Effectiveness of Task-based and Online Approaches in English Language Learning

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8

Abstract

The purpose of this study is to analyze and validate the role and effectiveness of language labs and task-based learning in the study of English Language. The effectiveness of language labs in learning a new language has been established in several studies mentioned in this paper. The scope of this paper is to investigate the effectiveness on a cohort of Indian students pursuing Bachelor of Technology in a State Private College, University of Petroleum and Energy Studies. The students attend classes once a week for two hours on language learning components based on listening and speaking. For the same cohort of 89 students, there are five evaluations, conducted every alternate week. The evaluations included three spoken or oral evaluation at the beginning of the course, middle and then end. A transcription test based on International Phonetic Alphabet and listening test based on IELTS level 5 were also a part of the evaluation basket. The same set of students taught English via lectures in classroom during the same period for which there were four evaluations. Two sets of data thus obtained, for the same sample. Appropriate statistical test was conducted to analyze the progress students made in a span of six months while taking both courses. The study compares the effectiveness of teaching English language through two delivery mechanisms- language lab and lecture.

Keywords: language lab, ELT, task-based learning, speaking, listening, reading, writing.

Introduction

English language education for second language learners has many facets. Some scholars suggest the vocational needs of English (Sulistio, 2016) where as long as a student is able to communicate in public, make an effective presentation and understand the native accent, fulfilling the purpose. English language learning facilitated through a variety of exercises that elicit student interaction and response, encourage them to speak and participate, and lastly, help them in understanding their own flaws and then work on them. Task-based intervention and language lab intervention, as studies suggest, are techniques used for language learning.

Peter Skehan (1996) as cited by Karim (2020), emphasized on the importance of task-based activities in English language learning. The study suggests that assigning task to students with a decent amount of preparation time is likely to draw more responses from students. The study further concludes that 93% second language learners suggest that preparation time helps them in performing better. In a study carried out by Long & Richards (1987), they suggested that learner centered classrooms that encourage students to talk and discuss in small groups are more likely to facilitate language learning than a teacher centered set up.

Hashmi (2013) in his study endorsed language lab intervention for second language learners. For students pursuing technical courses in an engineering college or university, language lab intervention empowers the instructor in facilitating language learning. The instructor can communicate with every single student present in the class simultaneously through a master console monitoring all the systems accessed by students. Students, with little help of the facilitator, can record their own voice, listen to it and improve on their mistakes of pronunciation, intonation and stress.

In a study conducted by Gass, Mackey and Ross-Feldman (2005), they compared the effect of both task-based intervention and language lab intervention on a group of participants who studied Spanish as a

foreign language. After analyzing the data collected, they did not find major differences between the two teaching settings. Contrary to the above study, Celce-Murcia, Brinton and Goodwin (1996) pointed out that language lab has a definite advantage as students have the facility to record themselves. The facility where students can listen to themselves and correct their own mistakes is a definite advantage in learning language.

Sulistio (2016) investigated the requirement of English language for students studying Physics as their major in a private university. The study categorized the needs into three different categories namely: 'general needs', 'academic needs', and 'vocational needs' or job needs. To put if more precisely, the research maintained that if a student is able to write a resume for himself/herself, listen to the radio in non-native language (English for ESL students) and make a successful presentation in front of an audience, it pretty much suffices the requirement of the English Language.

In another study by Mubaraq (2016), the English language learning needs of Medical students is analyzed. The study stressed on '*the identification of students' competence in four language skills'.* The study also took into consideration instructor's perspective and the importance of Medical English in their opinion. The major finding of the study was that the curriculum needed to be customized according to the language learning requirement of the students who are taking the course, or the major vocation they were enrolled for- in this case medical English.

Methodology

It is observed through the review of literature available on the subject that methodology adopted by researchers is mostly experiment and control to establish the effectiveness of language lab. In some previous studies, the methodology also included a post intervention survey of preference where students identified their ease of learning language skills. However, fewer studies adopted a cohort through a systematic interface of face-to -ace lectures, language lab intervention,

and then record observations in the form of evaluations. At some point of time in research, it becomes indispensable to take into consideration a larger set of data for generalizing the findings. This study aims at achieving the latter. Additionally, this research and the observations on which it is based are more naturalistic in approach than experimental. Students were not a part of an experimental group while they were taking the course for six months. They were, in fact, enrolled in a mandatory course and they performed as naturally as they would.

Research design

The scope of this study was to take observations from a cohort of B. Tech students from three different branches of Engineering, namely- Automotive Design engineering, Aerospace Avionics and Mechatronics. All the students were in their first year of study. English Language was taught to them via two interfaces:

- face to face lectures (1 credit)
- language lab intervention (1 credit)

Both courses were independent of each other in terms of syllabus and scope albeit the language learnt was English. The methodology adopted for this study was longitudinal as the same cohort was evaluated multiple times during the course of six months. However, the respondents were not a part of an experimental group. The observations taken in this study are more natural.

Data collection

Listening, speaking, reading and writing being the basic steps of language learning, the modules of both the interfaces were based on these. Albeit the lectures in classroom were more naturally suited for reading and writing exercises and language lab sessions laid more emphasis on listening and speaking skills. As both of these interventions were a part of an evolving curriculum, evaluations were done and observations taken on a continuous basis- every alternate week. The curriculum of both the interfaces is as given below:

Theory- English, Course Code: 1006

The course has certain expected outcomes. At the end of this course students will be able to:

CO 1: Identify the process, principles, barriers and types of Communication.

CO 2: Analyze & develop grammatically correct and situationally appropriate language for communicating effectively.

CO 3: Classify & apply the principles/techniques of paragraph development.

CO 4: Distinguish literary devices and appreciate their use in text; articulate their interpretations based on critical reading.

CO 5: Critically read, comprehend and further synthesize information based on select academic texts.

CO 6: Create drafts for a variety of professional and social settings; demonstrating the ability to identify & analyze various forms, formats, content, & tone.

Session	Topic/Lecture-1 Credit	Details	CO Mapping
1	Communication 1	Definition, Process, Principles & Model	CO1
2	Communication 2	Barriers, Noise, Types & Forms, Grapevine	CO1
3	Sentence structure (Common errors)	Learning through examples-identifying common errors (Classroom activity)	CO2
4	Sentence structure (Functional grammar, punctuation, contemporary usage)	Usage discussion & examples, Punctuation, Follow up of previous session	CO2
5	Sentence structure (Tone, Orientation, attitude)	Sentence formation keeping in mind tone & attitude. Formal vs Informal/Good vs Bad/ Nettiquette & etiquette	CO2

6	Paragraph development (Principles and techniques)-Precis writing	Principles: Unity, Coherence, Emphasis/Methods of Paragraph Development	CO3
7	Literary Devices - Short stories, Essay, Play, Poems	Important Literary Devices (List), Text	CO4
8	Writing- Script, Film Reviews, Book Reviews	Formats, Types	CO5
9	Subjective Assessment from session 7 & 8	Template	CO4/CO6
10	Letter, application, email - Format/content	Formats: Full-Block, Block, Semi-Block, Hanging Indent.	CO5
11	Writing for the Web - Blog, Micro Blog, Vlog, Social Media	Format, Content	CO4
12	Writing (Subjective Assessment) - 10 & 11	Classroom Activity - Template	CO6
13	Reading & Writing exercises based on excerpts	Psychology, Electronic Media, Industrial Design, Business	CO5

Language Lab, Course Code: HUMN1106

The course has certain expected outcomes. At the end of this course students will be able to:

CO 1: Recognize & demonstrate the articulatory skills needed to participate in an oral presentation.

CO 2: Interpret & apply phonemic transcriptions based on the International Phonetic Alphabet (IPA) for accurate pronunciation.

CO 3: Analyze & apply the skills & approaches of a successful listener by taking notes for comprehension and filtering important information to make inferences and predictions
CO 4: Design & exhibit technical poster.

Session	Topics/Lab-1 Credit	CO Mapping
1	Intro - Lab & Seating Plan/Ice-breaking	
2	Self introduction (Graded)	CO1
3	IPA 1 - Introduction to Phonetics: Phonemes, Allophones, Mispronounced words	CO2
4	IPA 2 - Sounds in English IPA & Machine-based quiz (Graded)	CO 2
5	IPA-3- Stress and Intonation	CO2
6	Ear training (Briefing/model) - Sample listening test, Announcements (Railway, Airport, Telephonic Conversations, Meetings)	CO3
7	Note-taking/making based on Audio visuals – Graded	CO3
8	Group discussion	CO1
9	Extempore (Graded)	CO1
10	Ideation/Infographic & Posters	CO1
11	Reflection (Graded)- Speak & Record	CO1
12	Technical Poster (Graded)	CO4

Evaluations:

For each of the subjects, multiple evaluations were taken at regular intervals, as per the lesson plan shared under individual subject headers. The evaluations included:

- *Lab Intervention*- Listening skill test based on IELTS (International English Language Learning System) level 5; transcription test based on IPA; impromptu speaking where students were assigned abstract topics and they had to speak without preparation for a total of one minute; technical poster creation in teams which they later had to present along with their teams in front of the whole class.

- *Lecture Intervention*- Machine-based quiz on the concepts of communication, barriers, models, process, grapevine; sentence development through common errors and problem solving; paragraph development using ideation and mind mapping; letter writing and email writing.

In the table below, rubrics for uniform evaluation of the students are mentioned.

DELIVERY-50 Marks	**Exceptional (33-50)**	**Good (17-32)**	**Improvement Required (0-16)**
	Enthusiastic and engaging. Speaks clearly and loudly enough at a comfortable pace. Exudes confidence and interest. No grammatical or pronunciation errors. Presentation appears conversational, extemporaneous, and natural.	Easily understood. Speaks loud enough to be heard and at appropriate pace. Some awkward pauses or halting delivery but mostly clear and natural. Could display greater enthusiasm, seem more genuinely interested in own presentation.	Mumbles, mispronounces words, grammatical errors, "umms". Difficult to understand. Speaks too quietly or too loudly. Speaks too fast or too slow. Loses train of thought, tentative. Lacks enthusiasm.
CONTENT-50	**Exceptional (33-50)**	**Good (17-32)**	**Improvement Required (0-16)**

Marks	Clear opening and closing statements. Catches audience's interest provides overview/conclusion. Follows logical sequence, stays focused, good explanations. Effective time management and strong transitions. Strong mental takes away for audience.	Offers some type of opening and closing statements. Follows logical sequence but structure could be better. May need more elaboration on one or more points. Adequate time management, but could be stronger.	No opening and/or closing statements or irrelevant opening/closing statements. Loses focus more than once. Does not manage time effectively. No logical sequence of information. Mechanistic.

Hypotheses

Based on the case, two sets of hypotheses were formulated as given below:

1. Testing the effectiveness of language lab intervention for the entire cohort:

- Null (H0-1)- There is no effect of language lab intervention on the language learning ability of a student.
- Alternative (H1-1)- There is a marked difference in the language learning ability of students before and after language lab intervention

2. Comparing the difference in effectiveness of lecture intervention and language lab intervention:

-Null (H0-2)- There is no difference perceived in language learning abilities of students in task-based learning versus language lab intervention.
- Alternative (H1-2)- There is a difference in language learning abilities in task-based learning versus language lab intervention.

Statistical test

For the first case where the effect of language lab intervention on students was to be analyzed, ANOVA test was used. Students recorded their finishing videos to qualitatively substantiate the learning through language lab intervention. For the next set of hypothesis testing, paired T-Test was used.

Findings and discussion

For the two sets of hypotheses, two analytical tests were used. For the first set where repeated observations were taken for the same sample at different points in time, ANOVA was used (Appendix 2). For the second set of hypotheses where a comparison was drawn between the observations of lecture and language lab, a paired t-test was used taking into consideration the final evaluation of both the interventions.

1. Testing the effectiveness of language lab intervention for the entire cohort:
    a. Null (H0-1)- There is no effect of language lab intervention on the language learning ability of a student.
    b. Alternative (H1-1)- There is a change in the students' language learning ability after language lab interface

The test gave the following results in tabular form:

Table 1: ANOVA test on Lab evaluations

Anova: Single Factor						
Groups	Count	Sum	Average	Variance		
Column 1	87	5045.5	57.99425	550.0959		
Column 2	87	5138	59.05747	647.0664		
Column 3	87	5400	62.06897	370.908		
Column 4	87	5474	62.91954	566.0283		
Column 5	87	5600	64.36782	991.1655		
Column 6	87	5250.5	60.35057	278.2216		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2549.385	5	509.877	0.898861	0.481513	2.231484
Within Groups	292699.8	516	567.2476			
Total	295249.2	521				

Since the F value (0.898861) is greater than P-value (0.481513), it is safe to say that the Null hypothesis is this case is rejected. To summarize, through statistical test it is proved that language lab intervention over a period of time has an impact on students. To substantiate the point qualitatively, video recordings of students at the end of the session may be seen as evidentiary proof.

2. Comparing the difference in effectiveness of lecture intervention and language lab intervention:
    a. Null (H0-2)- There is no difference perceived in language learning abilities of students.
    b. Alternative (H1-2)- There is difference perceived in the language learning ability of students.

Table 2: Paired t-test on the final evaluation of lecture and language lab intervention

t-Test: Paired Two Sample for Means		
	Variable 1	*Variable 2*
Mean	60.35057	51.21839
Variance	278.2216	652.2192
Observations	87	87
Pearson Correlation	0.160554	
Hypothesized Mean Difference	0	
Df	86	
t Stat	3.023561	
P(T<=t) one-tail	0.001646	
t Critical one-tail	1.662765	
P(T<=t) two-tail	0.003292	
t Critical two-tail	1.987934	

As indicated in the table, P value (0.001646) is much less than the significance value (0.05). It can be safely concluded that the Null hypothesis is thus rejected. It stands tested through statistical analysis that there is affirmative difference perceived in the language learning ability of students when compared between lecture and language lab intervention.

Ideally, when a student enters a language lab or a lecture hall, the expectations are set differently. In a language lab, machine-based learning facilitates articulatory skills. A student is ear trained using native English content from British English Certificate (BEC) and podcasts from British Broadcasting Company (BBC). The stress is more on pronunciation of English words, stress and intonation used in English language (spoken and conversational).

On the other hand, task-based intervention through lectures (in classroom) stresses more on grammatically correct formation of sentences- used in drafting and writing. Although as indicated in the course plan, the pedagogy is remedial in nature than conceptual, which means that students learn from correcting mistakes or performing tasks. This study is in contrast to the earlier investigation by Gass Mickey and Feldman (2005) that did not find any substantial difference in the two interventions. However, results of a cohort cannot be over generalized as needs of every student is different from the other.

The findings of this study supplicate the academic need for learning English language; especially for a cohort pursuing technical courses (Mubaraq, 2016). At the end of the two interventions, students were able to produce basic draft such as business letter, e-mail, technical poster (content as well as presentation). They were also able to pronounce complicated words easily by looking at the phonetic transcription of the same. Self-reflection videos recorded at the end of the semester captures student experience and the journey of learning from day one to the final day of the course (Sulistio, 2016). One video from this study (see link in the reference list) is recorded for student, Pulkit Choudhary, of B. Tech Mechatronics Engineering. This video was as part of a self-reflection activity. Pulkit comes from a predominantly Hindi-Haryanvi belt of India- Ghaziabad. Although there are many opportunities for students to take part in public speaking activities in school time, Pulkit shied away for the most of it. Throughout the lecture as well as language lab, he was extremely shy and self-conscious. He had issues in diction, pronunciation and a strong mother tongue influence can be seen in his accent. However, he did not give up. He still fumbles in the video, he gets nervous, but he goes on

to complete it. The struggle of finding the right word and the correct way to pronounce can be visibly seen in the video. But having seen him from day 1, the growth is tremendous and with continuous practice, he will get over his own inhibitions of not speaking in public.

Conclusion

The intent of both the interventions is to teach English language to students pursuing technical courses in different aspects of language learning including listening, speaking, reading and writing. Through a variety of test and evaluations (taken continuously at fixed intervals), the effectiveness can be monitored. Whether language lab was more effective in facilitating language learning in students is a scope for future study. But the effect of both the interventions on the Language learning ability of students is statistically established. The analysis show that there is a marked difference in language learning abilities of students after the intervention of language lab. There is also a difference perceived in between the two interventions i.e. language lab and lecture and task-based language learning. To establish which method was more impactful on the students, a systematic study needs to be taken by researchers in the future, and is something beyond the scope of this paper. However, a documentation in favor of language lab intervention is the recorded video that every student made at the end of language lab intervention.

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