Chapter 13

Broadband in Dutch Education: Current Use, Experiences, and Thresholds

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Abstract

Broadband potentially has benefits for education, but in order to be beneficial it has to be used. In this chapter, we have investigated from a user perspective: (1) to what extent broadband is used in Dutch education (in the classroom as well as in the organisation as a whole); (2) the experiences teachers have with broadband, including impediments and added value. This was done by a survey under 221 Dutch teachers, ICT-coordinators, and school boards. Results show that teachers, ICT coordinators, and school boards are interested in using broadband in their schools as they see the added value, but there seems to be an impasse: without infrastructure, there are no services and without services there is no need for infrastructure. Schools can break out of the causality dilemma by giving an impulse to the market by combining forces and demand. Moreover, teachers need to be trained in using the new tools and service.
The benefits of information technology for education are widely recognized. Different researchers describe a variety of benefits of information technologies for learning, such as increased access to learning opportunities, access to more and better information resources, availability of alternative media to accommodate different learning strategies, increased motivation to learn, and possibilities for both individualized learning and collaboration in learning (Niemi & Gooler, 1987). Furthermore, information technologies can provide access to enormous quantities of information available through Internet and online databases, reduce the limits of time and space for educational activities, enable self-paced learning, makes the teaching and learning enterprise more outcome-oriented, which enhances the ability of institutions to stimulate experimentation and innovation, and increases learning productivity (Massy & Zemsky, 1995).

All these benefits are also applicable to broadband. This infrastructure allows new forms of learning and can expose students to innovative forms of learning and new content that is not accessible with a narrowband connection. New forms of learning that need a fair amount of bandwidth often involve multimedia educational content. This allows the student to actually see, hear, and use the content to be learned (Roden, 1991). Students are able to learn by making short video clips, games, or ask questions to different experts via a videoconference system. Exposure to new forms of learning and new content can have a positive effect on the motivation of students to learn. Research even shows that video stimulates gaining of knowledge and aids retention and recall (Duchastel & Waller 1979; Goodyear & Steeples 1998; Mayer & Gallini 1990; Pahad, 1998; Shepard & Cooper 1982). Dutch students for example had a videoconferencing session with students from Palestine. Teachers were thrilled because students picked up the learning content in a very natural way and retained it for much longer. It made more impact on the students than learning it from a book (Vermaas, 2005).

Another benefit of broadband is that it can facilitate and enhance collaboration within and across institutions. For example, broadband can be used to share resources. Students can work together when they are inside the school, but also at home. Even students and teachers from different schools can work together, via videoconferencing or by sending (video) material that requires broadband. Moreover, students and teachers can collaborate with other institutions, such as libraries.

A specific advantage of broadband is that it possibly delivers efficiencies and cost reductions in administration and reporting (Broadband Stakeholder Group, 2003; Underwood et al.). Also, automating the administration and management of educational institutions can lead to cost reductions. The management of computers and the infrastructure itself can also be centralised, even outside of the school, which will be a relief for many schools that often have teachers or volunteers managing the infrastructure and information and communications technology (ICT).
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