# Digital Competence in the Kindergarten Sector

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## English abstract

The kindergarten project at the The Norwegian Centre for ICT in Education will help to promote the development of digital competence in Early Childhood Education and Care and in pre-school teacher-training in a secure and professionally-oriented way. The main goal of the kindergarten project is to develop and strengthen use of ICT for improved quality, a better learning outcome and learning strategies for children in kindergartens and for students in pre-school teacher training. The key aim is to strengthen the digital competence of the entire kindergarten sector in the future. In December 2011 in Norway, 282,732 children attended kindergartens, and there were 88,823 employees in the kindergarten sector (Utdanningsdirektoratet 2012).

**Keywords**: Kindergarten development, Early Childhood Education and Care and ICT, ICT in kindergarten-teacher training, digital culture of young children, pedagogical use of ICT in the kindergarten

# Introduction

Compared to other parts of the education system, the kindergarten sector is still a newcomer to the use of ICT in teaching and play. Starting with an almost clean sheet provides opportunities for a combined, experience-based integration of technology with existing teaching practice in kindergartens. Technology in itself does not improve the quality of kindergartens. The discussion of quality in our context is directed towards knowledge of the role of technology in the lives of young children, and to a greater extent towards developing a use of technology that is geared towards the profession. This entails looking at contemporary childhood and building further on the features of today's kindergarten programme, such as play and exploratory-based learning. At the same time, by closely examining the experiences of digital competence development in the rest of the education sector one can avoid the pitfalls, and instead reap the rewards. In order to be able to help improve quality in the kindergarten sector, the Norwegian Centre for ICT in Education has its own kindergarten project.

# The goals of the project

The kindergarten project will help to promote the development of digital competence in the kindergarten sector and in pre-school teacher-training in a secure and professionally-oriented way. The main goal of the kindergarten project is to develop and strengthen use of ICT for improved quality, a better learning outcome and learning strategies for children in kindergartens and for students in pre-school teacher training. The project tasks will strengthen the digital competence of the entire kindergarten sector in the future.

The project will evaluate new technology and digital media and analyse their pedagogical potential. It will transfer high-quality research and practice-based knowledge about ICT to play, personal development and learning. The centre has a pivotal role as an initiator, coordinator and information agent in relation to the integration and use of ICT in play, personal development and learning in the kindergarten.

Digital competence in the kindergarten includes integrating ICT in a relevant, secure and motivating manner in accordance with the Kindergarten Act (Ministry of Education and Research, 2005) and the guidelines set out in the Framework Plan for the Content and Tasks of Kindergartens (Ministry of Education and Research, 2011). These guidelines provide the framework for the kindergarten programme, the prerequisites for kindergartens as a distinct educational institution, and the kindergarten as a gateway to continuing education. The Framework Plan for Kindergartens contains three parts: guidelines on the social mandate of kindergartens, on the content of kindergartens and on planning and collaboration. The initial focus of the project has been to show how ICT can strengthen the content of kindergartens as described in the contents list of the Framework Plan: in development in play, learning, social competence, linguistic competence, as cultural arenas, and the seven learning areas.

In addition to further developing and following up how ICT can improve the quality of the kindergarten sector, the project will then focus on the new pre-school teacher training, and how this reform can help develop professionally-oriented digital skills by students in the long term acquiring this as part of their training and as a natural part of their pedagogical competences and future professional practice. This entails that the project will support educational institutions in providing students with knowledge about children's early digital skills, along with, for example,

budding linguistic and mathematical skills. In addition to underlining the fact that a child's development of digital competence is an element of his/her overall development, the new teacher training will help to make digital skills one of the five basic skills that children will develop throughout their entire educational career. This requires a commitment to strengthening the institutions so that they are in a position to place ICT on the agenda in an appropriate way.

## The main activities

The initial goal of the project has been for all kindergartens to receive help in putting the use of digital devices on the agenda. In order to help update the kindergartens and imbue the work on the Framework Plan with an ICT perspective, and thereby contribute to developing a professionally oriented digital competence for pre-school professionals, the kindergarten project has created various measures and guides. These have a general approach so that both students and most kindergartens will be able to discover new aspects of the pedagogy, and judge their own levels of digital competence.

## Super-investigators

The project's main investment is a digital competence starter pack. "Super-investigators – the first steps towards purposeful Internet use" (The Norwegian Centre for ICT in Education 2012a) gives Norwegian kindergartens opportunities to explore technology and Internet use together with children. The purpose of the competence pack is to encourage both the children and the staff of the kindergarten to reflect on how they use ICT and different types of media content. The pack consists of a book to be read with children, and a guide that accompanies the book's chapters with suggestions for activities, input, reflections and conversations with children, in accordance with the Framework Plan. Other activities linked to the Super-investigators may be found on the Centre's website. The competence pack is tailored for pedagogical use with children, but is also a tool for placing ICT, the Internet and media use on the agenda in a professional context in staff groups and in contact with parents.

Suggestions for exercises that can be used for different activities and for different learning areas are presented in the competence pack. Taking the individual child and child group as a starting point, and their interest in and experience with ICT, Super-investigators can inspire joint exploration and conversations about Internet use and media use.

## IKT-Brille

In order to specify how to link digital play and exploration to the Framework Plan, the project has developed a collection of guides (The Norwegian Centre for ICT in Education 2012b). The learning areas in the Framework Plan are a good basis for cross-disciplinary topics when working pedagogically with ICT. To motivate and show kindergartens how to read the Framework Plan from a digital perspective, with the help of the *IKT-Brille* figure, we encourage them to look for ways in which different technologies can renew and differentiate the pedagogical activities of the institution. By showing how to put on "ICT glasses" for each learning area, the guides offer digital suggestions for new pedagocial activities, making it easy for all kindergartens to make use of technology with children.

## Research and Development Activities

To be able to carry out and follow up the tasks of strengthening ICT in play, personal development and learning processes in the kindergarten over time, the project has begun by mapping equipment, ICT use and attitudes to be able to paint a picture of needs and competence development in the future. R&D work integrates the project into the field of practice. The project has already published *Småbarns digitale univers* [The digital universe of 0-6-year-olds, access to and use of digital devices in young children's free time](Gudmundsdottir & Hardersen 2012), which updates the picture of the different media experiences and access to ICT that children bring with them when they enter kindergarten.

The project 's next survey is underway and will, for example, address how well kindergartens are furnished with the digital competence to cater for these children, in addition to equipment and security. We have also started activities that are especially targeted towards language development, multilingualism and programmes for children with special needs. We are eager to see how all these activities will be able to help generate new knowledge on the role of technology in play, learning and development, and to combat digital divide, so that the Norwegian Centre for ICT in Education is in a good position to contribute further with quality indicators for the kindergarten sector.

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