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Chapter 3

AN ADAPTIVE LEARNING SYSTEM FOR DEVELOPING AND IMPROVING READING COMPREHENSION SKILLS

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ABSTRACT

The growth of reading comprehension skills is an essential part for child's overall development. However, some children, defined as "*poor comprehenders*" are able to read words and sentences accurately, fluently and at age-appropriate grade, but have serious difficulty understanding what they have read. They make slow progress in reading comprehension, with long-term educational, social and economic consequences, that can persist for a lifetime. They need extra help both at school and at home. Moreover, an improvement in comprehension skills may be difficult, without proper tools stimulating these abilities. Nowadays, there is a growing interest in the effectiveness of technology as an instructional tool. However, few technological systems improve reading comprehension skills. Moreover, they are usually designed for high-school or university students, with textbooks as reading material, and not for young learners with special needs. Instead, evidence based treatments are necessary to achieve the best possible outcome, reducing the risk of chronic disability, with positive effects on the child and his/her family, but also on the community, through a reduction of costs for assistance.

This book chapter describes the design, development and evaluation (in terms of both usability and psychopedagogical effectiveness) of the TERENCE system, i.e., an adaptive learning system (ALS) designed to stimulate the reading comprehension skills of primary school learners, hearing and deaf, and to support their educators through an innovative teaching tool, in Italian and English.

TERENCE proposes a customized stimulation, considering the specific characteristics, interests and abilities of each student. More precisely, the system presents

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