MAGIC PUZZLE: A framework for creating interactive multimedia book for educational purposes

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Abstract

We present a puzzle based metaphor MAGIC PUZZLE for creating interactive multimedia magic book for educational purposes for children on TV, and show its application to interactive multimedia book for small children. We review previous model for educating children, and show that previous model lacks in interactivity, realism, multimedia capability, and easy interface aspects. MAGIC PUZZLE uses puzzle model to draw children웰interest, and attaches three dimensional graphics and multimedia to each puzzle blocks for increasing interactivity.

I. Introduction

We present a metaphor for creating interactive multimedia magic book for educational purposes for children. In this paper, we will review previous frameworks for the interactive multimedia books and propose a new framework in section 2. We explain the details of MAGIC PUZZLE, which uses puzzle metaphor for the selective focusing of children in section 3. In section 4, we will show experimental results, and conclude in section 5.

II. Review

In this section, we will explain the previous interaction examples for interactive multimedia book for small children. LeapPad, which is a first successful interactive book, gives magic pen model for small children to point and listen to a object on the book. DataGlyphs gives ubiquitous bar code model for embedding information on papers. Smart Image uses an imperceptible watermark model for transparent information embedding on papers.

- **LeapPad**: LeapPad is a first successful commercial products using interactive multimedia for small children [1]. It has a magic pen metaphor, which children can touch the

pen on the book with. It has basic multimedia functionalities of attached audio for pointing.

It lacks interactivity in that it gives same answer for the specific pen-touch. It lacks realism in that it gives only audio responses for the pen touch.
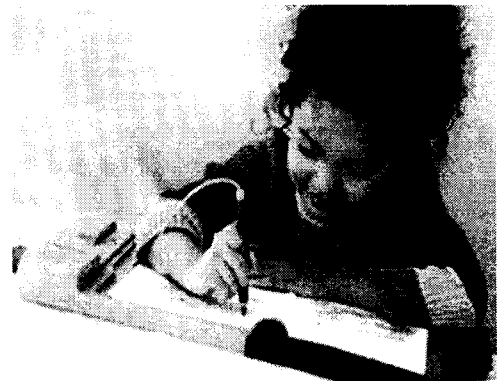

Figure 1 LeapPad: Interactive Educational Book [1]

- **DataGlyphs**: DataGlyphs was recently introduced by Xerox Corporations [2]. DataGlyphs encodes machine-readable data onto paper documents to facilitate document processing. The idea is similar to the ubiquitous bar codes on consumer products. Instead of