Investigating Preschool Educators’ Implementation of Computer Programming in Their Teaching Practice

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* STEM Education
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# Abstract

Modern preschool education is seen as an essential foundation for nurturing children’s digital literacy. Early childhood education environments have witnessed increased emphasis on integrating programming activities in combination with digital tablets. However, little is known about how preschool teachers implement programming as part of pedagogical strategies during practice. In Sweden, although there is a mandate to develop children’s understanding of the digital world, programming is not formally mentioned in the revised preschool curriculum. This study systematically investigates how Swedish preschool teachers implement programming activities in their teaching practice. Data was collected through a national online survey (n = 199). Findings revealed a range of apps and resources used in combination with tablets, where activity integration takes place as unplugged programming, digital programming, or as a combination of the former. Teachers markedly attributed intended learning goals around programming to tenets of computational thinking and “twenty-first century skills”. Moreover, programming was often actively linked to learning in other domains such as science, technology, mathematics, and language, approaches that show traditional Swedish preschool teaching practices being recontextualized in terms of programming. Based on the reported findings that provide insight into the implementation of programming in preschools, a logical future research avenue lies in exploring the documented programming activities from the perspective of the children.

# Outcome

"• Different types of programming embedded in unplugged, digital programming and physically extended digital programming activities are present in Swedish preschools.
• Programming is often integrated with other related themes, project work, and linked to other conceptual domains (e.g., science, technology, mathematics, language).
• Cooperation with one another, scaffolding children’s (creative) problem-solving and building trust in children’s own ability is very much at the forefront of preschool teachers’ integration of programming activities.
• Teachers are aware of various skills, abilities and learning outcomes related to computational thinking, and aim to actively integrate these when developing and implementing programming activities."
(Authors, in "Integrating Programming in Swedish Preschools— General Findings")