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Daidsen, Jacob

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Touch technologies in primary education: Patterns of coordination, collaboration and participation in children's activities in an ict-intensive learning environment

By Jacob Davidsen

eLearning Lab, Department of Communication, Aalborg University, Denmark

This paper presents findings from a longitude project on children's use of interactive touch screens in classroom-settings. By exploring and analysing interaction among pairs, children's collaborative activities are under study, and it is highlighted how touch technologies invites for a more symmetrical interaction partnership in terms of power over workspace, control, method and solution.

Keywords: touch technologies, peer learning, participation patterns, collaboration, ict-intensive environments

Introduction

Touch technologies are pervading many aspects of our lives. Many schools in Denmark and many other countries invest in tablets, interactive tables and Interactive Whiteboards (IWB) to augment teaching and learning. Through the last decade some people have suggested that the IWB would transform and revolutionize education (lately this enthusiasm has been directed towards iPads). However, most of the enthusiasm was produced without really knowing if and how IWB's could facilitate change (Gillen, 2007). Slowly and steadily the field of educational technology research has begun focusing on pedagogical practices, when integrating touch technologies in classrooms, but most of these studies primarily scrutinize teachers' use of technologies for teaching (Mercer et al., 2010). Hence, we are lacking knowledge about how children interact with touch technologies in classroom settings and if such an environment promote and afford new learning possibilities for children. Recent studies from classroom settings where students work with ICT show that teachers often help with technical issues and to a lesser extent are involved in a learning dialogue with the pupils (Davidsen & Georgsen, 2010; Klerfelt, 2007). Kennewell et al. (2007) state that (touch) technology's potential for children's learning depends on the teacher's guidance in the learning situation. Furthermore Kennewell et al. argue that a higher degree of learner control creates space for reflection, activity and participation among students (2007). Because students' independent and self-directed learning with touch technologies has not been scrutinized in detail in any of the before mentioned publications, it is relevant to explore the implications of touch technologies in learning environments. Especially, it is important to analyse if touch technologies augment children's learning, collaboration and concept development.

Aim and findings

By analysing extracts of a large video data corpus this paper highlights how the children interact with the touch screens (see (Davidsen & Georgsen, 2010) for further details). Researchers have collected more than 150 hours of video, where 41 learners aged 8-9 and 3 teachers have worked in an ict-intensive classroom throughout one school year. In each classroom eight interactive touch screens and an IWB have been placed. Teachers and learners work within the same technological work space with similar software tools (Davidsen & Georgsen, 2010). Hence, children have exactly the same design for learning at hand (only

on a smaller screen) when they team up in pairs in front of the touch-screens. A rule of thumb in this context is to keep the designs for learning as simple as possible and promote more advanced interaction patterns between the learning pairs e.g. minimise computer guided interactivity and feedback.

Analytically this work is inspired by Conversation Analysis and Multimodal Analysis (Norris, 2004), which combined forms a basis for understanding human computer interaction in depth and detail both in terms of language and bodily interaction.

At this stage findings suggest that;

- Touch technology invites for a more symmetrical interaction partnership between children in terms of power over workspace, control, method and solution.
- Over time children develop new sophisticated ways of coordination, participation and collaboration by acting with the touch screens and in the design for learning.
- By repairing, negotiating and shaping in both language and actions children guide and disturb each other in the learning process.

These are some of the most significant findings, which illustrate interesting perspectives on learner centred activities with touch technologies. By being challenged in collaborative settings throughout the school year the children develop competencies to master this sort of setting; in the beginning children were negotiating and coordinating every step of the activity, while some of the final videos show higher levels of collaboration, where students primarily focus on negotiating about the task.

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