Analyzing the Effect of Technology-Based Intervention in Language Laboratory to Improve Listening Skills of First Year Engineering Students

El uso de la tecnología en el laboratorio de idiomas para el mejoramiento de las habilidades de escucha de estudiantes de ingeniería de primer año

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First year students pursuing engineering education face problems with their listening skills. Most of the Indian schools use a bilingual method for teaching subjects from primary school through high school. Nonetheless, students entering university education develop anxiety in listening to classroom lectures in English. This article reports an exploratory study that aimed to find out whether the listening competences of students improved when technology was deployed in language laboratory. It also investigated the opinions of the students about using teacher-suggested websites for acquiring listening skills. The results of the study indicated that the use of technology in a language laboratory for training students in listening competences had reduced the anxiety of the students when listening to English. Further, there was a significant improvement on the part of students in acquiring listening skills through technology-based intervention.

Key words: English as a second language, English for academic purposes, higher education, listening skills, technology based learning.

Muchos estudiantes de ingeniería de primer año en India tienen problemas con sus habilidades de escucha en inglés; experimentan ansiedad al momento de escuchar conferencias en inglés, pese a que provienen de colegios donde se sigue un modelo bilingüe para enseñar materias desde la primaria hasta la secundaria. Con el objetivo de averiguar si las competencias de escucha de los estudiantes mejoran cuando se introduce la tecnología en el laboratorio de idiomas, se realizó un estudio exploratorio en el que se tuvieron en cuenta las opiniones de los estudiantes acerca del uso de sitios web sugeridos por el docente para adquirir habilidades de escucha. Los resultados indican que el uso de la tecnología en el laboratorio de idiomas reduce la ansiedad de los estudiantes al momento de escuchar conferencias en inglés y que progresan significativamente en sus habilidades de escucha.

Palabras clave: aprendizaje basado en tecnología, educación superior, habilidades de escucha, inglés como segunda lengua, inglés para propósitos académicos.

Introduction

Research on communication skills mostly focuses on intrapersonal skills such as speaking and writing. Intelligible communication takes place through interpretive skills such as listening and reading. Listening is a primary criterion for starting any communication. Listening is not just hearing, but interpreting with concentration the ideas or words uttered by a speaker. Therefore, teaching listening skills needs to become the foundation for imparting instruction of other communicative skills such as speaking, reading and writing. According to Miller (2003), more than 40% of communication is carried out through listening, 35% of communication through speaking and the remaining 25% of communication through reading and writing. In the Indian classrooms, most of the teachers practise the traditional method of instruction, in which, roughly more than 99% of communication activity involved is listening by the students. Therefore, it is necessary to find out the students' levels of listening proficiency in order to evaluate the students' comprehension of the subjects taught in classrooms. Depending on the results, the students' inadequacy in listening skills could be offset by training them via using modern methods of teaching a language.

Technology in Language Laboratory

The use of technological aids like computers has become a significant feature in English Language Teaching (ELT) classrooms. Teaching aids such as tape recorders, VCRs, and projectors were used in the classroom for effective teaching until some time ago. However, during the recent past, effective teaching strategies have shifted to internet based learning. Usage of technology-enabled strategies is made possible through using computers. There is no doubt that using the internet for language teaching will occupy the central role in ELT and learning for quite some time to come (Coiro, 2003).

The 21st century generation continues to grow up with technology and students of this generation use technology with ease. The use of technology has changed people's abilities to access information including receive communication and has had a great impact on students' learning abilities (Anderson, 2000). There are many technological tools that could be used in classrooms to improve English as well as the technology skills of the students. Wang (2005) argues that the use of technology in English classrooms, especially for English as Foreign Language (EFL) students, has many advantages. Students can improve communicative skills such as listening, reading, writing and speaking. It enables students to communicate worldwide through the internet, search for information online, use software to learn skills and evaluate them, publish their work and read technology texts. In addition, he points out that integrating technology in language classrooms changes the learning approach from a behavioural learning approach to a constructivist learning approach.

Research on the use of technology proves that listening can be improved through audiovisual aids. Xiaoqiong and Xianxing (2008) used technology to display films to motivate students to learn a foreign language. Along with a DVD player, they also showed students a computer with attractive pictures and interesting information gathered from the internet about the movie being shown. Results suggested that by watching and listening to engrossing materials, students were immensely motivated to learn English. Xiaoqiong and Xianxing (2008) further found out that this method greatly improved the listening comprehension of the students. They assert that by using traditional audio materials in EFL classes, teachers can teach listening, but when visual materials accompany the audio, the students' enthusiasm in improving their listening skills increase.

Computer mediated learning is the current trend in teaching methods. Therefore, it is essential

for the student and facilitator to equip themselves with facilities that are capable of providing all of the technical tools required in the classroom. Hsu (2010) emphasises that the use of technological tools inside the classroom is highly effective for the intended purpose of teaching, provided the computer used has good technical support, and peripherals like a microphone and an efficient loudspeaker system. He believes that by using a good computer, the user can imitate speaking by listening to the voices in a web-based system. Therefore, it is necessary that in order to practice listening in a language laboratory, the computer must be equipped with good microphones, headphones, and speakers. Research by Chiu, Liou and Yeh (2007) on speaking skills utilizing computers identified that a computer-assisted language learning application, Automatic Speech Recognition (ARS), assisted students in meaningful speech interactions. The study found that the application of ASR aided college freshmen, particularly non-English major students in improving their language skills.

Kung and Chuo (2002) evaluated students' perceptions of learning English using online ESL/EFL resources and their attitudes towards using internet as a supplement to in-class instruction. The results showed that students appreciated the internet-based language learning process using teacher recommended ESL websites. Although much research has been done on the effectiveness and feasibility of using technology in language classrooms, there are some disadvantages like start-up expenses, copyright issues, and other potential inconveniences. Using educational technology tools in ESL/EFL classrooms such as ESL websites, web-based language learning, along with language learning packages from the internet, assist students in developing their language and communication skills. In other words, studies confirm that the substitution of an on-line learning environment may enhance language learning and development (Kung & Chuo, 2002; Ware, 2004;

Yuan, 2003; Hsu, 2010; Wang, 2005; Chiu et al., 2007; Xiaoqiong & Xianxing, 2008).

Purpose of the Study

Contemporary studies depict the use of technology-based learning as an effective method of teaching and learning (Xiaoqiong & Xianxing, 2008). After sufficient surveying of internet websites with free ESL resources, three websites (www.learn-to-speak-english-esl.com, www.esl-lab.com, www.americanrhetoric.com) were selected for training students in listening. The aim of selecting these websites was to motivate students to shed themselves of their anxiety in English language listening. These selected websites each differed in their resource composition, including conversation, songs or public speeches for learning listening skills. This exploratory study aims to examine whether the use of technology in a language laboratory helped participants to reduce their anxiety and improve their listening comprehension. It also aims to investigate participants' opinions about the selected ESL websites to improve their listening comprehension.

Participants and Context

The participants in this study were 65 students attending an English language laboratory listening course at a private university in India. The students were completing their first year in the bachelor's degree program in engineering. Out of 65 students, 19 were female and 44 were male. The students on average belong to the Low Intermediate level of listening proficiency. According to the American Council on Teaching of Foreign Languages (ACTFL) proficiency standards (2012), students entering undergraduate education in the ESL context were expected to have a high intermediate level of listening proficiency. Recognising the need for improving its standard of students' listening skills, the university provides a compulsory language laboratory course

for enhancing the listening skills of first year students. This study was implemented within the students' listening skills practical laboratory course.

Prior to the study, demographic details of the students were collected. All of the students had at least ten years of formal learning in the English language. However, there was a range of difference in language learning techniques in their school classrooms. Of the 65 students, nine students were from regional (local language) medium schools and 56 students were from English medium schools. With regard to advisory boards, 35 students were from the Central Board of Secondary Education, 11 students from the Indian Council of Secondary Education Board of Studies and 19 students from the Tamil Nadu State Board. Moreover, 23 students had secured below 60% in English and the remaining 42 students secured above 60% in English on their Higher Secondary examinations. It was identified that 25% of the schools used languages other than English to teach all subjects and 35% of the schools taught all subjects using a bilingual method. That is, they taught the subject using both the local language and English. The remaining 40% of the schools used only English for teaching all their subjects.

The data collected showed that students entering higher education with various school backgrounds had developed anxiety in attending classes at the undergraduate level (Boud, Cohen, & Sampson, 2001). In addition, students had certain difficulties in listening to teachers' lectures in English because the data collected revealed most of the students were not accustomed to listening to lectures in English at the school level. At the same time, students had the desire to improve their listening skills. More than three quarters (75.4%) of the students were interested in improving their listening skills. Therefore, it was necessary to identify the specific skills required for mastering the Intermediate level of listening so that the students could subsequently be trained in the language laboratory.

Research Problem

Students entering engineering higher education face problems listening in English. The National Assessment of Educational Progress (2009) had explained that little progress was made in reducing the gap between bilingual and English learning students. But English was the medium of instruction and the student language composition of the class was multilingual; hence, a bilingual method of teaching was not possible. This situation was due not only to the fact that students used English study tools and texts, but also due to the fact that students were from different Indian states with different local languages. Furthermore, students from different educational backgrounds faced problems when listening to lectures in English. It was identified through the questionnaire (refer to Appendix A) that students had anxiety when listening in English as many of the students did not have enough exposure to listening in English in secondary schools. Therefore, it was found that the students had to be trained in the English language laboratory to improve their listening skills and additionally reduce their anxiety when listening to lectures in English.

Procedure

As enumerated in ACTFL (2012), research on the teaching and learning of listening skills should focus on specific skills such as understanding gist, background knowledge, all types of conversations, native speakers' languages, face-to-face speech of a standard spoken language, idiomatic expressions and slang, tone, style, main ideas, specific information contemplating a wide variety of topics, reading between lines and predicting vocabulary meaning. These are the specific listening skills required of engineering students for mastering the Intermediate level and entering the Advanced level of skills in listening.

Three online websites were utilized to resolve problems encountered in listening. The plan of

utilising these websites for training students in listening skills was well explained to students, so that the accuracy of language learning would be improved (Foster & Skehan, 1996; Mehnert, 1998). Randall's ESL Cyber Listening Lab (www.esl-lab.com) was selected with the idea of training in the specific intermediate skills such as understanding gist, using background knowledge, interpreting conversations, understanding native speakers' languages, and identifying specific information and main ideas. The websites had a number of conversations that were arranged at three levels of learning–easy, medium and difficult. Initially students were trained in the easy levels for two weeks as a warm up and to ensure a pleasant listening experience. Then the conversations of medium level and difficult level were randomly played for students to practise listening. Each audio clip had a set of questions related to the conversation, allowing the students to test their listening skills themselves.

Teacher Frank's website (http://www.learn-to-speak-english-esl.com) was selected to train the students in specific listening skills such as comp-rehending idiomatic expressions and slang, tone and style, identifying native sounds and the speaker's pers-pective. Teacher Frank had devised songs for learning English with an excellent scope of exposure to authentic native speakers' languages, tone and style. Moreover, songs were different from conversations and added variety to the exercises. These songs were played in every class to enhance the activities in the language laboratory. Every song had lessons for testing purposes, so students we were tested on their listening comprehension while listening to the songs.

The third website selected was approximately similar to traditional classroom lectures. The American Rhetoric website (www.americanrhetoric.com) was chosen with the purpose of motivating students through the use of extra audiovisual aids and to train students in specific listening skills such as understanding standard face-to-face speech,

contemplating a wide variety of topics, reading between lines, predicting vocabulary meaning and understanding every word uttered in speech. This website had famous speeches spoken by world famous personalities at various times such as John F. Kennedy: Inaugural Address, FDR: Pearl Harbour Address, Mary Fisher: 1992 Republican National Convention Address. Moreover, students were taught to identify the structure of the speech in terms of introduction, context and conclusion. In addition, it was assumed that by listening to these speeches students would be motivated to attain high ethical values in life. Since this website dealt with advanced skills in learning listening, it was introduced to the students only after four weeks of training using the other two websites.

The students attending the language class were trained in using these online ESL resources in every language laboratory class. Students had two hour slots of lab class during which they were trained in these websites one after the other for five months. The first lab class hour was allocated for training using conversation and songs and the last hour for listening to public speeches. Sample tests were also conducted to get them confident in the activity they were engaging in.

At the end of the course, the students were asked to take a listening test weighted with 50 marks and the marks obtained were analysed to identify the improvement in listening skills. The students were given a questionnaire to fill in at the end of the language laboratory class. This two part questionnaire concentrated on self-assessment of listening skills and ability (see Appendix A) and students' attitudes towards using the three websites (see Appendix B). It also aimed to find out which, if any, problems were encountered by students during this process.

Limitations of the Study

Students were trained only during weekly lab hours. Students were not trained in lessons nor were

they given any assignments outside the class hours. It was left up to the students to study or make any outside preparation. Questions were framed in the questionnaire to find out how many students were interested in using the three websites outside the class hours. Inconvenience caused due to internet connection problems was solved by using other language laboratory facilities at the university. To overcome technical problems like poor internet connectivity and connection failure, materials were downloaded from the websites and used in class through LCD projection and speakers.

The use of unknown words in the listening materials was one difficulty faced by students. The Cambridge Advanced Dictionary was installed into the language laboratory system and students were trained on how to search for definitions of unknown words. In this study, students were trained in listening to general resource material available on the three websites; we did not focus on any websites which had engineering-related materials. It was expected that the use of general resources would reduce student anxiety and enhance their listening skills, plus give them the tools to further learn engineering-related materials on their own. Therefore, the websites with general concepts in different modes such as conversation, songs and public speeches were identified.
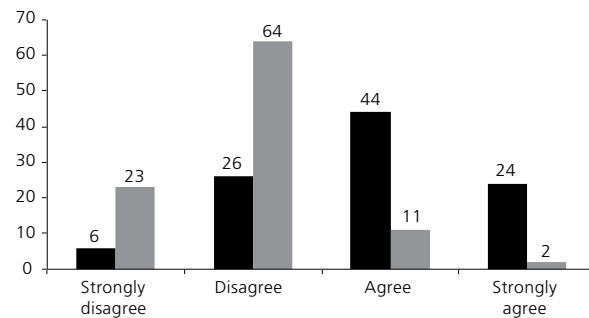
The study was limited to the selected few websites, although a number of websites were available. The three websites and their materials were incorporated sufficiently within the structure of the course. However, care was exercised in the selection of these websites.

Results

The central idea of using these websites was to relieve students of their anxieties when listening to lectures in English. After training, it was found that students changed their opinion of listening to conversations and lectures in English after the laboratory training. In

Figure 1, the dark shade represents pre-training results and the light shade represents post-training results.
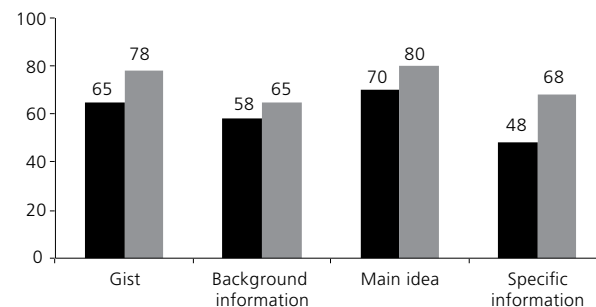
Figure 1. Pre and Post Training Results on Anxiety

There was significant change in students' attitudes towards listening in English after the training. Almost two-thirds of the participants (64%) agreed that usage of technology was user friendly and helped them to get rid of their anxiety. In comparison to pre- training, 40% of the students were influenced by and reduced their anxiety by using the three websites. Moreover, 20% of the students were very confident in listening to their classroom lecture in English after undergoing this course.

Results of the self-assessment test revealed that the students were confident in using the lower intermediate skills such as understanding gist, background information, main ideas, and specific information. In Figure 2, the dark shade represents the initial self assessment and the light shade represents final self-assessment.

Figure 2. Results of Initial and Final Self-Assessment on Specific Skills

After training, there was nearly a 15% improvement on the part of the students in using these skills. Students were very confident in understanding the main idea of a conversation and understanding the gist of the spoken context. Initially, students found it difficult to concentrate, had problems in understanding the exercises and would resort to guessing based on their background knowledge. During training, students began to understand that concentration on the subject of conversation was more important than using background knowledge in the subject. After training, nearly 75% of the students knew that using background information to understand some parts of the conversation would distract them from the main idea of the conversation. In contrast, recollecting specific information was carried out with less confidence by 40% of the students.

Overall, students performed well in acquiring the Intermediate skills by using technology. By comparing the Final Self-Assessment survey with the results of the test, it was obvious that students performed better on the test than they expected (see Table 1).

The marks obtained in identifying main ideas, using background knowledge, and recollecting specific information indicate that students had performed better on comprehension tests in comparison to their self-assessment. The Self-Assessment test indicated that the students were confident in getting the gist and identifying main ideas. The test results prove that students acquired higher test scores than their Self-Assessment tests predicted. In comparison to the other skills, students have secured a lower score (70%)

in recollecting specific information. It is important to note that activities related to recollection involve quick memory and having accurate data and that more practice may be necessary in order to retain information successfully.

Higher Intermediate level skills such as understanding native speakers' language, idiomatic expressions and slang, tone, style and speakers' perspectives demanded more participation on the part of the students. The selection of songs for training in these skills was appropriate and so the students had significant improvement in learning these skills. In the initial self-assessment, students scored 46% in understanding native speakers' language, 25% in identifying idiomatic expressions and slang and 58% in analysing tone, style and speakers' perspectives. However, in the final self-assessment, students had scored 84% on understanding native speaker's languages, 74% on identifying idiomatic expressions and slang and 86% on analysing tone, style and speakers' perspectives. A comparison of these results proved that students acquired these skills and registered nearly 50% of improvement respectively. It suggests that the use of songs positively influenced skill acquisition. Moreover, the students felt it was easy to learn idiomatic expressions and slang through songs.
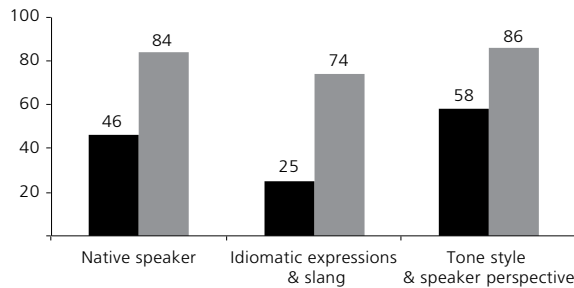
The reasons for significant (more than 40%) improvement in listening to native speakers was because all the materials obtained from the internet for listening training utilized native speakers' voices. The continuous exposure to the native speakers' voices in the language laboratory could have tuned the ears of

Table 1. Comparison of Final Self-Assessment and Testing Data

Items Tested through Randall's Laboratory	Final Self-Assessment	Testing
Getting the gist	78.2%	73.6%
Using background knowledge	65%	74%
Identifying main idea	80%	87%
Recollecting specific information	68%	70%

the students in listening to native speakers. However, students had difficulty understanding complex and typical accents. Students felt very comfortable listening to global English accents. In Figure 3, the dark shade represents the initial self-assessment and the light shade represents final self-assessment.

Figure 3. Results of Initial and Final Self-Assessment on Specific Skills

Even though students showed improvement in identifying idiomatic expressions, they still had problems identifying culture-specific terms. It was found that using songs worked well in training students to identify tone, style and speakers' perspective. This could be due to the high entertainment value of the songs that interested and motivated them to perform well in acquiring these skills.

The comparison of the final Self-Assessment score with that of the test results revealed that the students acquired higher levels of proficiency in English (see Table 2).

Concerning understanding the native speakers' voices, 84% of the students accepted their enhancement on the final Self-Assessment test. The test results proved that 96% of the students achieved the skills of listening to native speakers' voices. This result proved that after training the students were capable of listening to speakers of English, which in turn would help them comprehend classroom lectures. Surprisingly, 74% of the students felt that they were able to identify the idiomatic expressions and slang, and results of the test concurrently showed 65.6% of the students recognised idiomatic expressions and slang. Similarly, more than 80% of the students recognized their capacity in identifying tone, style and speakers' perspectives, which approximately matched the test results.

Students treated advanced skills such as understanding face-to-face standard speech, interpreting a wide variety of topics, reading between the lines, and understanding every word as difficult skills. In the initial self-assessment, more than three quarters of the students had difficulty in using these skills. In Figure 4, the dark shade represents the initial self-assessment and the light shade represents final self-assessment.

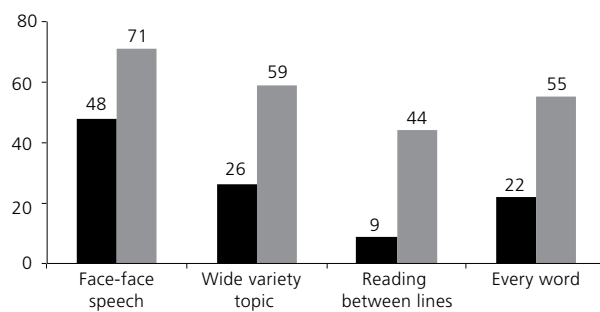**Figure 4.** Results of Initial and Final Self-Assessment on Specific Skills

Table 2. Comparison of Final Self-Assessment and Testing Data

Item Tested through Frank Songs	Final Self-Assessment	Testing
Native speakers' voices	84%	96%
Guessing meaning of Idiomatic expressions and slang	74%	65.6%
Tone, style, speakers' perspective	86%	83.4%

Further, students initially had problems with intermediate skills. Therefore, acquiring advanced skills could be more difficult for them. This was also due to less experience on the part of students in practising these advanced skills during their secondary educations. Therefore, the extensive practice of these skills during the language laboratory course helped more than half of the students acquire advanced level skills in listening. The final Self-Assessment test result showed that 71.2% of the students improved their listening skills of face-to-face standard speech whereas 48% felt their skills were sufficient in the initial Self-Assessment. There was more than a 30% improvement in understanding the meaning between spoken lines. In the initial self-assessment, only 9% of the students felt confident listening between the lines. However, the final assessment disclosed that 44% of the students enhanced their skills listening between the lines in a spoken context. Nevertheless, students improved their skills in interpreting a wide variety of topics (26% to 59%) and understanding a wide variety of words (from 22% to 55%) from initial to final Self-Assessment.

The American Rhetoric website offered a variety of world famous speeches, which was an added advantage, where students had opportunity to listen to valuable speeches. Therefore, students were motivated and reinforced to listen to a wide variety of topics. The study identified that the improvement in the correct use of background knowledge helped students in interpreting the meaning between lines in standard spoken speech. Students who performed well on questions related to background information also performed better in reading between the lines (see Table 3). It could be reasoned that once students were not distracted using background knowledge, they were able to perform well and concentrate better on the subject of standard spoken speech. Their keen attention to the subject matter without any distraction enabled them to read between the lines.

Although the Self-Assessment results revealed that the students (71.2%) felt less at ease in understanding the face-to-face Standard English speech of famous personalities, the result of the test disclosed that 80% of the students did in fact understand the standard public speech. Since the students were new to the higher education system, around 60% of them felt it was difficult to understand the meaning of a wide variety of topics. The results reported that 53.2% of the students felt confident in listening to a wide variety of topics. Nearly 44% of the students felt confident in detecting meaning between the lines and the test results showed that 35.2% of the students earned good results in the desired skill. Around 55% of the students felt it was difficult to listen to and interpret every word in speech. This might be due to students' lack of knowledge of culturally specific terms, complex vocabulary and subject specific terms.

Students' Attitude in Using Technology for Learning Listening Skills

Randall's Cyber Lab has conversation on general topics, which are not related to engineering subjects. When students were asked (see Appendix в), 72.3%

Table 3. Comparison of Final Self-Assessment and Testing Data

Items Tested Through American Rhetoric	Self-Assessment	Testing
Standard face-to-face speech	71.2%	80%
Understanding a wide variety of topics	59%	53.2%
Detecting meaning between the lines	44%	35.2%
Listening and interpreting every word	55%	52%

of them replied that listening to general topics was helpful. As the students experienced anxiety in attending the college, using subject-specific resources for improving listening might not help them in reducing their anxiety. Therefore, they preferred online resources outside the engineering subject matter.

In the initial stage of listening students were not distracted because the audio length was not more than two minutes in the easy level of listening. Students faced problems of distraction when the audio length was longer than three minutes. It was identified that 80% of the students encountered some problem in listening to audio without video. Therefore, while practicing the difficult level at Randall's Cyber lab, students asked for repetition of audio. The purpose of the listening practise was to get them familiar with listening, so the students practised with the audio until they felt confident in answering the questions. The beneficial part of the practice exercise was that the students along with audio could view default questions with answers, which enabled them to crosscheck the correctness of their comprehension. Overall, 72% of the students felt comfortable accessing the websites without teacher supervision. Hence, 64.6% of the students enjoyed working with Randall's Cyber Lab website.

The concept of learning English through songs captivated the students' attention. Data collected revealed that more than 95% of the students enjoyed working through the Teacher Frank song resources. More than 83% of the students expressed that working with this website facilitated their changing their attitude towards listening. That is to say, it played a major role in improving students' attitudes and reducing anxiety. An added benefit was that listening to songs was entertaining for students, in that these songs provided subtitles along with videos (Sueyoshi & Hardison, 2005). The testing part that was held subsequent to using these materials facilitated students as well as the instructor in evaluating listening comprehension. However, 57.6% of the students stated that operating within the website without the instructor's supervision was difficult.

The major problem encountered with the American rhetoric's website was that students needed to spend lot of time listening. Since the students had to listen to long speeches, 58% of them felt it was less interesting to work with this website than the others. However, 83% of the students stated that materials used in this website were beneficial and highly informative. Students felt that listening to lectures of famous personalities influenced their attitude toward life. They agreed that these speeches not only increased their proficiency in listening but also developed their personality.

It is important to note that each of the websites had its own positive and negative effects, and students preferred using a mix of elements like conversation, songs and speech during class hours. Thus, most of the students appreciated using all three websites during each lab session.

Altogether, 89% of the students preferred using e-resources in the language laboratory. They found that these innovative practises in language the laboratory motivated them to learn English. As a result, students showed interest in learning other communicative skills through this method of learning. When students were asked about using these websites outside class hours, 86% of the students said that they were interested in using these websites outside class, but the subsequent answer showed that only 35.7% of the students had actually used the websites outside of class. The possible interpretation of this could be that the students were busy with subject-specific homework and did not have time to use the websites. It could also be that many students lacked internet facilities at home to be able to use these web resources. When asked if students wanted to know of other websites for learning on their own, 61% of the students responded positively. More than 78% of the students had recommended these resources to their peers. All of these responses suggested that students

would like to use these online resources by themselves in the near future. Students might have realised that e-resources were necessary for their career and that they would need to learn standard communicative skills themselves, which might help them in meeting global job opportunities.

Conclusion

The results of the study revealed that technology-based intervention for training students in listening competences and reducing their anxiety when listening to lectures was successful. The students showed significant improvement in acquiring listening skills. This result is similar to the opinion of Moran, Ferdig, Pearson, Wardrop, and Blomeyer (2008) who feel that digital tools and learning environments increased the comprehension ability of students. The post-test results reported that students had improved from pre-intermediate to low-advanced level skills in listening. Therefore, this study concludes that technology-based teaching and learning facilitates students in acquiring listening skills. Further, various studies could be conducted to identify whether the use of technology-based intervention improves other communicative skills such as writing, reading and speaking.

Students had positive opinions about using technology for learning and improving listening skills. Moreover, students appreciated and supported the employment of the three ESL web resources for improving listening skills in the language laboratory. They felt technology-based learning was less time consuming. Supporting aids like video, subtitles, and dictionaries assisted students in improving listening skills. The study observed that repeated practice with web resources produced better results. Even though students enjoyed working with these websites, they required constant motivation to use the internet for improving their communicative skills.

This study suggests that implementing these methods in school language laboratory classes will help students to overcome their fear and anxiety of listening in English when they first begin higher education. Thus, teachers ought to offer additional online resources to further enhance students' listening skills. Moreover, students should be provided with a separate time slot for one or two hours every day to use e-resources in conjunction with traditional language training. Finally, it would be even more beneficial if these methods of technology-based training could be implemented first in higher secondary schools.

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Appendix A: Listening Skills - Self-Assessment Checklist

1. Name:
2. Branch:
3. Gender:
4. Board in School and state:
5. Marks in Higher Secondary:
6. Language used for teaching all subjects at school:
7. Language used for teaching English:
    a. English
    b. both English and regional language
    c. regional language

8. I would understand if engineering subjects were taught in English:
    a. Strongly disagree   b. disagree   c. agree   d. strongly agree.

9. I feel comfortable listening to lectures in English at university:
    a. Strongly disagree   b. disagree   c. agree   d. strongly agree.

10. I want to improve my English listening skills:
    a. Strongly disagree   b. disagree   c. agree   d. strongly agree.

11. Do you experience anxiety while attending the first year of higher education?
12. I can get the gist of what I hear in English.
13. I can use background information to understand the meaning of the spoken context.
14. I can understand the meaning in the conversation.
15. I can identify the main ideas in the conversation.
16. I can recollect the specific information from the conversation.
17. I can predict vocabulary meaning in familiar areas of lecture.
18. I can understand native English speakers.
19. I can understand idiomatic expressions and slang in English.
20. I can identify the tone, style and speakers' perspective in a spoken context.
21. I can understand face-to-face speech of standard spoken language.
22. I can understand wide varieties of topics when listening to a speech.
23. I can detect the meaning between the lines.
24. I can understand every word uttered by the speaker.

Appendix B: Students' Attitude towards Using Websites
for Learning to Listen

Comment on the following statements based on your personal experience while working with the below mentioned websites:

Randall's Cyber Listening Laboratory:
I enjoyed working with this website.
Listening to general topics helped me to rid my anxiety when listening.
Listening to the audio without video was distracting.
Operating within the website was difficult without teacher's instructions.
I had to spend much time on listening.

Frank Songs:
It is interesting and changed my attitude towards learning.
Listening to the song with the captions is helpful to understand the meaning.
Listening to the song with the video is distracting.
Operating within the website was difficult without teacher's instructions.
I had to spend much time on listening.

American Rhetoric:
I enjoyed working in this website.
Listening to the lecture with the text is useful.
I got useful information working with these websites.
Operating within the website was difficult without teacher's instructions.
A long speech requires much concentration; otherwise it is distracting.
I had to spend much time on listening.
Listening to the lectures without dictionary reference is difficult.
I will suggest these websites for my friends.
I will use (prefer) ESL resources for learning other communicative skills.
I want the teacher to suggest some other website(s) in order to practice on my own.
I used these websites outside the class hours.