

Short Term Scientific Mission Report

COST Action IS1410

Digital Literacy Skills and Practices in the Early Years (DigiLitEY)

Report

Fostering Emergent Literacy Skills with Digital Manipulatives¹

STSM Researcher

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Host

Prof. Eva Irene Brooks, Director of the Xlab: Design, Learning, Innovation (DLI) at Aalborg University, Denmark.

Duration

March 26th - March 31st 2017

Aim

- To carry field studies in two Danish kindergartens using TOK² in order to observe how children use the tool;
- To interview Danish teachers about the potential of digital manipulatives, focusing particularly on the use of TOK by the Danish children, in order to access difficulties, advantages and strategies to integrate such materials in class;
- To foster collaboration with Prof. Eva Brooks and the Xlab: Design, Learning, Innovation (DLI);
- To collaboratively perform empirical research focusing on the design and development of innovative products for children, as well as evaluation methods targeting early education.

¹ Digital manipulatives have emerged as particularly interesting powerful challenges for the instructional paradigm of interaction as they allow exploratory and expressive activities, expanding the range of concepts that children can understand and dramatically improving accessibility to younger children.

² TOK (Touch, Organize, Create) is a digital manipulative for creating stories. For more information please see the references or visit:

<https://sites.google.com/a/engagelab.org/www/projects/tok>;

Researchers Involved

During the STSM I have worked closely with Prof. Eva Brooks and with Lisa Tümmeler, a Master student in Media Literacy: Audiovisual Culture and Communication at the Otto-von-Guericke University in Magdeburg and currently doing a study at LEGO in Billund.

Timetable and Work Carried Out During the STSM

March 28th 2017 || 10.00 - 12.00

- Presentation of my current investigation followed by a discussion at the Open Seminar hosted by XLab (Aalborg University) focusing on the questions of how digital and analogue media and interactions can foster literacy skills in pre-primary and primary education.

March 29th 2017 || 9.00 – 11.00

- Field study in a Danish kindergarten, Toftlund (Tønder municipality), southern Jutland;
- Teacher interviews.

March 29th 2017 || afternoon

- Meeting at LEGO Billund, with the Director of the Creative Technology Department where I have presented the work carried out with TOK as well as showcasing the interface;
- Discussion on playful learning experiences and the potential of TOK to foster creativity and learning.

March 30th 2017 || 9.00 – 11.00

- Second field study in a Danish kindergarten, Rainbow Skærbæk (Tønder municipality), southern Jutland;
- Teacher interviews.

March 31st 2017

- Working meeting with Prof. Eva Brooks and Lisa Tümmeler, reflections on the work carried out and planning for ongoing and future collaborations.

Outcomes from the STSM

- During the STSM, Prof. Eva Brooks and I worked together on the final version of a WIP paper to submitted to MobileHCI 19th International Conference on Human-Computer Interaction with Mobile Devices and Services
<http://mobilehci.acm.org/2017/index.html>
- Based on the data collected during the field studies, Prof. Eva Brooks, Lisa Tümmeler and I are working on a joint submission to the Design Learning and Innovation Conference
<http://designlearninginnovation.org/2017/show/home>

- Furthermore, we worked on an article to submit to the International Journal of Child Computer Interaction
<https://www.journals.elsevier.com/international-journal-of-child-computer-interaction/>
- Organization of a Special track at the 2nd EAI International Conference on Design, Learning & Innovation.
The special track focuses on young children's increasingly use and exposure to digital technology, which poses new challenges to practitioners and researchers. The special track aims at bringing together researchers and practitioners from cross disciplinary fields, to share and reflect upon their experiences and identifying benefits and constraints targeting advancement of knowledge in this area.
- Edition of a call for a Special Issue to be published in the International Journal of Child Computer Interaction.
- Organization of a (3 days) joint Work Seminar at the beginning of October to be held in Portugal.
- Submission of a R&D project proposal to further develop the TOK interface to be submitted to the FCT Portuguese Foundation for Science and Technology together with Prof. Eva Brooks, XLab (Aalborg University), and the LEGO Foundation.

Reflections and Considerations

The STSM was a very intensive and fruitful time with many new insights and opportunities. Further, the STSM provided the context to discuss relevant investigation topics, to work with Danish preschoolers and their teachers and to deepen work collaboration.

I would like to Thank the COST Action IS1410 for providing this opportunity, as well as Prof. Eva Brooks for the outstanding generosity, hospitality and support provided during the STSM.

References

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Sylla, Coutinho, C., Branco, P., Müller, W. (2015). Investigating the use of digital manipulatives for storytelling in pre-school. International Journal of Child-Computer Interaction. doi> 10.1016/j.ijcci.2015.10.001.

Sylla, C., Coutinho, C., Branco, P. (2014). A Digital Manipulative for Embodied "Stage-Narrative" Creation. *Entertainment Computing*, 5(4), pp. 495-507. doi> 10.1016/j.entcom.2014.08.011.

Sylla, C., Coutinho, C., Branco, P. (2015). Play Platforms for Children's Creativity. In N. Zagalo, P. Branco (Eds.). *Creative Technologies - Create and Engage Using Art and Play*. *Springer Series on Cultural Computing*, ISBN 978-1-4471-6680-1.