

To Develop Communication and Comprehension among Students - A Pilot study

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Abstract

This paper aims to examine if students, using the internet can improve their pronunciation and reading comprehension, on their own. Using free Speech-to-text software and other free resources on the internet, we describe the design of an experiment that showed clear improvement in pronunciation and English comprehension in a small sample. While the results are encouraging, the small sample size can only suggest that a larger study is desirable.

KEYWORDS: Smartphones, Self-Organization Learning, Pronunciation, Reading Comprehension

INTRODUCTION

The present study has been inspired by an experiment conducted by Prof Sugata Mitra et alin 2003 wherein they experimented onimproving English pronunciation using an automated instructional approach.

The study showed clear improvements in English pronunciation, by learners using Self-Organization and Text-to-Speech software.

THE PROBLEM

Indians tend to face difficulty in stressing and producing the right tone and intonation while speaking in English. As a result, they encounter a number of difficulties in their pronunciation, tone, and intonation. Aspiring Minds, a company that focuses on assessing student employability, after having surveyed 55,000 students in 2011 found that about 78% of those surveyed struggled in the English language. This affects their efficiency as call centre operators and other service jobs, all of which are popular with financially disadvantaged people in India. They come to cities with a mindset of finding well paid jobs but land up getting low paid jobs which results in a constant struggle. Some out of disappointed go back to their villages as city life is too expensive for them. English comprehension and pronunciation affect their quality of life. Is there a simple and inexpensive way to solve or mitigate this problem?

HYPOTHESIS

Groups of students can improve their Pronunciation and Comprehension skills using the Internet, a Mentor, and Self-Organized principles.

DESIGN

To find out if conversation in English with a person proficient in the language and the use of Google Speech-to-text can improve the pronunciation and clarity of children from low-income families in India who do not have access to teachers with good English pronunciation.

This is a pilot study in which only 5 students volunteered to participate. However, the implications of the findings, as described below, could encourage educationists to conduct similar experiments on larger samples and for training companies/corporates who are running 'Skill' centres.

METHODOLOGY

- Five students volunteered to participate.
- They had access to smartphones and Internet.
- They interacted with the expert twice in a week for 60 minutes.
- Students accessed Google speech-to-text (STT) on their smartphones
- Interaction consisted of conversation, on any topic of interest with mentor and the group with extensive use of youtube, big question, online software's like 'SpeechAce' and 'English accent coach'.
- The quality of each conversational interaction was monitored by STT and graded by peers.

DURATION

The duration of the pilot study is 3 months. In total, there were 24-hour sessions of 60 minute each.

TOOLS

- Reading Comprehension is measured by two passages from TOEFL Junior Standard Sample Questions.
 - o Pre-test: Passage 1 was given as pre-test
 - o Post-test: Passage 1 and Passage 2 were given as posttest
- Pronunciation is measured by reading a text from the Internet which was recorded and then evaluated independently by 3 experts on parameters such as Fluency, Comprehensibility, Clarity, Diction.
 - o Pretest & Posttest – same text was given at both the stages

OBSERVATIONS

The study commenced on 29th May 2021 and ended on 27th August 2021. This section describes session-wise activities that were conducted.

Session 1: 29th May 2021

- The expert gave a Big Question on '*Why do we have tears when we cry?*' and asked them to Google using Internet. Groups were formed and collectively students found the answer and made presentations.
- Next, the expert asked them to read a passage using STT. Below (fig 1.0) is a sample of the response by one student. Red markings are incorrect pronunciation detected by STT.

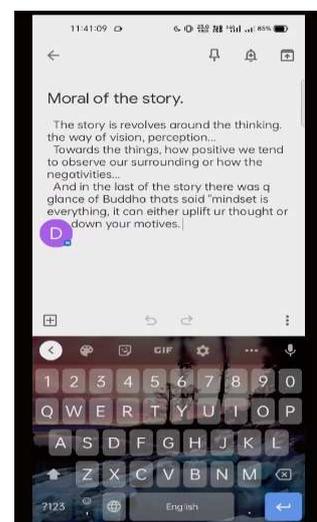
Fig 1.0: A student read a short passage which was evaluated by STT

When another old cave is discovered in the south of France it is not usually news. Rather, it is an ordinary event. Swachh discoveries are so frequent these days that hardly anybody page heat to Dam. However, when the last course cave complex was discovered in 1940 coma the world was amazed. Painted directly on its walls were hundreds of seams showing how people lived thousands of year ago. The scenes show people hunting animals, such as Bison or wildcats, other images depict birds and, most noticeably, horses, which appeared in more than 300 wall images, by far outnumbering all other animals. Early artist drawing these animals accomplished a monumental and difficult task. They did not limit themselves to the easily accessible balls but carried their Painting materials to spaces that required clamping steep walls or crawling into narrow passages in the less corks complex. Unfortunately, the paintings have been exposed to the destructive action of water and temperature changes, which easily wear the images away. Because the laugh cocks kids have many entrances, air movement has also damaged the images inside. Although they are not out in the open air, where natural light would have destroyed them long ago, many of the images have deteriorated and are barely recognisable. To prevent further damage, the site was closed to tourist in 1963, 23 years after it discovered.

Session 2: 30th May 2021

- Students watched a short video clip: <https://www.youtube.com/watch?v=0WQgL3uIpzA>: a short story to put a smile on your face.
- After which, they had a discussion. Here is a sample (fig 2.0) of what a student wrote as moral of the story.
- Each student read the story on STT to self-evaluate their pronunciation.
- As home assignment, they read a passage of their choice on STT. They also watched a short movie in English on youtube and were asked to discuss it in the next class.

Fig 2.0: Moral of the story



Session 3: 5th June 2021

- Students watched a youtube movie: https://www.youtube.com/watch?v=1_BS7UGKZEo: Fisherman and His Wife in English | Stories for Teenagers | English Fairy Tales.
- After which they wrote the moral of the story and presented it individually in the group and had a discussion.
- As home assignment, they were asked to watch a movie (fairy tale) of their choice on youtube and to record the essence of the story on their phones and share with everyone.

Session 4: 6th June 2021

- Students used the software 'SpeechAce' to read words. The software then told them how close they were to the right pronunciation.
- After this exercise, they all attempted to answer a Big Question namely on "Are plants alive"? and, shared their answers in the group.

- Next, they watched a movie on youtube: <https://www.youtube.com/watch?v=-gdcgnSrUvU>.
- As home assignments they were asked to read a passage on STT and to practice their pronunciation using SpeechAce.

Session 5: 12th June 2021

- They attempted a Big Question on ‘*What is a Virus?*’
- After which they watched a youtube movie <https://www.youtube.com/watch?v=4qZwuoigd5k>.
- Finally, they discussed on the topic: “*In COVID times what should Education focus on?*”. Each group member shared their point of view after finding answer on Internet. They also rated each other on the presentation. Example of feedback exercise (fig 3.0)

Fig3.0: Student feedback

<p><u>Student 1 feedback to Student 2</u></p> <ul style="list-style-type: none">- Gave 45/50 marks- Needs to focus on your pronunciation <p><u>Student 2 feedback to Student 1</u></p> <ul style="list-style-type: none">- Gave 30/50 marks- Reads too fast without any pause- Has Pronunciation problem <p><u>Student 3 feedback to Student 4</u></p> <ul style="list-style-type: none">- Gave 35/50 marks- Needs to focus on pronunciation <p><u>Student 4 feedback to Student 3</u></p> <ul style="list-style-type: none">- Gave 35/50 marks.- Needs to practice on listening and speaking skills.
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Day 6: 13th June 2021

- They did a Big Question on “*What should education focus on?*”.
- After which they read a paragraph each and self-evaluated using STT (fig 4.0 & fig 5.0).

Fig 4.0: Original Paragraph

Original Paragraph

Revising the practice of using elements of popular music in classical composition, an approach that had been in hibernation in the United States during the 1960s, composer Philip Glass (born 1937) embraced the ethos of popular music in his compositions. Glass based two symphonies on music by rock musicians David Bowie and Brian Eno, but the symphonies' sound is distinctively his. Popular elements do not appear out of place in Glass's classical music, which from its early days has shared certain harmonies and rhythms with rock music. Yet this use of popular elements has not made Glass a composer of popular music. His music is not a version of popular music packaged to attract classical listeners; it is high art for listeners steeped in rock rather than the classics.

Fig 5.0: STT of the Original Passage

Revising the practice of using elements of popular music in classical composition an approach that had been given in hibernation in the United States during 1960 the composer Phillips class Glass born 1937 embros embraced the ethos of popular music in his composition class Glass based to SIM symphonies on music by Rock musician David brownie browie and Brian Eno the symphonies sounds is distinctive his. popular element do not appeared appear out of place in class Glass classical music with which form its early day as shared certain harmonies and rim rythms with with Rock music yet this use of popular element has not made a glass of composer of popular music his music is not a version of popular music package to attract classical listener it is a high art for listeners steeped in rock rather than the classic.

Session 7 & 8: 20th June 2021

- They practiced 100 Words to improve Pronunciation using the link: <https://www.youtube.com/watch?v=ahg38gxudvo> [fig 6.0]
- Next, they watched a fairy tale on youtube [fig 7.0] and were given 10 minutes to share the moral of the story. They presented it to everyone and rated each other on a scale of 1 to 10.

Fig 6.0: Pronunciation Drill



Fig 7.0: Screenshot of a story on youtube



Session 9 & 10: 27th June 2021

- Students prepared a write-up on “*Challenges related to online learning*” using google and shared their views as well as rated each other’s presentation.
- Next, they did online practice using the following link: <https://www.speechace.com/> [fig 8.0]

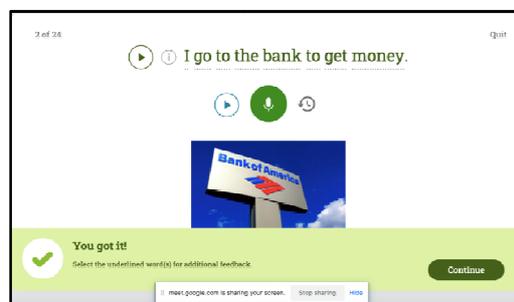
Fig 8.0: Screenshot of a Speechace



Fig 9.0: Practicing short sentences

Session 11: 3rd July 2021

- They picked a paragraph from newspaper from Internet and read it aloud and everyone rated it each other from 1 to 10.
- After which they practiced short sentences using online software [fig 9.0]



Session 12: 4th July 2021

- They read a passage, recorded it on mobile and shared it with everyone. Each group member then critiqued it informally.
- Next, they practiced words using an online software shown in figure 10.0

Fig 10.0: Practicing words



Session13: 10th July 2021

- They read a live passage from Internet and presented it as seen in Figure 11.0.

Fig 11.0: Screenshot of the students on google meet



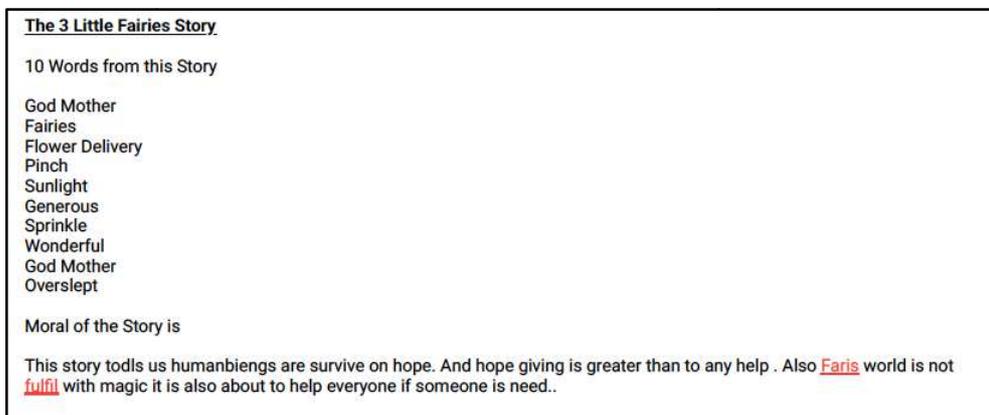
Fig 12.0: Screenshot of a recording by a student

Remaining Sessions: 17th July to 22nd August

- In these sessions, students picked up passages from Internet and read it using STT(fig 12.0).
- Next, they watched an English movie on youtube and spoke words from the story as well as moral of the story using STT (fig 13.0).



Fig 13.0: Screenshot of a STT by a student



TESTING

The students were tested at 2 time points - Pre-test and Posttest.

Pre-test was prior to starting of the sessions and Posttest was after the 24 hours session.

Pronunciation

Pronunciation had 4 parameters namely Fluency, Comprehensibility, Clarity and Diction. These four parameters were independently evaluated by 3 experts. They rated each parameter as follows: 3= Good;2= Average; and 1 = Poor.

Table 1.0: Pronunciation baseline Marks in Percentage

Students	Fluency	Comprehensibility	Clarity	Diction
1	44.4	44.4	35.6	30.0
2	48.1	40.8	47.8	36.7
3	44.4	44.4	61.1	41.1
4	36.1	35.2	30.0	36.7
5	44.4	44.4	52.2	52.2

A cursory look at table 1.0 indicates that all students were below moderate in their pronunciation across parameters except one student who got 61.1% in clarity. The group is more-or-less homogenous in their performance.

Overall, Pretest indicates a tremendous scope for improvement in overall Pronunciation.

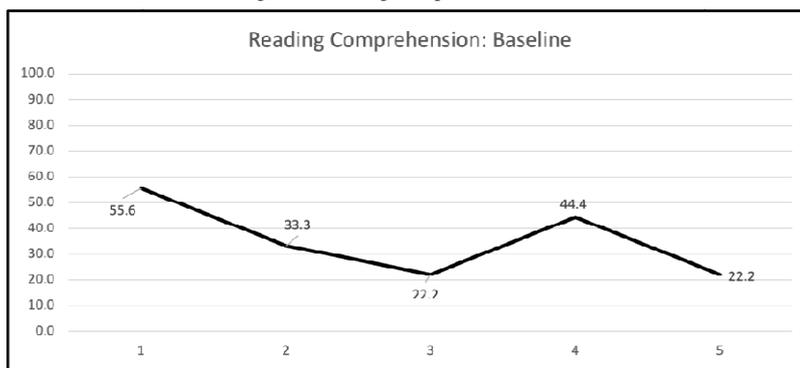
Reading Comprehension

Passage 1 (a standard passage from TOEFL Junior Standard) was used to examine reading comprehension.

Table 2.0: Reading Comprehension-Baseline

Students	Percentage
1	55.6
2	33.3
3	22.2
4	44.4
5	22.2

Fig 14.0: Reading Comprehension -Baseline



If we examine table 2.0 & figure 14.0, it's evident that Reading Comprehension is below moderate barring one student who secured 55.6%. Infact, the Reading Comprehension is far poorer than Pronunciation.

POST TESTING: Students were post-tested after 24 hours session.

Posttest - Pronunciation

Pronunciation had 4 parameters namely Fluency, Comprehensibility, Clarity and Diction. These four parameters were independently evaluated by 3 experts. They rated each parameter as follows: 3= Good;2= Average; and 1 = Poor.

Table3.0: Pronunciation Post testing Marks in Percentage

Students	Fluency	Comprehensibility	Clarity	Diction
1	89	89	89	89
2	89	89	89	67
3	89	89	78	78
4	78	89	89	89
5	78	100	89	89

A very cursory look at table 3.0 indicates that all 5 students performed above average (over 75%). In fact, one person secured 100% on 'Comprehensibility'.

Comparative analysis: Pretest & Posttest

A comparative analysis between pretest and posttest across parameters is examined.

Fig 15.0: Comparative analysis Pre and Posttest on Fluency

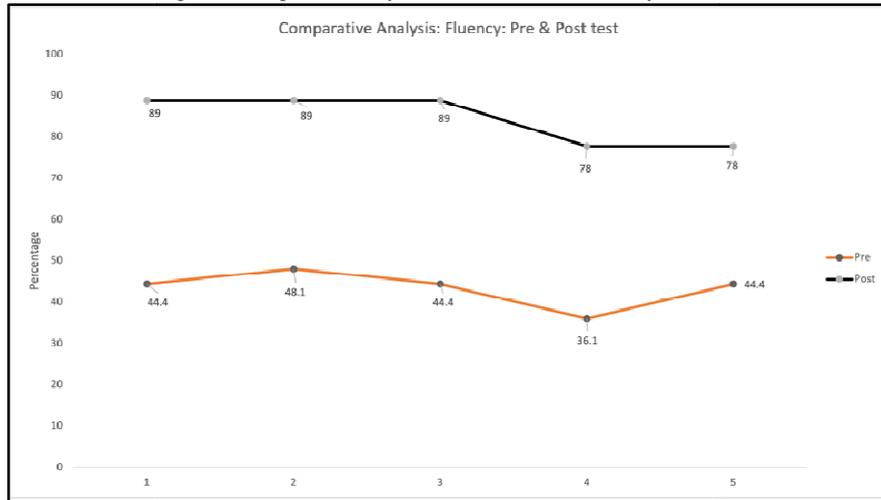


Fig 15.0 indicates Pre-test & Posttest marks across 5 students on fluency. It is evident that all students have improved on their fluency significantly.

Fig 16.0: Comparative analysis Pre and Posttest on Comprehensibility

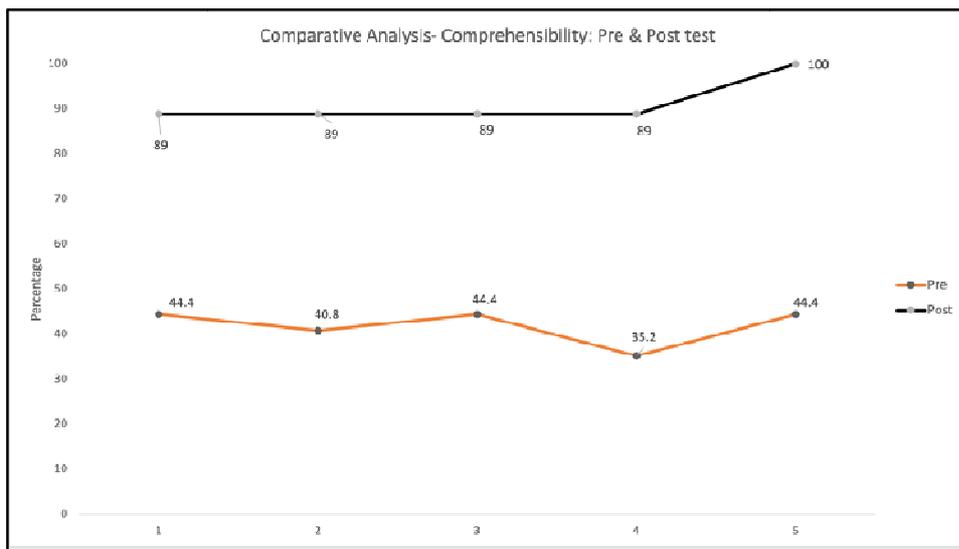


Fig 16.0 indicates Pre-test & Posttest marks across 5 students on comprehensibility. It is evident that all students have improved on their comprehensibility in the posttest.

Fig 17.0: Comparative analysis Pre and Posttest on Clarity

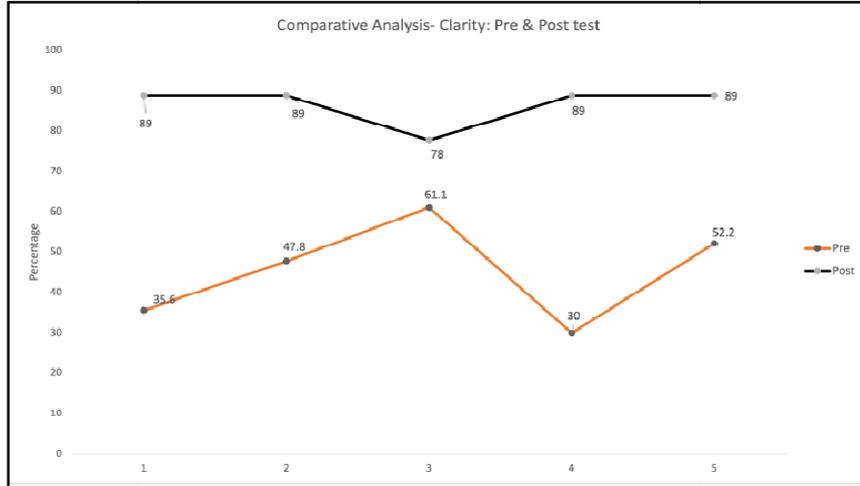


Fig 17.0 indicates Pre-test & Posttest marks across 5 students on clarity. It is evident that all students have improved significantly in posttest.

Fig 18.0: Comparative analysis Pre and Posttest on Diction

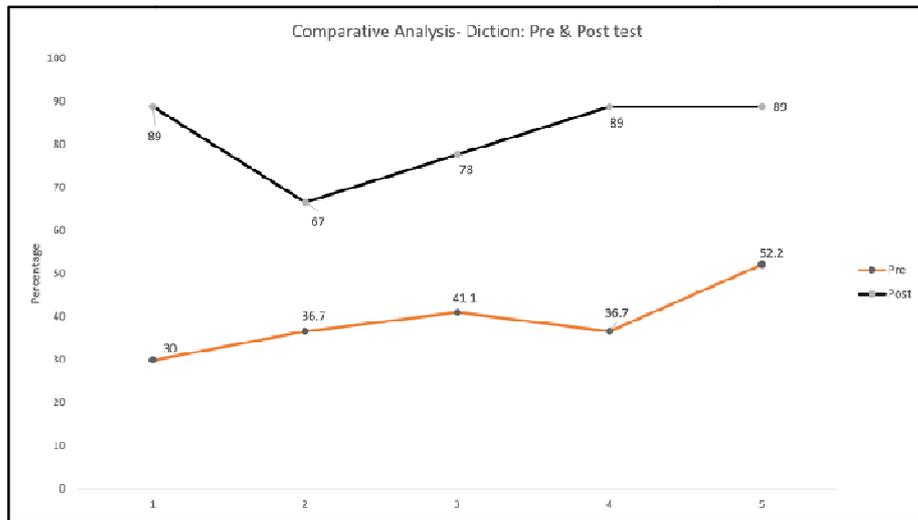


Fig 18.0 indicates Pre-test & Posttest marks across 5 students on Diction. It is evident that all students have improved significantly in the posttest.

Reading Comprehension

Passage1 from TOEFL Junior Standard Sample(same as pre-test) was used to examine Reading Comprehension. Passage 2 (similar to passage 1) was given with similar difficulty levels.

Table4.0: Passage 1: Reading Comprehension-Posttest

Students	Percentage
1	77.8
2	66.7
3	77.8
4	77.8
5	55.6

Table5.0: Passage 2: Reading Comprehension- Post test

Students	Percentage
1	85.7
2	71.4
3	71.4
4	71.4
5	57.1

If we examine table 4.0 & table 5.0, it is observed that students have performed equally in both the Passages. There is very little difference in their performance. Thereby, indicating that the two reading passages are more-or-less similar in difficulty levels.

Comparative Analysis: Pre and Post test

Fig 19.0: Pre-test & Posttest across students for Passage 1

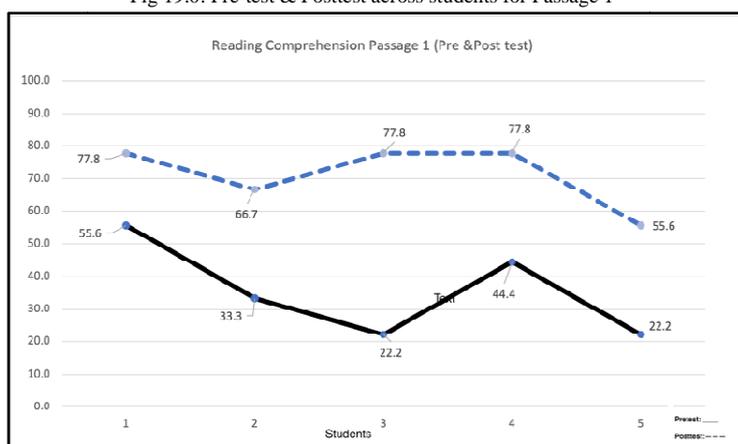
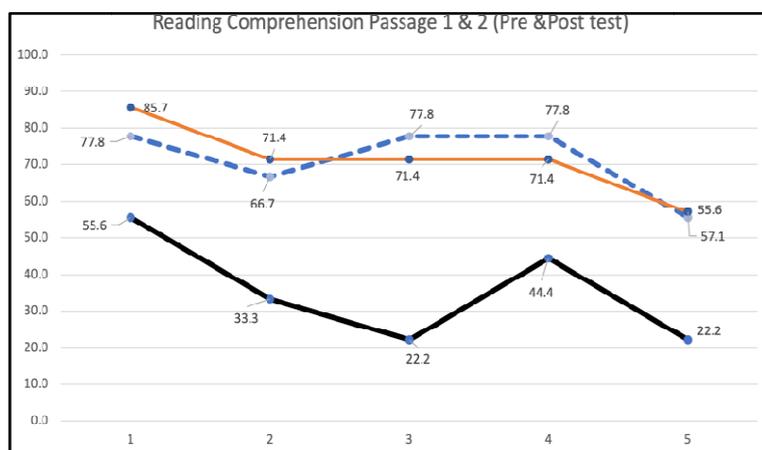


Fig 20.0: Pre-test & Posttest across students for Passage 1 & Passage 2



Next, if we examine fig19.0 there is significant difference between Pretest and Posttest for all 5 students in Passage 1. Similarly, fig20.0 indicates a significant difference between Pretest and Posttest for all the students in Passage 2.

This indicates that all 5 students have improved significantly in their Reading Comprehension.

PARTICIPANT FEEDBACK

To understand what students, they felt about the sessions, feedback was taken. Below, 2 feedbacks have been shared.

Student 1: *“A very good morning to all my friends and motivated mentor. As we all know today is our last class so on this occasion, I would like to share my Experience of last three months which I spent to learn English through the mobile phones. As our mentor guides us to learn English through different strategies by watching videos, shares our ideas, knowledge with each other in group. she told us how we can improve our pronunciation, she gives us the topics for research and discuss about it and present it. She gives us the activities and task to do to learn it like by using speech to text, record our voice and listen to it and correct our pronunciation or making of sentence correctly. she gives us a way how we can learn English with the help of technology. According to me online learning of English classes is that good idea because a person can learn with their own knowledge and potential technology save our time and give the person more flexibility to learn something at their comfort. if we go to any institute, they also teach us like this through the help of internet. We have a same process but in online class a child can learn with their own understanding with more concentration then offline. In rural areas to learn through online mode is good idea but with some cautiousness. If I rate myself to improve my English is 65%. I'm so thankful to my teachers, Ritu ma'am and NIIT for giving me opportunity to learn something”.*

Student 2: *“Communication class help me definitely yes these classes help me a way to improve my communication skills in English and enhance my vocabulary and moreover gave me the confidence of presenting my thoughts in a proper and better way without any hesitation the modules was very much helpful as it taught me different ways to improve my English. If I talk about the strategies there were in a very coordinated way as our teacher and my group friends we send link in group of fairy movies which we used to watch and then choose difficult words from these stories we later on discuss in the class or in a group and in addition to that we send our recordings for discussing the moral of the story too and improve my English like listening to myself like my recording words and stories . Watching movies and shows with subtitles and singing English songs, If I express my views on the directions parts it was fantastic and helpful for me I will give rate myself 8.5”.*

HIGHLIGHTS

- All 5 students performed significantly well in both Pronunciation and Reading Comprehension.
- Youtube, STT and online software helped them in their overall English performance
- The role of SelfOrganization was critical just as group work was important for their learning
- If learning is self-driven, then motivation is equally high and so is the participation and engagement This is observed in our findings.
- Listening and critiquing their own recordings as well as their colleagues helped them gain insights into their own mistakes
- Learning using smart phones with STT enabled is possible
- English as a language can be taught when it is immersive

CONCLUSION

One of the limitations of the study was the sample size.It is therefore difficult to draw anyconclusive conclusion from the present pilot study. However, the observations are positive and encouraging.

As next steps, it is suggested that the study be carried out on a larger sample of students.

ACKNOWLEDGEMENT

I would like to thank Prof Sugata Mitra who has been a constant source of inspiration and guidance. I would also like thank the independent judges Prof Sugata Mitra, Prof Sushmita Mitra and Ms. Ridhi Kale who helped evaluate the pronunciation clips.

I would like to thank NIIT Foundation and Ms. Shalini Chauhan from NIIT Foundation who helped me resource the volunteers.

Lastly, I would like to extend my gratitude to NIIT University for encouraging me to work in my research area.

RESOURCES USED FROM INTERNET

- <https://www.youtube.com/watch?v=Rnww09Zol6w>: Learn/Practice English with MOVIES (Lesson #1) Title: The Incredibles
- <https://www.youtube.com/watch?v=JZIL0QLBs4M>: Learn/Practice English with MOVIES (Lesson #3) Title: The Blind Side
- <https://www.youtube.com/watch?v=HF6wIDz5cgQ>: Learn/Practice English with MOVIES (Lesson #6) Title: Sister Act
- https://www.youtube.com/watch?v=Tro7Eng_0_o: Learn/Practice English with MOVIES (Lesson #5) Title: Independence Day
- https://www.youtube.com/watch?v=1_BS7UGKZEo: Fisherman and His Wife in English | Stories for Teenagers | English Fairy Tales
- <https://www.youtube.com/watch?v=xb98qYIfNZ4>: The Obstacles In Your Path - short motivational story
- <https://www.youtube.com/watch?v=9YF9S18pJZM>: SH, CH, EE, AR - English Phonic Sounds (easy pronunciation) | Mark Kulek– ESL
- <https://www.youtube.com/watch?v=0HeujZ45OZE>: Interactive Phonetic chart for English Pronunciation
- <https://www.youtube.com/watch?v=LZ0v9A5iEG4>: Learn/Practice English with MOVIES (Lesson #37) Title: Mean Girls
- https://www.youtube.com/watch?v=Fzn_AKN67oI: Too Quick To Judge (Touching Short-Film)
- <https://www.youtube.com/watch?v=9nfPsOPZbVw>: English Conversation: First Day in College | Improve Spoken English
- https://www.youtube.com/watch?v=xzcaW7c98_s: English Listening Practice
- <https://reallifeglobal.com/fun-english-advanced-pronunciation-exercise-test-your-skills/>
- <https://www.trainyouraccent.com/readings/apartment-rentals>

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- <https://zeenews.india.com/india/over-59-per-cent-of-kids-use-smartphones-for-messaging-only-10-1-per-cent-for-online-learning-ncpcr-study-2378743.html>