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Deaf Students Higher Education System Using E-Learning

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Abstract

E-learning includes computer and electronically supported learning and teaching methods. E-learning used in Web-based learning, computer-based learning, virtual based learning and digital technology. It is a computer and network-enabled transfer of knowledge, it is the combination of learning and knowledge management. It is also a useful tool that has contributed in facilitating education for deaf people. Deaf people are able to get benefit from this technology by increasing their knowledge and improving their skills. They can utilize the mobility feature to learn anywhere and at any time. E-Learn is an important one in higher education. Most of the students easily learn and develop skill and knowledge in e-learning method. Now a day's e-learning tools are mostly used in learning method. In this paper we study about how deaf students used e-learning system in higher education institutions in and around Chennai.

Keywords: *E-learning, deaf learning, deaf students higher education*

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Introduction

World Health Organization reports says (2015), 360 million people all over the world are Deaf or have hearing difficulties [1]. According to the tamilnadu census data 27273 peoples are hearing impaired in Chennai [2]. World Federation of the Deaf, 80% of Deaf people are illiterate or semi-literate [3]. So we must take more efforts to the Deaf equal opportunities in education and in working with others. E-learning is the excellent ways to increase the percentage of educated Deaf people by optimizing new technology. Today, many new systems were designed to assist Deaf people access the web for learning and training. E-learning is commonly referred to the intentional use of networked information and communications technology for teaching and learning. Figure 1 shows about e-learning system.

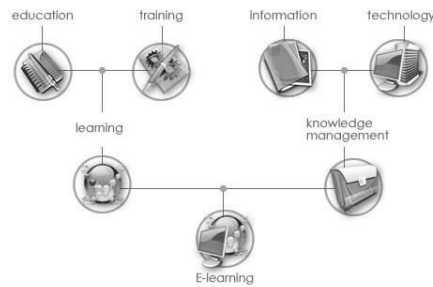


Figure 1. E-learning system

Deaf peoples are communicating through sign language. Today it is one of the most growing research fields. Many new technologies have been developed recently in these fields. In this situation we have to assist deaf people with their study material translated into the Sign Language based on e-learning technology. The user-friendly of multimedia, telecommunication and internet information services are used as a standard electronic platform to support procedures of distance, lifelong and continuing training for the Deaf people.

In India only low amount of institutions implement e-learn method to deaf peoples. In Chennai only few number of higher education institutions used e-learn method, because of lack of telecommunication devices, multimedia software's and high implementation cost. So that we can implement e-learn method to achieve the great result in deaf people's learning skills. Here we present effectiveness of e-learn for deaf peoples using sign language in higher education institutions at Chennai. Figure 2 & 3 shows the deaf peoples hand sign language samples.

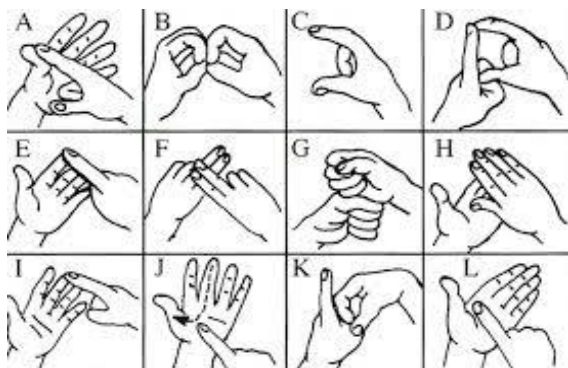


Figure 2. Deaf two hand sign language

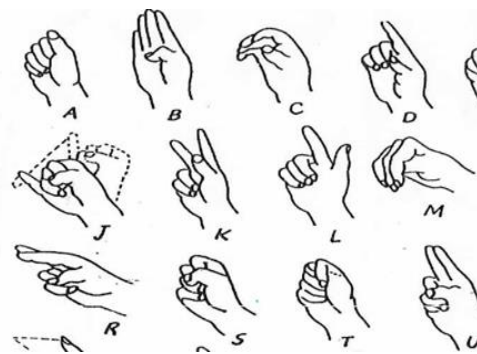


Figure 3. Deaf single hand sign language

Literature Review and Related Work

Deafness is a hearing disability in which a person is incapable of receiving auditory information. Most people who are deaf are also speech-impaired and they use sign language (SL) as the main way of communication [9]. Sign language uses hand signs, facial expressions, lip patterns and body language instead of sound patterns. As on spoken languages, sign languages vary amongst countries and have their own vocabulary and grammar. They also vary within the same country and there is no standard sign language [10]

The higher education for the hearing-impaired individuals plays a key role in each nation's education development. Deaf students in higher education make a significant body of knowledge about the barriers these students face in gaining access information in the classroom. We need the depth of research on the effectiveness of such support services as interpreting, notes writing, real time analysing and tutoring with regard to their impact on academic achievement [4]. E-learning environment is a useful technique for educational purpose and this includes the education for hearing impaired (HI) students. However most e-learning environment available does not particularly can be useful to deaf students because of its feature which is lacking in terms of adaptability. they often encounter problem in accessing the information available in terms of understanding it and using it in a proper manner [5]. E-learn system assist deaf people to communicate hearing people. One of most important impacts of the technical revolution has been in the field of education and learning. Distance learning is very convenient for people in different demographical locations and who are not able to continue formal education [6].

Now a day's e-learning has the shape of learning that gives Information and Communication Technologies (ICT) in education by using different types of multimedia (audio, video, images, and animations) and different technologies (DVD, video tape and TV). E-learning can occur inside or outside of a classroom learning [7]. All segments of society can benefit from e-learning and m-learning facilities, including disabled people. If they do not become familiar with new technology, it can negatively affect their life [8].

Importance of Sign Language

Deaf people learning method is different. They use sign language for communicating. In their class room also the teacher must use sign language for teaching. In india we follow Indian sign language (ISL). It has more signs. The ISL videos available in internet. The following Figure 4 are the samples for sign language teaching in class rooms. It's very difficult to communicate deaf peoples without sign language. Now a days, deaf peoples in Chennai has more opportunities to gain knowledge in all areas. Using the sign language interpreter they can easily share and gain knowledge.



Figure 4. Sign language video

Now a day's sign language interpreter available in all places including schools, colleges, hospitals, police stations, court, hotels, restaurants, etc. in one of the T.V news channel provide sign language news especially for deaf and dumb peoples. The following are the sample screen shot in television sign language news in Figure 5.



Figure 5. Sign language video interpreter in television

E-Learning Systems for the Deaf

E-learn system is important to deaf people for gather knowledge. To implement e-learn we need the following

1. Virtual classroom with all devices
2. Text and video materials
3. Dictionary for sign language.
4. Computer and communication devices
5. Sign language interpreter
6. Hand sign images
7. Sign language educational content video
8. Sign language learning video

Higher Education System

In higher education system most of the institutions using e-learn system. Students of this generation mostly like system based teaching. They like to learn easily and quickly update subject knowledge. They always like advance technology using in all devices including in mobiles as well as class room. In this situation most of the schools and colleges using technology based teaching like projector, video conferencing, subject materials are in audio and video based method. it will be very useful to all types of students.

Deaf Students Higher Education System Using E-Learning

We discuss the above matter not only in normal (speech and hearing) students but also deaf students. In normal teaching method teachers explain the concept as much as quickly. But in deaf teaching we have to explain until the student understands. In this deaf teaching in higher education we have to separated school and college level teaching.

In school level most of the schools not implement e-learn method of teaching. They use some times when students need. And other reason for not implement e-learn is lack of technology, lack of computer and communication devices and implementation cost.

In college level teaching we appreciate that most of the institutions using and implement e-learn method of teaching. So that college level students easily update technology level knowledge easily. In Chennai three colleges are especially available for deaf learning courses in arts and science. They use lcd projector in class rooms, writing exams in online, sharing and copying subject based videos and notes in pen drives, cd, dvd, mobile phones, tabs and laptops. It's one of the good e-learn method to the deaf peoples.

Deaf Students Educational Institutions in Chennai

Nearly seven schools for hearing impaired available in and around Chennai. Due to lack of technological device and communication system they were not implement e-learning system for teaching. Sometimes if they need to show any multimedia related image and video, they have to use e-learn method. Student studied in these schools mostly got minimum e-learning skills.

In these seven schools only 4 schools has higher secondary education and remaining schools has only secondary level education (up to 10th). To give successful education to deaf students we must implement e-learn method of teaching in all schools.

Only three arts & Science Colleges avail in Chennai for teaching deaf students. After finishing their school education deaf peoples utilize these three college, one college is an fully government and other two colleges is self-finance. All of these colleges used/ implement e-learn method.

Benefits Of E-Learning in Higher Studies

In olden days the learning method was written in board and copying in note. Till most of the educational institutions following the same method. If student absent or missing the class ,then lack of knowledge only. So that we implement e-learn system, if missing or absent the classes also next day the people will use the educational content video through computer and communication system.

To give better education to the deaf peoples is possible through e-learn system. During the e-learn method we need the infrastructure, software and platform.

Proposed System

1. To implement e-learn with cloud computing and big data in all deaf education institutions
2. To upload new educational sign language video, controlling video speed
3. To implement good computer and communication system with advance software.
4. User tracking Chatting(text chat and video chat)
5. File sharing and all educational updated materials.
6. Implement ICT.

Conclusion

Now a day's more number of hearing impaired peoples studying in higher education. After finishing the education most of the deaf peoples got job in multinational companies. The deaf people's profession fully based on non-voice oriented. After enter the IT companies they face more struggles to use computer and communication devices. So that we have to implement in e-learn system in both school and higher education. During their higher education they can get various knowledge, related to using computer and communication devices. Then only they feel free working environment in their profession. So we have to suggest and implement e-learn based teaching in all higher education institutions in and around Chennai.

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