypes for FUBILES.