A Study Report on Teaching Skills to Speech and Hearing-Impaired Students in Higher Education Sector

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Abstract : It is vital to offer appropriate education and guidance to speech and hearing-impaired (SHIP) students. It is necessary for their successful life. The usage of modern technology will give a better solution for the speech and hearing-impaired students. The main goal of this research study is to apply the updated technologies to the SHIP students in higher education. In this paper, we have summarized the teaching approaches for speech and hearing-impaired students. Establishing a good communication channel between teachers and special students is essential for effective teaching and learning method. Here, Expectation for more findings and submissions has been produced to attain their goal.

Keywords : Speech and hearing-impaired persons (SHIP), Teaching and learning, Technology effectiveness, Education.

1. Introduction

Speech and hearing-impaired (SHIP) students are placed under the group of people who need individual caring and special education [1]. There are many standards for categorizing the speech and hearing-

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impaired people. The classification is done in accordance with many factors like, time of loss acquired, the degree of hearing loss, reason, form, place and longevity. The hearing loss degree is measured by audiogram, and they are divided into four categories, medium loss, slight loss, very late loss, and further loss [2]. The training process begins after the students have cleared the diagnostic and instrumentation process. Speech and hearing are the capabilities of a distinct to functionally use oral language in everyday life [3]. The verbal communication is blocked in course, due to hearing problem [4]. As the result, the speech and hearing-impaired students could not obtain the talking and learning measurement of their own language like mother tongue completely. It is proved that the qualities of the students who require special education and their requirements are somewhat different [5]. SHIP students are facing many important problems in school life and social life [6].

Isolate classrooms, proper hearing aids, Loop induction class room, audiogram equipment and educational chart activities are important for this SHIP students. When the SHIP student got fail mark in the classroom, they feel embarrassed and hesitated. In this situation, computer-aided materials can be used to deliver the chance to recurrence their lessons and to create a distinct education setting. This procedure will improve the students' self-confidence and influence [7] in the learning process positively [8]. The teachers got stressed that the preparation of teaching materials [9] like animations are fun based, visual play,

paintings and chart work for speech and hearing-impaired individuals [10]. This study focused on the effective techniques and procedures used in teaching of SHIP students. The SHIP students and regular students were examined in this situation for the study and the usage of technology in their education. This study will focus on the vast usage of technologies followed in teaching of SHIP students and the raise of skills and knowledges in using current technologies.

2. Centre for SHIP

Many universities have specialized centre for special students. Similarly, Kalasalingam Academy of Research and Education (KARE), Krishnankoil, Tamil Nadu has organized a good environment for SHIP students with their specific needs for their higher education. Kalasalingam Academy of Research and Education (KARE) in Tamil Nadu has a rich experience about the SHIP students in Engineering and Commerce domain. This centre provides them a discrete education strategy with help of trained special faculties, sign language translators and lab supporters. This organization delivers courses to enhance the student's logical awareness abilities. This centre is dedicated not only to the students but also it trains the professors and delivers them complete instruction about the way of communication with the Speech and hearing-impaired students.

3. Teaching methods for SHIP students

At KARE, all the basic information about the special students were collected. Then various teaching methods will be implemented by teachers of Centre for SHIP at KARE. After through study with the students, it is easy to describe the key tools to help the SHIP student to take part in standard progressions. In this paper we try to focus on outcomes of teaching education and learning development for the students with speech and hearing impairment which was verified by real-world practice from the teaching at the Centre for SHIP at KARE.

3.1 General ground

The speech is the most commonly used medium in the conventional education system, but the research shows, that the information received visually plays the vital role [11].

The Human's sense perception strongly depends on individual so as the information retrieval layout. It is always very difficult to device an individual teaching method. There are differences in the level of hearing impairment. Based on their hearing loss students can be divided into two different groups:

Pre-lingual hearing loss – Hearing loss before the language is developed.

Post-lingual hearing loss – People who got deaf, but already had learned to speak.

Pre-lingual hearing loss – This type of hearing loss is identified from birth itself. These people have known only sign language as their mother language. Written language was considered as a second language since they don't know the language.

Post-lingual hearing loss – This type of deafness [12] has been identified after any injury in ear. These people know the language how to speak and write. [13].

The students with pre-lingual hearing loss face many problems in understanding of the subject matter because of the dissimilar language.

The sign languages and spoken have a different syntax. Many times, the students interpret the teacher's statements using the watching, reading and lip-reading the notes written at the board. The professor or a sign language translator are helping these SHIP students to understand the subject [14].

At KARE people with hearing impaired can select from two different forms of education: B. Tech or B. Com based on the higher secondary specialization.

This study focusses on the teaching procedures to SHIP students. In general, many of my teachers thought hard to taught SHIP students. It is important that the message has to spread out to all the SHIP students and it is necessary to make adjustments in the classroom to reach out to all of our SHIP students. These adjustments meant for small changes in the teaching methodology.

3.2 Classroom

Teachers in the classroom need to see all of the students. It may require a minor rearrangement or moving the student to a different seat of the classroom. It is advisable to arrange desks in a semicircle if the class is small but it isn't possible then the students can

be placed to the side and in front, a place that provide clear visualization. It is not advisable to stand side and in front of windows. The glare may hurdle the visibility to anyone especially for the SHIP students who focus on lips.

It is necessary to remember not to speak when the SHIP people can't get your face expression for instance when walk around or you write on the board. While making reference to the objects on the sheet in board it is necessary to be precise about the phrase or word pointing directly to it. If the reading an assignment are done during the class hours avoid talking at the same time [15]. It is advisable to have the assistance of a normal student. To grab the attention of SHIP student just tap on the shoulder or wave by the hand in front of their face – or with the help of student nearby. The body language, facial expressions and gestures are important for nonverbal communications. It is good advice to use visual aids whenever possible – since visual reinforcement enhances all communication.

3.3 Communication Issues

Although many assistive listening devices and also some speech reading skills are there to help SHIP students in the teaching space, approximately some people rely on interpreters to communicate. The interpreter is the mediator between the teacher and the SHIP students to communicate. The interpreter cannot be a teacher so it is always important to maintain the direct communication with the student. The subject clarification comes from the end of the teacher not from the interpreter as he does not explain or give advice about subject [16]. It should be maintained that the direct speech with a SHIP student not as the indirect speech. For example, enquire "Do you have your assignment" nor "Does she have her assignment?". Let the translator stand or sit near by the teachers' that will help the SHIP student to keep interaction with teacher and the translator. The translator should not face any problem to hear the teacher because of close sounds such as air ventilators or projector.

3.4 Interpreters

In the time of class discussion, it is necessary to give sufficient time for the SHIP students to participate [17] and to interact over the interpreter and for the interpreter revert to the teacher. While reading necessary pause to be taken to the SHIP students and the interpreter should keep up with teacher and the remaining class.

The aim is all the students must have the knowledge to access the greatest education, thus it is necessary that the interpreter should be knowledgeable and qualified.

The interpreters must possess proper training, and must hold a state and/or national certification.

The interpreters should be trained through institutional level interpreter training sessions or state rehabilitation services.

While taking classes the teacher should face the SHIP students not the interpreter when the teacher talking to the SHIP students. The students should have a clear view of vision to the teacher and the interpreter. The interpreter should avoid standing or sitting in front of lights or shadows or windows.

The interpreter should not sit close to the noise sources. The teacher must avoid private discussions or chats with others in front of SHIP students because the interpreter may translate all said.

The basic, simple, and clear speaking style must be followed to help the interpreters to understand easily. In case of long lectures have minimal breaks since the interpreter requires a lot more energy since he makes signing and watching than simply listening.

3.5 Assistive Listening Devices

It is not necessary for all students to use translators. Some SHIP students will trust on assistive learning devices. The ALDs use wireless microphones to convey sound to the student's headset.

So that the talker must be near the microphone.

The ALD working condition should be ensured, the mike or the microphones should be passed to who is speaking or multiple microphones to be arranged. Have the conformation from SHIP student with an ALD that the sound is conveying easily.

Most listening devices depend on battery power for operation hence backup batteries should be kept always. Each evening the rechargeable batteries should be charged. Make sure that the receiver and transmitter are switched off each day to preserve

power. The most important thing is to off the mike when it is not in use.

3.6 Teaching Strategies

Give the benefit of your prior planning to the students with hearing loss [18] and the teaching strategies were presented in Table 1. A brief course outline to be given to the students early in the term. The new vocabulary or specific terms should be listed on the blackboard before each class, or a copy those things should be handed over before that both the translator and the students if necessary.

Some faculties provide a copy of their subject notes to the students. Since the focus of the student on an interpreter and maybe you, support the SHIP student find a fellow student to deliver a copy of subject notes. The SHIP students may find it difficult to take notes since their attention is on you. Hence offer them with the printed copy directions or notices or test schedules and changes any. While teaching anything it is necessary for the students to focus on you, and also referring to the content on the board, it is important to allow sufficient period for the translator to transfer the data to the students and also the SHIP students to understand the concept clearly.

Table 1: Comparison Result
of teaching strategies and outcome

S.No	Teaching strategies	Outcome achieved
1.	New vocabulary or specific terms should be listed on the blackboard before each class	Students knowledge improved and got information about new terms and it is easily understandable among SHIP students
2	Teachers circulate a copy of their subject notes to the students before taking class	Providing subject notes early is necessary for these students to focus and concentrate on studies while teachers taking class and also referring the content on the board
3.	Use the meeting apps (online class) with captions and when video lessons are played	With the help of captions or subtitles students came to know about the information in the content clearly
4.	To inform the students we use bulletin board or notice board	With the help of bulletin board or notice board in the noticeboard SHIP students received all the announcements and important information related to their needs.

It is always necessary to use the programs with captions when videos lessons screened and also try to have the decoders if required. If the video programs move too fast, allow enough time for communication even if the student is using an interpreter. It is necessary to ensure that the SHIP student gets all school announcements properly.

3.7 Visual resources

The exploitation of visual resources greatly improves the learning of SHIP students, especially if images, videos or animations are accompanied by explanatory captions. An equation or function properly presented with the legend of its variables is decisive for the understanding.

3.8 Laboratory experiments

Without doubt the realization of experiments from science or engineering subject is determinant in the learning of the physical, because it allows the visualization of the phenomenon. In the case of SHIP students, it is necessary to add very explanatory to the step-by-step of the experiments and what the student should observe while he or she execute it. The teacher should also be careful in cases where the sound is fundamental in the realization of the experiment.

In case of acoustic experiments using tuning forks, the resonance phenomenon is usually observed only by sound observation. For the experiment to be observed by SHIP students in Physics laboratory, it will be necessary to use some accessories, such as microphone and oscilloscope. The microphone to pick up the sound and the oscilloscope to read the sound waves in a display, allowing visual observation of the phenomenon.

3.9 Tips That Have Helped the Faculty

While doing evaluation it is necessary to follow that the loss of hearing can source for difficulties with syntax, expression or grammar of statements. Some SHIP students are capable of communicating through ASL (American Sign Language) can do reading and writing in English as a foreign language. Some instances that have helped other teachers about reading and writing assignments are presented.

First it is necessary to appreciate the exclusive tasks of SHIP students in English writing. Before writing an assignment, a meeting has to be scheduled

with the students in due. Provide a rewriting chance before submission.

Permit SHIP students have enough time to read in-class assignments. SHIP students may struggle to understand fluent terms, so required period of time duration for clarification to be given to SHIP students. They have to understand new phrases and words. They must be educated to use a dictionary effectively. Explanations must be given to understand difficult or unusual passages.

Before the semester meet the SHIP students must be informed as early as possible to recognize and summary the plans. Educate them plainly about the dos and don'ts. For instance, a rewrite of assignments is allowed before the time bound but late submission is not accepted.

Arrange for a meeting with teacher and SHIP student to recognize plans and needs required in a language or verbal subject, or any class. Address the students for his or her responsibilities. Be flexible when modifications and adjustments necessary.

Math teachers have few more responsibilities when communicating with SHIP students. Never assume the SHIP students are good in calculation or mathematics since it is visual. The teacher has to write every step when writing examples on the board, if any steps explained verbally the SHIP student could miss. If the exam needs more reading and writing the SHIP students may require extra time. Sometime an interpreter may be in need to sign test questions.

We the teachers are facing many challenges from our students daily. The SHIP students offer us unique opportunities daily. These are all few guidelines which are the experiences of our fellow teachers. Not only these guidelines but our positive attitude can also help us to get a valuable experience from all of your students.

4. Results and Discussions

4.1 Data collection

This study report analytically collected data via documenting a teachers' work and comprehension questionnaire coded into five different types: General aspects, classroom performance. communications, laboratory performance and visual resources. This study report was collected over a 6-month period.

The main goal of this study is to observe how the speech and hearing loss students differed from the regular students. In this work we took two different kinds of students one is for speech and hearing-impaired students and another type is regular students. We have collected the questionnaire data from 105 speech and hearing-impaired students and regular students.

4.2 Data analysis

The data was analysed based on the collection of questionnaires. The data analysed was taken from current activities, how the students will perform in the classroom, laboratory, visual aspects, and communications and revealed the results of this study.

4.3 Findings

An analysis of the observations the following details we found. In general aspects the 77% SHIP students but 86% of the regular students were given the correct answer. In classroom performance there is no big deviation between SHIP students and regular students, 92% of SHIP students and 94% of regular students give the correct answer. In communications

**Table 2: Comparison Result for
SHIP and Regular Students**

S. No	Methods	SHIP Students	Regular Students
1.	General Aspects	77%	86%
2	Classroom Performance	92%	94%
3.	Communications	72%	89%
4.	Laboratory performance	94%	92%
5.	Visual resources	95%	86%

**Fig. 1 : Comparison of general aspects of
SHIP and regular students**

there are 72% of SHIP students and 89% regular students give the correct answer. In laboratory performance 94% of SHIP students and 92% regular students were give the correct answer. In visual resources 95% of SHIP students and 86% of regular students were give the correct answer. The above results were presented in Table 2.

The above fig. 1 represents the average test results in general aspects of both speech and hearing impaired as well as regular students.
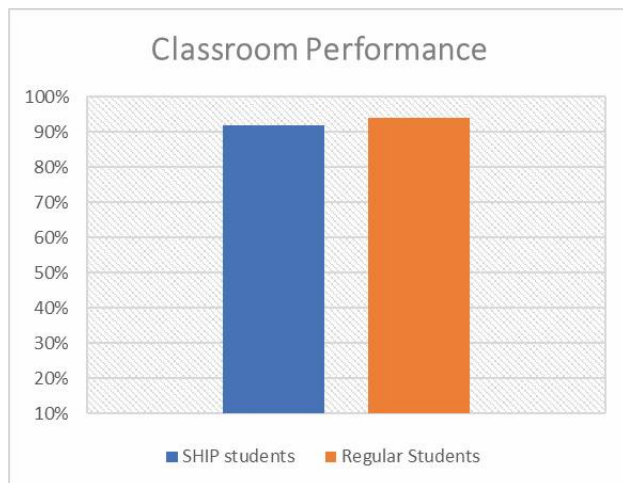

Fig. 2 : Comparison of classroom performance of SHIP and regular students

The above fig. 2 represents the average test results in classroom performance of both speech and hearing impaired as well as regular students.
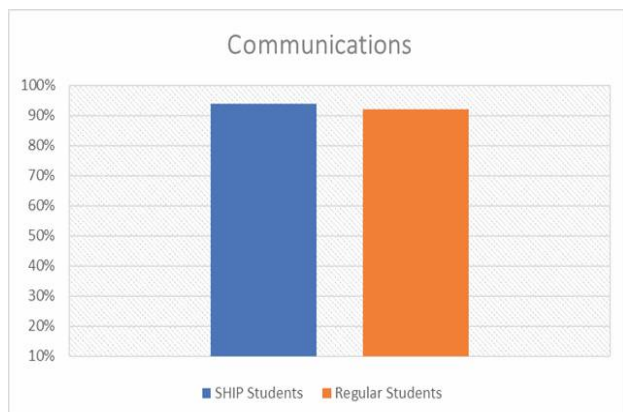

Fig. 3 : Comparison of communications result of SHIP and regular students

The above fig. 3 represents the average test results in communications of both speech and hearing impaired as well as regular students.
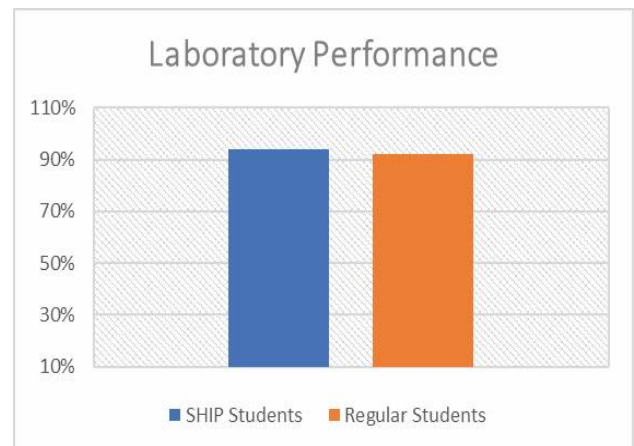

Fig. 4 : Comparison of laboratory performance of SHIP and regular students

The above fig. 4 represents the average test results in laboratory performance of both speech and hearing impaired as well as regular students.
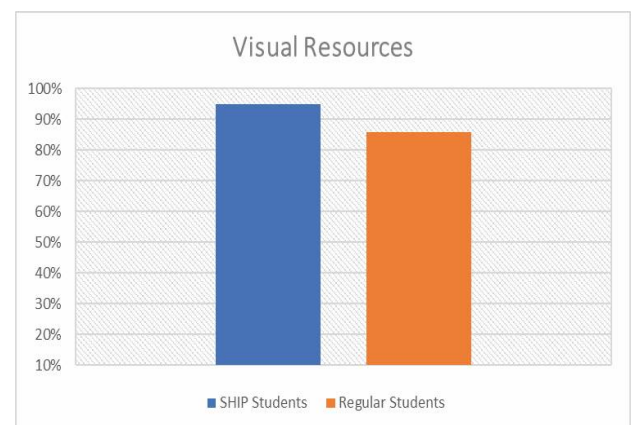

Fig. 5 : Comparison of visual resources usage of SHIP and regular students

The above fig. 5 represents of visual resources usage both speech and hearing impaired as well as regular students.

5. Conclusions

Obviously, it is not easy to educate SHIP students. In this paper we have summarized the teaching approaches for speech and hearing-impaired students. It is vital to establish the communication channel between teacher and special student is essential for the effective teaching and learning process. It is suggested that teachers' skills and knowledge towards using technology-supported applications to teach speech and hearing-impaired students should be increased by conducting regular in-service training and seminars.

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