



This is an electronic reprint of the original article. This reprint may differ from the original in pagination and typographic detail.

Please cite the original version: Kivilehto, S. ; Malin, A. & Rätty, M 2015, What is a multisensory tent? Developing multisensory method and new learning environments. in Mafalda Carmo (ed.) END 2015: International Conference on Education and New Developments, 27-29 June, Porto, Portugal: Proceedings. World Institute for Advanced Research and Science (WIARS), Lisbon, pp. 315-318, International Conference on Education and New Developments, Porto, Portugal, Portugal, 27/06/2015.

URL: http://end-educationconference.org/wp-content/uploads/2015/09/END2015_Book-of-Proceedings.pdf

WHAT IS A MULTISENSORY TENT? DEVELOPING A MULTISENSORY METHOD AND NEW LEARNING ENVIRONMENTS

Sari Kivilehto¹, Anne Malin¹ & Minttu Rätty²

¹*Department of Teacher Education, University of Helsinki (Finland)*

²*R&D&I Department, Laurea University of Applied Sciences (Finland)*

Abstract

The aim of this research project is to develop a multisensory method and new learning environments. The central element of the project is an easily adaptable multisensory tent which is a space that gives experiences to different senses. The interior of the tent could contain sounds, smells, tastes and different items that lead users of the space to experience different atmospheres and feelings. Building a tent generates a material artifact but the process of planning and building a tent is also important. The building process encourages students to communicate and interact with one another and activates their learning. Researching the multisensory method has been a developmental process in which new approaches to and uses for the multisensory method have been created. This study describes three pilot studies which were carried out during 2013 and 2014. Data has been collected by interviewing the students and partners who took part in these pilot studies.

In Kivilehto's pilot study the aim was to enhance creative problem solving of students by building multisensory tents. Multisensory tent was a learning environment where students were able to practice new ways of creative and critical thinking by using a tent as a tool for learning. The results pointed out that building of the tents forced the students to innovative thinking processes and common knowledge building. In Malin's pilot study the aim was to create a physical learning environment by building a multisensory tent to an open learning environment in a museum. Students interacted with each other, with the visitors of the museum and with the physical environment. The results showed that acting in an open learning environment and meeting the visitors opened up new learning experiences and processes. In Rätty's pilot study the aim was to create multisensory tents as a means of multicultural education that works as a promoter of interaction of different groups and as a tool for identity negotiations. Multisensory method enables students, immigrants and different partners of working life create a process that enhances the interaction between different cultures. The results showed that understanding between the cultures increased during the common processes.

Keywords: *Multisensory method, multisensory tent, open learning environment, creative problem solving, identity negotiation*

1. The background of the study

The concept of the Multisensory Space has been further developed in Finland, at Laurea University of Applied Sciences since 2007. During 2009-2010 the method was advanced in a project called *Encounters in multisensory space* and in 2011-2014, in another project entitled *With All Senses – Developing Open Learning Environments (Aistien – Avoimia oppimisympäristöjä kehittämässä)*. This continued the development and promotion of the method. (Rätty, 2011; 2014.)

The use of multisensory teaching has been studied previously to some extent. Multi-sensory impulses have been shown to promote learning. Two sensory channels coming through the stimuli have been used, for example in mathematics and language learning. (Shams & Seitz, 2008; Jubran, 2012.) On the other hand, sounds and smells can trigger a learner to connect events and information which have been previously learned. (Lehtinen, Haapala & Dahlström, 1993.) In our study we approach the use of different senses more from the point of view of how they can create an inspiring and phenomenal learning environment. A comfortable and activating learning environment awakens a student's enthusiasm for learning. (Jensen, 1998; Stoffers, 2011.)

In this study the multisensory method leans on the theory of socio-constructivism (Vygotsky, 1978; 1987.) that emphasizes the impact of collaboration and negotiation on thinking and learning.

Interaction with the social and physical context is also important. We examine the multisensory method through the lenses of the models of investigative learning (Hakkarainen, Lonka & Lipponen, 2001), collaborative knowledge building (Bereiter, 2002) and the experimental learning environment. (Stoffers, 2011.) The aim is to develop a multisensory method in the building processes of multisensory tents and to focus on cognitive (Kivilehto), physical (Malin) and multicultural (Räty) perspectives of learning.

2. Three pilot studies

During 2013 we began co-operating with the University of Helsinki and the Laurea University of Applied Sciences to further the pedagogical development of the multisensory method. The students of Home Economics education in the Department of Teacher education in University of Helsinki became acquainted with the multisensory method as part of their studies. The aim of the project was to plan and build multisensory tents to open learning environments in two museums. The pilot studies in the University of Helsinki were carried out in two different study modules.

2.1. Collaboration with the Museum of Technology

The Museum of Technology is a specialized national museum, whose mission is to store, study and present information on the development of the technical field and industrial production in Finland and their impact on society and living conditions. It is the only general museum of technology in Finland. The Museum of Technology highlights basic technological phenomena, technical inventions and industrial processes, and tells a story about Finland and the Finns.

In Kivilehto's pilot study the students (first year students) collaborated with the Museum of Technology. The students of home technology put the history of laundering into practice. They built multisensory tents which contained representations of washing clothes, laundry detergents and the post-processing of laundry. When the students started the project four different working groups were established. One was a technical group that took care of pictures, sounds, effects and lights, for example. The second group was a knowledge group that searched for written material and relevant literature. The third group was a material group that gathered relevant supplies, equipment and appliances. The fourth group was a teaching and guiding group that planned learning material and a guided tour for pupils visiting the museum.

In Kivilehto's pilot study the aim was to enhance the students' cognitive and creative problem solving skills. The Multisensory tent was a learning environment where students were able to practice new ways of creative and critical thinking by using a tent as a tool for learning. The intention was to find out whether the building of the tents led students to innovative thinking processes and common knowledge building. (Kivilehto, 2011.)

2.2. Collaboration with the Hotel and Restaurant museum

The Hotel and Restaurant Museum is specialized in the history of hotels, restaurants, cafés, tourism and Finnish culinary culture. The permanent exhibition covers the history of catering and also the history of alcoholic beverages and the sale of alcohol in Finland.

In Malin's pilot study 3rd and 4th year students collaborated with the Hotel and Restaurant museum. The students planned and built two tents dedicated to the topics of *Everyday Home* and *Children's Party*; spaces that were part of the changing exhibition under the theme *Taste of 80s*. The exhibition introduced Finnish culinary culture in the 1980s. Besides planning and building multisensory tents, students also organized workshops with the museum personnel and gathered the experiences of visitors in written form.

The aim of Malin's pilot study was to create a new type of physical learning environment by building a multisensory tent as an open learning environment in a museum. Students worked in close co-operation with museum personnel and with visitors to the museum. In this study knowledge was gathered of how students used the multisensory tent and how it functioned in an open learning environment. The intention was to find out whether building the tents and meeting visitors opened the students up to new learning experiences and processes. (Malin, 2011.)

2.3. Multicultural studies in Laurea University of Applied Sciences

In Laurea's learning concept, the Learning by Developing (LbD) model, learning takes place in working place-oriented projects in which students, lecturers, working place experts and customers work together to develop innovative solutions. Working together leads to competence that allows students to manage diverse situations in the constantly changing world of work. (Taatila & Raj, 2011.)

The aim of Räty's pilot study was to create multisensory tents as a means of multicultural education that works as a promoter of interaction between different groups and as a tool for identity

negotiations. The multisensory method enables students, immigrants and different partners of working life to create a process that enhances interaction between different cultures. (Jenkins, 2008.) The intention of this study was to find out how the process of building a multisensory tent enhances social interaction and understanding of different cultures and promotes co-operation between students and other actors.

3. The implementation of the study

During the spring of 2014, all the students that took part in the pilot studies were interviewed in a group interview. There were eleven 3rd and 4th year students and 36 1st year students from the University of Helsinki. There were also 25 students from Laurea University of Applied Sciences. Data was also gathered from the blogs and reports that students have produced during their studies in social methods. From the blogs one is able to follow the development of phenomena based learning.

All of the interviews were tape recorded and transcribed. For closer examination, content analysis was used to analyze the data. From the data gathered one seeks the answer for the question: *what kind of collaborative process is the building of a multisensory environment?*

4. Results

The students of the University of Helsinki that worked with the museums built the movable version of the multisensory space in the middle of an exhibition or in the lobby of the museum. The space was simple; a simplified version of reality. There were different sense-stimulating elements: an image or images were projected on the wall as a landscape, and there were some artifacts to touch and feel in the tents. There was also something to smell and taste.

At the beginning of the project it was challenging for the students to find objects which were from the right historical period, and which would also inspire visitors joining the discussion and exploration of objects, and the theme in general. Many students mentioned that it was challenging to keep the environment simple and at the same time give visitors enough information.

To build the multisensory spaces successfully students had to make careful background inquiries and theoretical studies. Because of the time limit students had to share duties, but there was also the need for continuous discussion and coordination between the groups. The groups which could define together the common goal and the mission of the space as exactly as possible before the practical building of the multisensory space got the best result. In Kivilehto's study the results also pointed out that building of the tents forced the students to innovative thinking processes and common knowledge building.

Many students noted that the most important learning experience was learning about the group work. They understood the need to prepare processes and timetables and clarify the roles of group members. Many commented that learning how to solve problems in a group and being aware of one's own behaviour in the group were valuable experiences. Students realized that they had different individual ambitions and objectives regarding the project, and their studies in general, and that meant that they had to discuss the role of each student in the group. The results of Rätty's study showed also that understanding between the cultures increased during the common processes.

Many students also mentioned that the most meaningful experience was learning about project work and about organizing an event. They appreciated the possibility to cooperate with the museums and saw it as very valuable experience for the future. The results of Malin's study showed that acting in an open learning environment and meeting the visitors opened up new learning experiences and processes.

Most of the students gave positive feedback about the design of the course; namely that they had to integrate the theoretical studies with practical action. The practical action gave them ideas about their futures work as teacher, how to plan active and participatory teaching methods.

References

- Bereiter, C. (2002). *Education and Mind in the Knowledge Age*. New Jersey: Lawrence Erlbaum Associates.
- Dillenbourg, P. (1999). *Introduction: What do you mean by "collaborative learning"?* In P. Dillenbourg (Ed.), *Collaborative Learning: Cognitive and computational approaches* (pp. 1-19) Amsterdam: Pergamon, Elsevier Science.
- Hakkarainen, K., Lonka, K. & Lipponen, L. (2001). *Tutkiva oppiminen. Älykkään toiminnan rajat ja niiden ylittäminen*. Porvoo: WSOY.
- Jenkins, Richard. (2008). *Social Identity*. London & New York: Routledge.

- Jensen, E. (1998). *Teaching with the brain in mind*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Jubran, S. (2012). *Using multisensory approach for Teaching English Skills and its Effect on Students' Achievement at Jordanian Schools*. Retrieved 21.11.2014 from: <http://eujournal.org/index.php/esj/article/viewFile/419/567>
- Kivilehto, S. (2011). *"I will soon understand". The Home Planning Program as an Enhancer of Pupils' Thinking Skills and Learning in Home Economics at Comprehensive School*. University of Helsinki. Department of Teacher Education. Academic dissertation. Home Economics and Craft Studies Research Reports 27. Helsinki: Unigrafia.
- Lehtinen, U., Haapala, M. & Dahlström, R-M. (1993). *Aistien avulla oppimaan. Lähestymistapoja vaikeasti monivammaisten henkilöiden kehityksen tukemiseen*. Helsinki: Kirjayhtymä Oy.
- Malin, A. (2011). *Home Economics Classrooms as Part of Developing the Environments – Housing Activities an Curriculums defining Change*. University of Helsinki. Department of Teacher Education. Academic dissertation. Home Economics and Craft Studies Research Reports 26. Helsinki: Unigrafia.
- Räty, M. (2011). *"The Multisensory Space" – a new method for Multicultural Education and Support of Cultural Identity*. Article ICERI2011. Proceedings CD in Shams, L. & Seitz, A.R. (2008) Benefits of multisensory learning. Trends in Cognitive Sciences 721.
- Räty, M. (2014). *"The Multisensory Space" – a new learning environment*. Article ICERI2014. Proceedings CD.
- Shams, L. & Seitz, A.R. (2008). *Benefits of multisensory learning*. Trends in Cognitive Sciences 721.
- Stoffers, M.A. (2011). *Using a multi-sensory teaching approach to impact learning and community in a second grade classroom*. Master of Science Thesis in Teaching. Rowan University. New Jersey. USA.
- Taatila, V. & Raij, K. (2011). *Philosophical Review of Pragmatism as a Basis for Learning by Developing Pedagogy*. Educational Philosophy and Theory.
- Vygotsky, L. S. (1978). *Mind in Society*. The Development of Higher Psychological Processes. Cambridge: Harvard University Press.
- Vygotsky, L. S. (1987). *Thought and language*. Edited by A. Kozulin. Cambridge, MA: MIT Press.