End-User Development Goes to School: Collaborative Learning with Makerspaces in Subject Areas

# Details

## DOI

10.1007/978-3-030-24781-2\_16

## Issued

2019

## Language

English

## Start Page

## End Page

## Editors

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## Type

Book chapter

## Book title

End-User Development. IS-EUD 2019. Lecture Notes in Computer Science

## Journal

End-User Development,Lecture Notes in Computer Science

## Publisher

Springer International Publishing

## Topics

* Learning
* Internet usage, practices and engagement
* Literacy and skills
* Access, inequalities and vulnerabilities
* Digital and socio-cultural environment

## Sample

The participants (N = 19) were pupils in school years 7 to 10 (12–15 years old). We interviewed 17 of the pupils, using a semi-structured interview guide (246 min).

## Implications For Parents About

Parenting guidance / support

## Implications For Educators About

* STEM Education
* School innovation
* Professional development
* Digital citizenship

## Implications For Policy Makers About

High-quality content online for children and young people

## Implications For Stakeholders About

# Abstract

Norwegian K-12 curriculum reform for 2020 aims to integrate programming in different subject areas, especially math, natural sciences, arts and crafts, and music. There are challenges and opportunities associated with this scenario. A challenge is that students need to learn two topics simultaneously, and an opportunity is that teachers can adopt computer science skills gradually by building on their domain expertise and the notion of different levels of modification since most teachers are not yet fluent in computer science. We present an exploratory case study to show that end-user development (EUD) is a possible solution for the Norwegian situation. The case study demonstrates evidence of collaborative learning with EUD in a makerspace in an advanced placement science classroom for a mixture of gifted underachievers and high-achievers.

# Outcome

We have found tentative evidence that intermediate representations (e.g. block-based programming) can aid learning of more advanced programming and that pupils prefer it when they can see the relevance of what they do in school to their actual lives. (Mørch et al. 2019)