



INTERACTIVE SYSTEM FOR LANGUAGE AND COMMUNICATION STIMULATION IN YOUNG CHILDREN*

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ABSTRACT: We present an Interactive System for Language and Communication Stimulation or **ISLACS** directed to young children between 2 and 4 years old, to **stimulate language, contingency, and attention**. The application was tested in 314 children, each one played a minimum of 8 sessions. Results showed that ISLACS is an attractive game for young children, which significantly succeeded to teach **contingent response** and **promoted vocalization**, by teaching the sounds of the letters and a repertory of nearly 48 infrequent words in Spanish, in a **brief intervention**.

INTRODUCTION

From the **2nd and 4th year of age**, children **rapidly acquire hundreds of words** and start to learn the sound of the letters. The success in those abilities is associated with greater success in later academic skills, such as reading [1].

The video techniques support word learning, mainly because the presentation of spoken words temporally close to images, facilitates **word fast mapping** [2][3][4].

In the current study we developed a mobile application to benefit letter-sound and spanish vocabulary acquisition in a group of typical developing Chilean preschool children, at ~24 and ~36 months of age.

MATERIALS

The selected objects have **at most 3 syllables** and are **infrequently used** by children within the target age range. The objects were grouped into pairs according to similar attributes, obtaining 30 pairs of words (Fig. 1a), and 7 pairs of letters (Fig. 1b). A preschool teacher (Fig. 1c) was recorded to give instructions, encouragement and feedback messages.

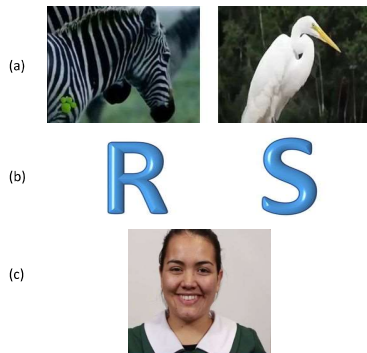


Fig. 1 Example of multimedia resources (a) Pairs of words (b) Pairs of letters (c) Preschool teacher

SYSTEM COMPONENTS

The system consists of a main application (Fig. 2a) with the child game and a tutor matching application, that allows the control of the game flow (Fig. 2b).

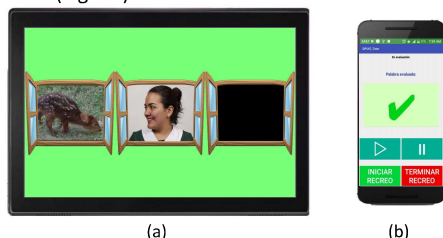
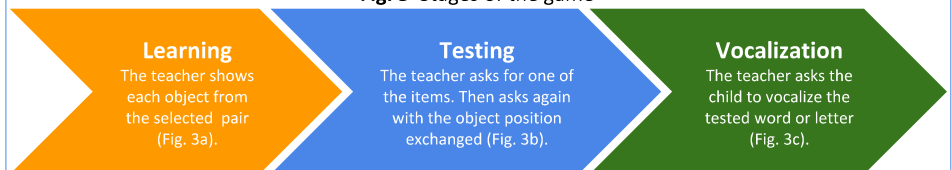


Fig. 2 Main application (a); Tutor application (b)

STAGES OF THE GAME



Fig. 3 Stages of the game



Each game session has 5 essays (mini-games), where the pair of words (and letters) to teach are chosen randomly. In each essay, only one word of the pair is tested.

EXPERIMENTAL RESULTS

Table I. Experimental groups from two public Chilean preschooler educational centers

Group	~24 months	~42 months	Total
Group 1	78	103	181
Group 2	57	76	133

ISLACS was evaluated in both groups of Table I. Each child performed a minimum of **8 sessions with an average duration of 7 minutes**. A pre-post intervention evaluation was applied, in which various cognitive abilities were evaluated.

RESULTS

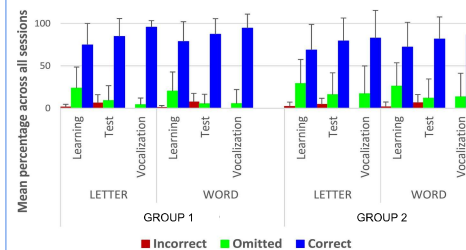


Fig. 4 Experimental results after all sessions.

Fig. 4 shows a summary of the learning words. In both groups children were interested to play across the 8 sessions, **with less than 29% of omissions**. All children reached a percentage largely above chance (50%) in every task.

They correctly paired the letter-sound, and the objects-word. In both groups, the 3-4 year-old children vocalized the letter-sounds and the new words in **more than 83% of the trials**.

CONCLUSIONS

ISLACS is an attractive game for young children, arising both the interest of educators and parents. It allows children to succeed in the learning of the sounds of most of the letters in Spanish and a repertory of ~48 previously unknown infrequent words. In older than 3 years, it also **promoted vocalization**, all in a brief playing-like intervention. Crucially, ISLACS also succeeded to train **contingent response**, which is a general cognitive tool useful for any further learning.

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