

Chapter 9

THE PSYCHOLOGY AND TECHNOLOGY OF TALKING HEADS: APPLICATIONS IN LANGUAGE LEARNING

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Abstract

Given the value of visible speech, our persistent goal has been to develop, evaluate, and apply animated agents to produce accurate visible speech. The goal of our recent research has been to increase the number of agents and to improve the accuracy of visible speech. Perceptual tests indicated positive results of this work. Given this technology and the framework of the fuzzy logical model of perception (FLMP), we have developed computer-assisted speech and language tutors for deaf, hard of hearing, and autistic children. Baldi¹, as the conversational agent, guides students through a variety of exercises designed to teach vocabulary and grammar, to improve speech articulation, and to develop linguistic and phonological awareness. The results indicate that the psychology and technology of Baldi holds great promise in language learning and speech therapy.

Keywords:

Facial animation, visible speech, language learning, speech perception, vocabulary tutor, autism, children with language challenges.

1. Introduction

The face presents visual information during speech that is critically important for effective communication. While the auditory signal alone is adequate for communication, visual information from movements of the lips, tongue and jaws enhance intelligibility of the acoustic stimulus (particularly in noisy en-

¹Baldi® is a registered trademark of Dominic W. Massaro.

