

Design of Augmented Creative Environments

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ABSTRACT

In this short paper we present the conceptual framework underlying research projects in a newly established research studio concerned with the design of technology-augmented creative environments. The studio investigates design-oriented collaborative environments for inspirational learning with demands on discovery and creative spaces. This is integrated with inquiries into artistic performance as creative practices. We have a collaborative learning research approach and emphasize the importance of place and body (synkinaesthetics) in collaborative learning. Important contexts are performing arts as creative practices and inspirational learning in design education.

Keywords

Creative practices, design education, inspirational learning, synkinaesthetics, performing arts

DESIGN OF LEARNING ENVIRONMENTS

Arts and Communication at Malmö University organizes research in cross-disciplinary design-oriented studios. A recently initiated research studio is concerned with the design of technology-augmented creative environments. We investigate the design of environments for learning, understood as places for collaborative creative activities, by addressing the fundamental intrinsic interplay between interactive media technologies, space (including architecture) and creative practices in design and the arts (especially, theatre and performance). The research work has a special focus on physical spaces and leading-edge technologies for rich multi-user multi-site interaction and ubiquitous computing, as opposed to the more traditional focus on individual personal-computer based learning.

Time, place and cooperation

New conceptions of learning can be summarized in three important concepts for future research which relate to the design of learning environments: *Time*: Learning takes place over a long period in life. It is a process of knowledge construction, which itself is knowledge-dependent; people use their existing knowledge to construct new knowledge. *Place*: Learning takes place in a variety of environments. Learning design has to take into account distributed cognition requiring knowledge in the head to be combined with knowledge in the world. *Cooperation*: Learning is part of collaborative processes in professional and educational settings. Education is incorporated as part of collaborative work activities fostering growth and exploration. These trends in learning research are supported by Resnick (1989), Norman (1993), and in learning theory by Lave and Wenger, (1991), Fischer (1996). A 'paradigm change' is on its way with learning environment, which will influence our whole everyday environment. Where the CSCW field mainly has been based on an integration of sociological and computer science perspectives, research on creative environments for learning should broaden the perspective to also encompass concepts, ideas and methods from design, architecture, cognitive science and the creative arts by strengthening the importance of space and of designing interactive systems which allow for the use of more senses. An important aspect of learning relates to the coupling of mind and body. Learning a process taking place in a community of practice; a creative activity supported by close interaction between senses and mind. We should design for synkinaesthetic interaction (Kirkeby and Malmborg 1995). Using a kinaesthetic approach to interaction design is also suggested by Svanæs (1997) as a way to design interaction with our physical environment. Svanæs uses the term 'kinaesthetic thinking' to signify direct cognitive operations on tactile-kinaesthetic sense experiences. Synkinesthetic interaction is to a large extent 'tacit' in the sense that it is not simply the manipulation of symbolic representations. Creation and expression of meaning is embedded in body movements.

Performing arts – the study of 'creative practices'

The study of how to design environments that support creativity benefits from the study of creative practices, or what people actually do when they behave in a manner that we generally agree is creative. Some of the clearest domains in which to study this are the creative arts, the crafts and theatre. This does not mean that we are only interested in developing environments to support this kind of creative work, but rather that we expect to find practices that have been devised in order to maximize creative potential. We hope to be able to learn from these practices, and to generalize from them in order to enhance creative practice in other human endeavours. We avoid the term 'creativity', concentrating instead upon specific practices: creative practice being seen as a mode of human interaction with the world. While technical practice adopts values such as formalism, information, logical reasoning, precision, detail, correctness and completeness, by contrast, creative practice tends towards communication, visual, spatial, textual and aural representations, ambiguity, abstraction, intuition and imagination. What is significant, is that the term 'creative' is here not simply applied to a particular individual,

profession or occupation, but can be applied to any human endeavour. The co-existence of these two modes of interaction within the same project is problematic because of the different value systems they espouse. Our aim is to facilitate this co-existence in a constructive way. We aim to explore these issues of mediated communication through theatre performances that are both valid in their own creative terms, and explore key issues of representation and communication with respect to contemporary digital technologies. Through a series of performances we hope to produce interesting theatre that appeals to a theatre audience as well as raising and clarifying issues about communication within design. We think it may increase our understanding of technologically mediated communication and of spatial metaphors. But perhaps most significantly for this audience, it may lead to the idea of 'boundary practices' and their role in brokering design activities in communities where different stakeholders have not just different languages, but different value systems

Design education – the study of inspirational learning

We are interested in the design of technology-augmented environments for "inspirational learning" as it takes place in environments like the design studio or the master class in architecture, design and art. The inspirational learning environments that we envision are dedicated physical places where people in collaboration can establish and explore a particular thematic learning space by activating, manipulating, combining and assembling configurations of representational objects of mixed media origin. In such environments learning is stimulated by the presence of inspirational resources – images, music, film, samples of materials, everyday objects, which provide an element of surprise and discovery and help see things differently. An inspirational learning environment allows for novel forms of interactivity, such as: imprecise, fluid forms of categorizing inspirational material; digitally augmented physical 'things-to-think-with'; building one's own collection of material across digital media and physical objects; creating exhibitions of relevant materials within a project-specific environment, making one's learning experiences visible and sharing them with co-present and distant others. Especially we have found inspiration for this approach in the Wunderkammer concept (Büscher et al 1999), (Lainer and Wagner 2000). This is also the background for our ATELIER project (architecture and technology for inspirational learning environments). While many projects focus on distance learning, the ATELIER project starts out from face-to-face interactions with people and material artefacts in physical places and asks how we should enhance such environments to turn it into a resource for inspiration and creative learning. Inspirational learning and technologies will be explored at two sites: A "traditional" master-class in architecture, which is contrasted by the setting of an interaction design graduate program studio. While architects' work space is rich with multi-medial materials and artefacts, much of the interaction designers' work environment is concentrated in the screen, but at the same time more collaborative and open to exploring the possibilities of facilitating sharing and interactivity across temporal and spatial boundaries. The project will proceed through a combination of proactive ethnographic fieldwork and participatory design.

REFERENCES

- Büscher, M, Kompast, M, Lainer, R, Wagner, I (1999). The Architect's Wunderkammer: Aesthetic Pleasure & Engagement in Electronic Spaces, *Digital Creativity* 10,1, 1-17.
- Fischer, G. (1996) Learning & Intelligent Systems. NSF Symposium (June 26th 1996).
- Kirkeby, O. F., and Malmborg, L. (1996) Imaginization as an approach to interactive multimedia. In: B. Gorayska (ed.) *Cognitive Technology*. North Holland/Elsevier.
- Lainer, R, Wagner, I (2000) Silent Architecture - Narrative Technology. *Digital Creativity* 11,3, 144-155.
- Lave, J., and Wenger, E. (1991) *Situated Learning: Legitimate Peripheral Participation*. Cambridge Univ. Press, NY.
- Norman, D. (1993) *Things that make us smart*. Addison-Wesley, Reading, Ma.
- Resnick, L.B. (ed) (1989) *Knowing, Learning, and Instruction. Essays in Honor of Robert Glaser*. Lawrence Erlbaum Ass, Hillsdale, NJ.
- Svanæs, D. (1997) Kinaesthetic Thinking: The Tacit Dimension of Interaction Design. *Computers in Human Behavior*, 13, 4, 443-463.