Introduction

The role of language in autistic spectrum disorders is a single one because, contrary to other broad developmental disorders in which language impairments are a symptom or a consequence of other deficits, in the autism spectrum language disorders constitute one of the three diagnostic criteria. The diagnostic criteria always involve clinical observation and behavior identification. Although several hypothesis claim that this is a neurobiological disorder with a strong genetic component, no biological marker for autism was identified (1). The implications of diagnosis based solely in clinical observations have been broadly discussed (2-8), as well as the differential diagnosis among the disorders included in the Autistic Spectrum Disorders (ASD) (9-11).

In the last 25 years a significant amount of research about language and ASD has been conducted in the Speech and Language Research Laboratory on Autistic Spectrum Disorders (LIF-DEA of the Speech and Language Pathology Program of the School of Medicine – University of Sao Paulo, Brazil. Those researches are always based in the notion that the best contribution the SLP can offer either to the studies about etiology as to the diagnostic processes is helping to build a phenotypic description of language that is increasingly accurate. This way studies have focused in the best criteria to ASD children’s language description, the best alternatives to achieve them by prompting the better performances and the minute analysis of data.

The application of research results as the basis of therapeutic intervention proposals has resulted in studies about therapeutic processes and their outcomes, allowing improvement of evidence based practice (12-24).

A recent research that studied the results of three different language therapeutic proposals for children of the autistic spectrum confirmed the great individual variations characteristic of these disorders. Both the individual and the double situations yielded to significant and equivalent progress.
The search for alternatives of more efficient language therapy approaches for autistic children has been the focus of important research. The use of computer technology is a viable hypothesis to be considered.

In the last few years some studies about the use of personal computers in language therapy with ASD children have been published. Some of them involve the use of this technology to assess the ASD child’s performance during a specific task (25, 26). Others describe the adaptation of technology to the use of augmentative and alternative communication (27-32). Most of them, however, describe studies with few participants (under 10 subjects) and it decreases the possibility of generalization of the results. Besides, although the cognitive level of the subjects is not always clear, the positive results frequently seem to be based in cooperation and high functioning performances.

Language barriers frequently result in the impossibility of direct use of foreign technology and the adaptations needed go beyond the simple translation of different material. Furthermore, in several developing countries such as Brazil, most part of the ASD children do not have access to specific computerized tools that are adapted to their individual needs. Therefore there is a demand for studies about the use of this technology, the best way to apply it, in which contexts and with which children.

**Purpose**

The purpose of the study described in this paper was to observe the use of personal computers with commercial programs and games – therefore easily accessible to patients and therapists – in language therapy with 23 ASD children in different developmental stages during an eight-month period.

**Method**

Subjects were 23 children between 3 and 12 years, attending language therapy in the LIF-DEA. Procedures included three sets of 10 therapy sessions in which the computer was used differently. In the first set the computer was used for a limited time-period of 10 to 15 minutes with the participation of the language therapist. In the second set the computer was used according to the child’s interest during any amount of time (over 5 minutes). In the third set there was no pre-determined time period. Each subject was video recorded prior and after each set in play situations with the same therapist.

**Results**

The results compare each child’s performance prior and after the period of therapy using computers in the domains of communicative profile and social-cognitive
performance. Qualitative results reinforce the important role of the therapist and of the interactive process.

Despite the access to a virtually limited number of videogames through the internet the children has chosen from a very limited set of games and work programs (Word® and Paint-brush®) and only three subjects used more than one game in the same session. This behavior seems not to be influenced by the amount of time allowed to the use of the computer. The first figure shows these data.

![Fig 1: Number of games used in the 10 sessions by each subject from each group](image)

The improvement observed in verbal expression, interactivity, communication initiative and eye contact reported by the therapists cannot be attributed exclusively to the use of the computer. This evolution should be considered a result of an interactive process in which the computer was used with different functions: mediation, focus of interest, determining challenging situations, competition and cooperation and to which the therapists' participation was essential as a productive communication partner.

![Fig 2: Reported areas of progress](image)
Conclusion

Despite all subjects have shown some progress it wasn’t possible to determine any association between the progress observed and the time with the computer or the kind of computer game used by the children.

If the time with the computer is considered a controlled variable, the lack of significant differences between the groups demand the consideration if the computer use had an effective role in the children’s increased performances.

Therefore, other studies with more controlled samples are needed so the results can be generalized.

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References


