

The teacher is central to successful use of computers in schools

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The idea of one computer per student is becoming increasingly common in the Swedish school system. The University of Gothenburg, Sweden, is now conducting several studies on the educational consequences of the so-called 1:1 initiative in a group of Swedish municipalities.

'The teacher is the key to successful use of computers in the classroom,' says Professor Berner Lindström, scientific director of the studies.

More than two-thirds of all Swedish municipalities have implemented a 1:1 project to some degree, a development that started 3-4 years ago. Some municipalities go all out and provide students at all levels with personal laptops or tablets, whereas others have chosen to move slower and test the idea in just a few schools.

The argument behind the major investments is partly that the [school](#) system should prepare students for life in a digital society and partly that personal computers are expected to reduce or even eliminate the digital divide between those who are able to use computers as a learning tool and those who are not.

However, the effects of student computers on learning remain largely unexplored.

'The effects depend on whether the teacher knows how to use computers and tablets in the classroom,' says Lindström. This implies advanced subject matter [knowledge](#); knowledge of how to use ICT for pedagogical

purposes; knowledge and skills of how personally to use ICT; knowledge about ICT and societal changes; and furthermore, knowledge of how to work with ICT and school development on the classroom level.

The studied municipalities are Falkenberg, Jönköping and Mölndal. The overall purpose of the studies is to assess how teaching and learning processes change as a consequence of access to ICT, information and communication technology.

'Since the digital technologies have changed the world, they are also changing the schools. But there needs to be an infrastructure, a critical mass of practical use, before it becomes a natural part of school activities,' says Lindström.

The Gothenburg researchers are not looking at the new technology as such, but rather at what is actually done in the classrooms and how it compares with traditional classroom activities.

'What we have seen is that the use of ICT is limited by the established teaching methods, task designs and examination formats. For example, some teachers are questioning what ICT can add to their teaching, since they already have effective methods in place. But that's a view that's based on the questionable notion that ICT is an instrument that can be used to improve traditional teaching, when rather the whole issue concerns the fundamental question of what it means to be knowledgeable and skilled in modern society, 'ICT should be seen as a tool that is an integral part of subject matter knowledge – for example, knowledge in mathematics is not only knowledge of abstract mathematical concepts but also how to solve problems using mathematics software for modeling, simulation and visualization. ICT is more and more becoming a natural part of teaching and learning, like paper and pencils,' says Lindström.

Provided by University of Gothenburg

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