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Digital Didactical Designs in iPad-classrooms

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Summary. Traditionally, Information and Communication Technology (ICT) “has been segregated from the normal teaching classroom” [12], e.g. in computer labs. This has been changed with the advent of smaller devices like iPads. There is a shift from separating ICT and education to co-located settings in which digital technology becomes part of the classroom. This paper presents the results from a study about exploring digital didactical designs using iPads applied by teachers in schools. Classroom observations and interviews in iPad-classrooms in Danish schools have been done with the aim to provide empirical evidence on the co-evolutionary design of both, didactical designs and iPads. The Danish community Odder has 7 schools where around 200 teachers and 2,000 students aged 6-16 use iPads in a 1:1 iPad-program. Three key aspects could be explored: The teachers’ digital didactical designs embrace a) new learning goals where more than one correct answer exists, b) focus on producing knowledge in informal-in-formal learning spaces, c) making learning visible in different products (text, comics, podcasts etc.). The results show the necessity of re-thinking traditional *Didaktik* towards Digital Didactics.

Digital Didactical Designs. Teaching is more than information delivery and remembering facts (surface levels). An appropriate teaching design enables a “conceptual change” to deepen learning [23] e.g., critical, self-reflections, multi-perspectives [19]. The goal of a *design* is to provide possibilities to enable learning [37]. The term *didactical design* is inspired by from the German concept of Didaktik by Klafki [24] [25] and follows Hudson [14] Fink [11] and Lund & Hauge [28] who stress the differences of teaching concepts and learning activities and call them designs for teaching and designs for learning. A didactical design includes the design of (a) teaching objectives, (b) learning activities (co-constructing knowledge), (c) different forms of process-based feedback, (d) social relations (dynamics of social roles, interactions), (e) ICT, mobile technology or tablets (as a booster for learning). An appropriate design is when these elements are visible in a “constructive alignment” [4]. According to the study by Bergström [3], process-based assessment is the most effective method to foster learning. The difference from an instructional design is that didactical designs also include the design of the social relations, e.g., student-teacher-interaction and peer interaction, “dynamics of social roles” [20] [14] (Figure 1).

The *digital* didactical design is the advanced model that integrates a fifth dimension: Educational Technology. To each of the design elements the design-question is, how can ICT and/or mobile devices like iPads support teaching aims and learning

activities? We expect different degrees of the iPad-use: from a low, a medium to a high extent. The implementation of new technology in education means to rethink the existing underlying didactical concepts [18] [19]. ICT can play an important role in making learning visible. In two case studies, Mårell-Olsson & Hudson [29] illustrate

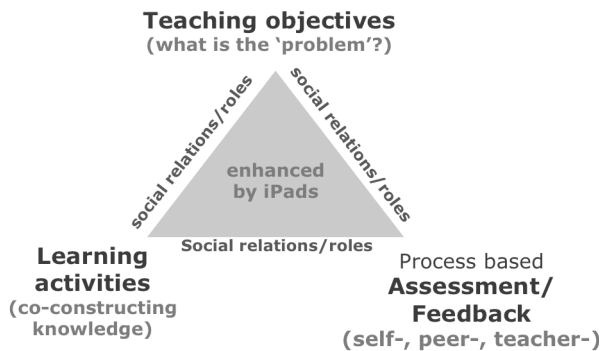


Figure 1. Digital Didactical Design (DDD)

The research question is: What digital didactical designs do teachers apply, how and why?

Findings. Part of a broader project, we studied 15 classrooms: A well-designed classroom correlates with a high extent of iPad use and vice versa, a not aligned didactical designed classroom correlates with a low extent of iPad use. Five patterns occurred:

- A. Innovative iPad-classrooms: Alignment of didactics & technology (5 classes)
- B. Almost innovative classrooms (not as strong as in pattern A) (3 classes)
- C. Weak alignment of DDD but learning benefit through iPad-integration (1 class)
- D. Potential for DDD, alignment differs, medium/low extent of iPad-use (4 classes)
- E. Applied designs limited learning experiences, re-alignment of a digital didactical design is required; better without iPads? (2 classes)

We studied the innovative iPad-classrooms in detail and explored **key principles**:

- new type of learning goals where more than one correct answer exists,
- focusing on learning as process of co-producing, informal-*in*-formal spaces
- making school learning visible in different products (choice of tasks),
- innovative teachers used apps that are primarily not built for education.

These principles illustrate Digital Didactics do not exist of didactical designs *plus* ICT; new Digital Didactics Designs emerged to boost surface and deeper learning.

References. Due to limited space, the full list of reference is online available at www.isa-jahnke.com/publications (2013): Jahnke, I., Norqvist, L., & Olsson, A. (2013): Digital Didactical Designs in iPad-classrooms. In: Conference Proceedings of ECTEL 2013. Cyprus. Extended Online Material.

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