Section 2

IT AND CURRICULUM PROCESSES
It is generally accepted that our society is changing from an industrial to an information society, in which citizens need to be able to manage huge amounts of information that can be disclosed and processed with the help of information and communication technology. Many students who are about to start their school career will eventually get a job that does not exist yet. Society – through formal and informal schooling – needs to create opportunities for their citizens to develop lifelong learning competencies (see also Section 1). The implication is that many countries in the world have to move toward drastic changes in their curricula. Design and implementation of curricula aiming at contributing to lifelong learning competencies is one of the major challenges of curriculum change and improvement efforts nowadays.

It is obvious that the change toward the information society will amplify the role of IT in the curriculum and will change the curriculum as such. Many have high expectations about the potential of IT in this regard. However, research has shown that students’ use of IT at school is considerably less than at home (Organization for Economic Co-operation and Development [OECD], 2005). Numerous factors frustrate the implementation of IT in the curriculum (Mumtaz, 2000). Curriculum-related factors such as courseware that is not clearly linked to national standards or examination syllabuses (Harding, 2001), or IT applications that require more time than a usual 45-min lesson period are only an illustration of the issues teachers have to cope with when integrating IT in their educational practice. In addition, research consistently has had difficulty in providing convincing evidence on the impact of IT on student performance (e.g., Dynarski et al., 2007). This is mainly due to the fact that the use of IT often contributes to the mastery of complex cognitive skills, which cannot be determined by means of standardized tests. From a curriculum perspective there is a gap between the intended, the implemented, and the attained curriculum.

This section deals with the potential of IT for the present curriculum, IT’s potential to realize curriculum change and the factors that inhibit integration of IT in the curriculum.
In Chapter 2.1, Voogt presents an overview of issues relating to the integration of IT in the curriculum. The chapter provides an overview of the intentions for IT in the curriculum and a discussion about the extent to which these intentions have been implemented in schools and have resulted in different educational outcomes.

International research (Kozma, 2003) on IT-supported pedagogical practices has shown that IT can be beneficial for learning subjects as well as for multidisciplinary projects. The impact of IT on learning specific subject matter domains will be illustrated in two chapters.

Chapter 2.2, written by Webb, zooms in on the impact of IT for the science curriculum. There is extensive research on the added value of IT for science education. How IT impacts science education is discussed in this chapter.

Chapter 2.3, by Van Scoter, reviews the potential of IT to foster literacy skills. The chapter particularly addresses literacy skills of young children. Research in this domain is limited, but is increasingly becoming more relevant and part of the public debate in many countries.

Nachmias, Mioduser, and Forkosh-Baruch address in Chapter 2.4 the potential of IT to renew curriculum practices. Based on data from international case study research the authors show that IT facilitates multidisciplinary curriculum approaches and change curriculum toward goals that better fit the information society.

Curriculum change also requires changing assessment practices. To what extent IT is impacting assessment, either by facilitating existing practices or initiating new practices, is reviewed by Erstad in Chapter 2.5.

IT not only impacts the primary and secondary school curriculum, it also has the potential to support curriculum development. In Chapter 2.6, McKenney, Nieveen, and Strijker address computer-support for curriculum development and implementation.

References


