Chapter 2.9
Digital Literacy and the Position of the End-User

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INTRODUCTION

As an educational setting, the traditional classroom fails to meet the learner's need for suitable skills to learn with educational software. The development of digital learning skills in school curricula challenges designers of educational software. A useful starting point of research in this domain is the study of literacy, both in its traditional and new forms (Tyner, 1998). It is a powerful background for research on the interaction of learners with educational software platforms. A "platfom" is a particular software package, designed for educational use.

BACKGROUND

Both in school and society, the skill to comprehend and handle printed course materials is essential. Literacy has since long been a vital skill for functioning adequately in an industrial society (see e.g. Marvin, 1984).

An Emerging Plural Notion of Literacy

The International Adult Literacy Survey (IALS) describes literacy as a broad range of information processing skills in relation to written or printed language. Traditional literacy is defined as follows (OECD, 1997, p. 2):

Using printed and written information to function in society,to achieve one's goal and to develop one's knowledge and potential.

However, traditional literacy is increasingly evolving into a new, plural literacy that refers to making sense of meaningful content in more complex and technological environments (Erstad, 1998). The growing importance of images and of

communication technologies has a cultural backlash that even transforms the nature of literacy. Gee (1990) opened up so-called "New Literacy Studies" (NLS). He defends a socio-cultural approach of literacy (p. 153):

Literacy is the mastery of, or fluent control over, secondary discourse.

While primary discourse pertains to infant face-to-face interaction of children with trusted figures (parents, family, and others), secondary discourse develops through contact with public life and its social and cultural conventions. Secondary literacy is in itself a plural concept: a multitude of social institutions and commitments to public life invade an adult's life and are as many "literacies" to master. As Walter (1999, p. 34) points out:

The existence of multiple literacies, none more valid than the next, but each specific to a culturally-defined community.

According to this plural notion of literacy, literacy can be neither neutral nor universal, since all literacy includes social and cultural conventions that shape a particular type of "literacy". Visual literacy, for instance, complements traditional literacy and claims a unique position in today's school curriculum. Debes (1969) first mentioned "visual literacy". According to visual literacy, a specific "image" language supports communication. In traditional language, words support verbal communication. Visual literacy may not only be a means of communication, but also a way of thinking (Hortin, 1983). Thinking visually, then, means the ability to think and learn in terms of images. And children's acquisition of skills to work effectively and efficiently with educational software has to underpin this recent position of a new and full interpretation of literacy.

Undoubtedly, it is of prime importance to analyse the nature of skills necessary to take full advantage of today's learning opportunities. In a visual oriented culture the acquisition of new reading and writing skills is indispensable, e.g. the analysis and composition of images. Indeed, literacy supposes an active intervention in a social and cultural context. Avgernou and Ericson (1997) define visual literacy as a group of skills that make it possible for an individual to understand and use visuals for intentional communication with others. This concerns different target groups, for instance primary school pupils or even impaired children.

During the last decade, a wide array of "literacies" relating to information and communication technologies (ICT) surfaced: media literacy (Hobbs, 1998; Potter, 1998), electronic literacy (Maylath, 1993), multimedia literacy (Kellner, 1998), computer literacy (Guthrie & Richardson, 1995; Peha, 1995), and digital literacy (Gilster, 1997). This evolution accompanies the expansion of IT to ICT. Indeed, communication is now a central feature of technological environments, clearly depending on both "traditional" and "new" literacies (Plowman & Stephen, 2003):

(...) the flexible and sustainable mastery of a repertoire of practices with the texts of traditional and new communication technologies via spoken language, print and multimedia.

The overarching notion "information literacy" denotes the ability to access, retrieve, manage, and use information relevant to an identified need for information (Kuhltau, cit. in Campbell, 1994). Originally, information literacy was limited in scope to computer information. The progress of computer sciences and, more generally, the use of ICT in a wide array of domains broadened its meaning into library skills, computer skills, thinking skills, and critical reading skills.

Media literacy pertains to communication through and critical analysis of a diversity of media; it is the end user's ability to navigate both effectively and efficiently and to keep track of position in electronic media, while "criss-cross-