

# Chapter 28

## A Speech Clinic System for Children with Communication Disorder

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### ABSTRACT

*This research proposes, designs, and implements a new telehealth system. It is a Speech Clinic System (SCS) for children with communication disorders. It provides an online automated alternate to the traditional manual treatment processes for children with communication disorder. The proposed SCS provides an easy way for parents to be in touch with the speech-language pathologist, check their child progress, make an appointment, follow guidelines, and choose therapy exercises. The structure of the system has been designed to automate parts of the treatment process. To achieve the targeted system, in addition to investigating the latest studies in this area, the needed data was collected through interviews and searching about the treatment process of children with communication disorder. The system, as a special case, has been oriented for the Arabic speaking communities (specially state of Kuwait) to improve its healthcare sector. However, it can be easily oriented to fulfill the needs of other countries with some variation of language and other local requirements.*

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## **INTRODUCTION**

Speech disorder is an inability of a person to produce speech sounds correctly or fluently or has problems with his or her voice. Many young children have difficulty with speech communication at some time in their lives. Most of them eventually catch up and improve the speech skills. However, some of them continue to have severe problems. Speech disorder has different types such as difficulties in pronouncing sounds, or articulation disorders, and stuttering.

In this modern age, a computer-based speech clinic system (SCS) is an affective idea related to the medical field. It provides a robust and real time solution for repeated problems faced by speech therapists in the traditional treatment process for children with speech disorder. During the treatment process, for the child with speech disorder, parents should continue the treatment process at home by practicing certain exercises assigned by the therapist and filling a chart of their child progress for the therapist to view the next session. Most of the time parents stop filling the chart for multiple reasons, it ultimately delays the treatment process. Using a speech clinic system, to guide parents to train their children who have speech disorder, will help in improving their health. It will make communications between the therapist and the parents much easier, faster and practicable. The system will be a helpful tool that explains to parents how to communicate with their children and how to help them improve through using the system from home. Such a system will allow children conduct their sessions and practices in familiar/comfortable environment, and that should help to improve their progress.

Using automated systems nowadays add value to the organizations and help improve the work/business. It is essential for organization development in every field. This study is intended to develop an effective robust SCS which is related to the medical field. It is targeted to provide a solution for a repeated problem faced by speech therapists in the treatment process for children with speech disorder. During the treatment process for the child with speech disorder, parents should continue the treatment process at home by practicing certain exercises assigned by the therapist and filling a chart of their child progress for the therapist to view the next session. Most of the time parents stop filling the chart for multiple reasons which delays the treatment process. Our targeted system is designed to guide parents through the treatment process. It is enabling parents following up their child treatment program in an easy and comfortable way, and it keeps the therapist updated with his patients' state. The system will make the treatment process much attractive and fun for the child by converting some of the exercises to web games and the progress chart will be filled automatically which will improve the treatment results.

This paper has been organized in various sections for the rest of the contents. Next Section describes the background work in the area of this paper. This is followed by the section that highlights the study for gathering and analyzing data to justify the designing of the proposed system and its working assessment. The logical and physical design, for the proposed new system, has been constructed in the next section. After that, an overview of the proposed system and its requirements have been provided in the next section. The phase of the key implementation is handled in the second last section which describes implementation for the proposed system with various screenshot demonstrations. Finally, last section concludes the paper.

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