Foreword

It is timely in the increasingly technology-driven 21st century that the issues and challenges of literacy in technology should be raised in this book. Today's world is moving towards a more open and global society. In order to deal with its changing demands, people need to learn how to cope with change and at the same time to interact constructively with it and retain control of the processes involved. Already information technologies are changing the ways we live, work, and learn. Technological development has also created a demand for new skills and at the same time is providing powerful new learning tools and opportunities. Not least, technology is introducing radical changes, with non-formal and informal education assuming an important place in addition to formal education.

Non-formal education is already improving because of the advantages of technology. It has proved to be effective in reaching out to vast and potentially otherwise inaccessible school-age populations. It stimulates learners to be more creative and innovative. In fact, it revolutionizes the way we handle information, from teaching to self-directed learning and from learning as a one-time event to a lifelong learning process. Thus, technological literacy more than ever needs to take on a prominent role in the K-12 classroom. Its potential impact is wide ranging and can be consolidated into pervasive benefits, which themselves can be challenges that the global classroom can and should be taking on board.

Firstly, technological literacy contributes toward narrowing the digital divide. All technology, not just computers and the Internet, empowers those who own it and understand it and can place others at a distinct disadvantage. If overall technological literacy is not introduced into the classroom, particularly among the technological have-nots, it is inevitable that the "technological divide" will increase. It is important to think about this possible marginalization, and the creation of new zones of power through the advantages being created for some using technology. For this technology to play its full role, it should be accessible to those who have been deprived of it. However, simply giving teachers and students broader access to hardware and software will not improve learning. Creating effective and economical strategies for using technology to support education in developing countries is a major challenge. In tackling this task, much will be gained by comparing and sharing experiences among both developed and developing nations.

Secondly, one of the obvious benefits of technological literacy is tied to the marketplace. Technology, particularly in the high-tech sector, has been driving much of the economic growth in nations across the world, and consequently has created an increasing percentage of occupations that require technological skills. Technology is everywhere in the world of work, from the home office to the medical examination room, from transport systems to mobile networks. The rapid introduction of new technologies is further changing the ways people interact, and the modern economy will continue to shift towards knowledge services and e-business. There is the inevitable need for a highly educated workforce, skilled in the use and application of technology, to stay innovative and competitive.

Thirdly, technological literacy can enhance well-being within a social and wider community. Technologically literate people with a broad comprehension of technology are able to adapt and make decisions effectively. This is demonstrated by the thinking skills and thought processes that the use of technology can

provoke. Critical thinking, reflections on social values, and abstract reasoning can all reach new levels when technology is properly applied. It also empowers people by giving them the tools to make sense of their world, even if it is constantly changing around them.

At a pedagogical level, technological literacy has the potential to impact on and transform teaching, learning, and child development. This helps in enabling K-12 children to meet their highest expectations, connecting with hard-to-reach groups in new ways, opening up education to partnerships with other organizations, and moving to a new level of efficiency and effectiveness in classroom delivery.

Technological literacy can transform teaching, learning, and child development by enabling exciting lessons. Both presentations and productions (e.g., videos, multimedia projects, 3D animations, etc.) are expressions of a student's thought or interpretation on a particular topic. With the use of technology, these views can be more clearly and creatively illustrated; this use of imagination and illustrative structure potentially allows ideas to flow in a more understandable format. Such use of technological literacy can further personalize children's experiences of learning, whereby online exercises can adapt each new task to a pace appropriate to the learner. It is possible to provide live access online to learners in other places, including other countries, in order to make learning more relevant to their lives.

Importantly, the introduction of technology in the classroom can offer extra support to those with special needs; it can re-motivate those who have dropped out of formal education; it can give learners more choice about where and when they learn; and it can support children and young people in the transition to the workplace, within the community at large, and in their progression to the next stage of learning. All of this forms the building blocks toward an open access that can provide children and learners with a much wider range of options, including greater opportunities for different schools and school programs to work more closely together.

The mastery of any new knowledge is strengthened when there is active collaboration with others to communicate an understanding of what has been learned. With technological literacy, the extent of learning and the effectiveness of teaching need no longer be limited by the amount of time spent in the classroom or by the resources of a particular school. Teachers and students can tap into vast digital libraries and a wealth of texts, images, video, music, arts, and languages. They can work with scientists and scholars around the globe who can help them use experimental research, primary historical documents, and authentic learning in real-life settings to improve their understanding of physical phenomena and world events. The growth in access by schools to broadband and ubiquitous computing supports these various possibilities for extending the time, the places, and the resources available for learning. For instance, m-learning (mobile learning) is taking education into the community and into wider learning spaces with the use of personal digital assistants (PDAs) and other mobile devices for interactive class-work scenarios.

In this way, technological literacy not only supports the rise in options available to teachers and students, but additionally offers a means of achieving greater efficiency and effectiveness in learning both in and outside of the classroom, and the opportunity to work more productively through these available resources, tools, and shared good practice.

A critical proviso is, however, that adopting technology demands a process of selection and decision making about which technology is appropriate, by and for whom it is to be used, and what kind of communication and content is most relevant. For example, the e-learning market is rapidly moving into schools by providing portals, community sites, content repositories, and a broad array of products and services for classroom use. Teachers must themselves be technologically and pedagogically aware of developments since they represent the key integrators of the process and a major driving force in the acquisition and deployment of technological literacy. When the process is at its most successful, it should crystallize ideas, create visions, and motivate greater numbers to pursue literacy through technology, regardless of the specific delivery platform or format.

The material presented in this book provides a synthesis of these issues, underlining the main hypothesis that: using technological literacy effectively, K-12 students can be given the opportunity to process

information in critical ways, causing new ideas and avenues of thought to develop, and the linking of new learning communities. We hope it will prompt discussion about the field and improvements for the future.

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