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EFFECT OF INTERNATIONAL PHONETIC ALPHABET (IPA) SYMBOLS ON
ENGLISH LANGUAGE OF SINDHI STUDENTS

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ABSTRACT

The paper investigates the effect of International Phonetic Alphabet (IPA) symbols on spelling command, listening comprehension and perception of students at secondary level. IPA Symbols have their unique importance in studying a second language. Without knowing the IPA symbols sounds the learners are unable to have grip on second English language. If a learner of English language has no command over the IPA Symbols then he will be weak in listening and spelling. Mainly two types of education systems are being run i.e. public and private in Pakistan, in public schools less focus is given to listening and spellings at elementary level but in private schools they are concentrating more on the teaching/learning of listening and spelling skills to improve the English language. The study was delimited to Boys public and private school of Sindh situated in Hingorja, Khairpur, Sindh, Pakistan. There were 2 public schools and 4 private schools in which elementary classes were being taught. One public and one private school were selected randomly from the population as a cluster. All the 85 students were included from public school and 53 students from private school. An Opinionnaire and 2-Achievement test were developed i.e. Listening Comprehension test and Spelling Command test. The opinionnaire comprised of two sections, section-I consisted of 6 statements on 'Yes' and 'No'. Section-II of 17 statements on five point Likert scale used to find out opinion of learners. Results for achievement tests were tabulated and data was analyzed according to mean, standard deviation, t-test for significant difference. The opinionnaire was used to together the data about the perception of learners for IPA symbols then the statistical techniques were applied to investigate

the data i.e. independent sample t-test and frequency. The learners who were aware about IPA symbols from basic from private school scored better as compared to public school learners unaware for IPA Symbols from basic level for tests of listening comprehension and spelling command. This present research recommends that introduction of IPA symbols should be a compulsory part of English curriculum from primary level for public schools also as it is for the private schools in Sindh.

Background

International Phonetic Alphabet (IPA)

International Phonetic Alphabet (IPA) is based upon phonetic characters initially on the Latin alphabet to set the standardization and representation of language in spoken form in 19th century designed by IPA association. The various professionals throughout the world like singers, actors, teachers etc use IPA. The basic purpose behind the design of IPA is to show the basic characters for the recognition of language characteristics like intonation, phones, phonemes of language and the separation of words and syllables. Supplementary speech character symbols were added as extensions to IPA symbols by IPA association as an example: the gnashing of tooth, lispings sounds produced with clefts of lip and palate as extended.

There are two basic elements and types that were designed in IPA symbols for this purpose. In IPA symbols there are no separate letters for two different sounds. In case of no difference between them, that type of property we call "selectiveness" 107, letters represent including vowels and consonants as IPA symbols. For instance the English letter sound ⟨t⟩ of letter of changed by IPA symbols letter as, [t]. Frequently, / / slashes are exercised to phonemic transcription; according to perspective of language.

approval of the council, afterwards which can become to the part of official IPA. It is observed; many persons including the readers make some changes or modifications just as a matter of convenience for their own use. There are 160 IPA symbols which were described for transcription along with a small subset that is also used to transcribe a particular language. There is a possibility in transcription speech with accuracy; it is called a narrow transcription. If transcription is not for conventions called as broad transcription. Both types are represented by enclosing in square brackets that shows relativity in terms and conditions. In broad phonetic transcription is restricted itself, details that may easily be heard or details that are familiar for discussion at a hand may vary.

Why So We Learn a Second Language?

Second language is learnt due to different cultures. It is the need of the time to communicate with people belonging to different societies, cultures, and religions. Cultures are distinguished by language. As the cultures are quite different, so we are compelled to learn many languages to understand the different cultures and other religions as well? It is ultimate reality that culture and language are quite associated with one another. It is difficult to understand a culture without a language. Risager (2006) says that there is strong correlation between language and culture, so “language can be called as culture and culture can be called as language”. He further described that language and culture both are as two faces of the identical coin that it is a bit confusing to some extent as language is influenced by culture. Anthropology, sociolinguistics, language communication, language acquisition and various branches of linguistics defined relation between language and culture.

This has given space to a debate for understanding the phonological aspects in a second language particularly system of division of sounds in allophonic within different classes. Rightly in the dearth of allophonic and division of phonemic classes second language (L2) looks quite helpful.

As much as the first language (L1) and L2 phonological system is concerned to relevance, that helps to teach the phonological barriers as a matter of fact for the learners of second language. The concerned study to L2, the L1 always affects by speech sound in a dual way. Different features of L1 are directly applied to L2. In the study of phonological separation there is a great resemblance in phonological systems for learners, in both source of languages i.e. L1 and L2. The barriers to assume the method of phonology in a language consist of language sounds; a blending to the idiosyncratic features can also create a barrier as well. There are two ways in the sounds of a speech where L1 affects the L2. The learners pick features of L1 with distinction and apply to L2. They identify that L1 has the same sounds like the sounds of L2. Moreover, L1 also interferes with L2 that has some recognition; such interference may be considered as the application of emerging rules to both languages, L1 and L2.

Flege (1995) described the learning methodology of L2 a challenging task, this mostly happens while the ESL (English as Second Language) development occurs, in some cases this is considered as negative application of L1 in considered quite positive in the learning of L2. But sometimes the pattern of

likeness between the L1 and L2 norms serve as a positive reinforcement and make easier.

Mostly, the result is not accepted in the occurrence to the L1. Miller (1981) named it pessimistic movement this is a phenomenon which is also known as interruption. The native speakers can clearly understand this difference of intonations that becomes very clear in the speech of L2 speakers. The inability to articulate accurately does not immediately affect their inconsistent attempts to create different sounds. It does, however, highlight their attempts at familiarizing themselves with the rules for combination of sounds, patterns for stress sounds, enunciation for the purpose of learning new phonemes that are not found in their mother tongue.

They are unable to bring accuracy in the articulation; this attempt seems quite inconsistent for creating different sounds. This practice indicates the attempts of learner to be familiarized and enables them with rules to join the sounds to all basics of a L2 and also helps the learner with new phonemes that never existed in L1. The speaker of L2 sometimes gets confused and thinks that L2 looks same as L1. The belief of second language learner is that the sounds of L2 have similarity near to his/her native language which creates problems in learning process of L1. They apply same rules and patterns of L1 in recognition process of L2 sounds and results in creation of L2 sounds (Badi & Tajdin, 2005).

Vowels are considered quite problematic in comparison to the consonants sounds (Moore, 2009). English when studied as a second language mostly focused on vowels. Chen & et al. (2001) explained that the studies of English language stressed on the study of vowels because second language learner needs more awareness of vowels as compared to consonant sounds. Ansarin (2004) says that English is at the top position and the second position is secured by Persian as second language vowels yet other languages are attempted after are French by Ouni & Laprie (2003), Shanghai Chinese studied by Chen (2008) and Gordon & Applebaum (2006). Not much evidence is found about study of Sindhi vowels as compared to other languages in the world but somehow research was done on the parts of speech, phonetics, grammar, dialects, syntax, history and literature of Sindhi language.

Sindhi Language

It was the first time that by European scholars a phonological and grammatical outline was solicited. Particular features known as phonetic implosive stops in Sindhi language, few Indo-Aryans and Sindhi languages focused by the linguists due to implosive stops, four implosive stops in Sindhi. It was Stack (1849) who defined it, by then to date linguistics has different degrees of accuracy and pursued to illustrate these sounds. However, another famous linguist Khubchandani (1961) exercised modern linguistics schemes in their classification and depiction of Sindhi sounds. In Pakistan, Sindhi is considered as one of the major languages. Being a mother tongue approximately there are more than forty million speakers of Sindhi.. Sindhi language is among the antique language in sub-continent having prosperous ethnicity, upscale civilization commence mythology and comprehensive literature. Sindh was

clocked up by British and affixed with Bombay; Sindhi was given the status and credit of the language that was used for official communication in the Sindh territory. On Sir George Clerk orders were issued by Sindh Commissioner of the time on 29th August 1857 containing the directions for civil servants to qualify examination in Sindhi medium and to use it in all ex offices correspondence. Seven-grade scheme generally known as 'Sindhi final' introduced was fixed mandatory to get jobs in several departments e.g. education, police and land throughout Sindh province.

In linguistics field prudently apparent analysts have not aimed at Sindhi that's why this very language lack literature regarding phonemic study and appended linguistics sight. Sindhi phonemic consists of many voiced speech sounds subdivided as bilabial, retroflex, palatal and velar. It was Stack (1849) who depicted these four implosive sounds in Sindhi language by then till date linguists having transferable range to determine these sounds; however two modern era language experts Khubchandani (1961) and Jatoi (1968) have adapted modern linguists procedure in their tests and analysis in clarification of Sindhi sounds. There have been a number of improvements in phonology of Sindhi language. Accents of Sindhi speech in alphabetical elements, sentence structured by (Jatoi, 1996). (Jennifer, 2005) designed the vowels and consonants chart with Sindhi IPA symbols phonology for the representation. (Bugio, 2001) Constructed the vowel sounds of consonants, and variety of new sounds related to Sindhi alphabetical symbols. Shah and et al. (2004) designed and programmed the TTS complex categories in Sindhi and Urdu according to the informative and blending rule foundation. On the whole Sindhi language is unique in accordance with exact in sound reproducing implosive capacity with particular role of its vowels amongst the languages of the globe.

Language as a Living Phenomenon

Major indications of living language can be identified when that language has permanent space for accepting changes in the area of phonology, syntax and vocabulary as well. The language that has no space for new words in its lexicon is called a dead language. This kind of language is confined to limited speakers. As studies showed that English language has always shown acceptance for new changes, therefore, this variation brings beauty and richness to it. A living language embraces change openly in its phonology, vocabulary and syntax according to its need. English has always remained open to any change. Deviations in a language make it attractive and acceptable.

Objectives of the Study

The research focused on the following objectives:

1. To investigate the effect of IPA Symbols on listening comprehension of Sindhi students.
2. To analyze the effect of IPA Symbols on the spelling command of Sindhi students.
3. To find the perception of Sindhi students about IPA Symbols.

4. To highlight the importance of teaching IPA Symbols to the Sindhi students particularly at school level.

Research Questions

The research found out the answers of questions:

1. What is the level of English listening comprehension of Sindhi students?
2. How do IPA Symbols affect listening comprehension of the Sindhi students?
3. What is the degree of spelling command of Sindhi students?
4. How do IPA Symbols affect spelling command of Sindhi students?
5. What is the perception of Sindhi students about IPA Symbols?

Methodology

The study was quantitative and conducted through survey method. The research carried out to access the effect of IPA symbols on listening comprehension and spelling command on Sindhi learners at secondary level. Further given remedial actions in the light of study.

Cluster Sampling

Two schools one private and one government were selected through random sampling by using draw card method. Through cluster sampling all the students of class 9 from each school were selected.

Instrumentation

Following instruments were prepared.

1-Opinionnaire

2-Achievement test

- i. Listening Comprehension test
- ii. Spelling Command test

Data Analysis

The data was evaluated to know the differentiation in mean values of phonemic and non-phonemic groups using independent sample 't-test' in test of listening comprehension. The table below shows the overall result.

Table 1: Overall Performance in Listening Comprehension of Both Groups Using Independent Sample 't-test'

Variable	Groups	n	Mean	Mdif	SD	t-value
Listening Comprehension	Phonemic	53	7.28	1.481	.976	10.53 (P=0.000)
	Non-phonemic	85	5.80		.675	

Level of significance ($\alpha=0.05$)

Table shows the t-value 10.53 at $p=0.000$ is less than $\alpha=0.05$, hence the null hypothesis is discarded, alternate hypothesis is acknowledged and have large difference among the listening comprehension of phonemic and non-phonemic group students.

Effect Size of Listening Comprehension

Hedges' $g = 7.28 - 5.8) / 0.803515 = 1.841908$.

According to Sawilowsky effect size 1.20 or more is considered large effect size. Therefore, there is a large effect of phonemics on listening comprehension of students.

Data Analysis of effect of IPA Symbols on the Spelling Command of Sindhi Students

Test was conducted for access the spelling command of learners studied IPA symbols constantly since many years. The test was consisted of three items, the purpose of two items was to check the spelling command and third item was dictation: i) Tick the correct spelling of the word ii) Fill in the blank with a right word iii) Listen to the recording carefully and write down the words. From the Sindh textbook board words were chosen for dictation.

Table 2: Overall Data Analysis of Spelling Command Using Independent sample 't-test'

Variable	Groups	n	Mean	SD	Mdif	t-test
Spelling Command	Phonemic	53	10.68	.769	1.55	8.58 P=(0.000)
	Non-phonemic	85	9.13	1.167		

Level of significance ($\alpha=0.05$)

Table shows the t-value=8.58 at $p=0.000$ is less than $\alpha=0.05$ hence the null hypothesis is discarded, alternate hypothesis is acknowledged and have great difference among the spelling command of phonemic and non-phonemic group students.

Effect Size of Spelling Command

Hedges' $g = (10.68 - 9.13) / 1.03344 = 1.50$

According to Sawilowsky effect size 1.20 or more is considered large effect size. Therefore, there is a very large size effect of phonemics on spelling command of students.

Data Analysis to find the perception of Sindhi students about IPA Symbols

The opinionnaire section-I comprised of 6 statements and section-II comprised of 17 statements. The data were analyzed section-wise. Responses of section-section-II, and I analyzed with the help of independent sample 't-test' to analyze the perception of phonemic and non-phonemic groups for IPA symbols.

Data Analysis of Section-I of the Opinionnaire

Systematically the data was analyzed section-I of opinionnaire. The participants' responses 'Yes', 'No' computed with the help of t-test.

Table 3: Response of Groups to the Section-I of the Opinionnaire Analyzed Using Independent Sample 't-test'

Variable	Groups	n	Mean	SD	Mdif	t-test
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<i>Section-I of the Opinionnaire</i>	Phonemic	53	1.18	.142	-.534	-27.37 P=(0.000)
	Non-phonemic	85	1.71	.088		

Level of significance ($\alpha=0.05$)

Table shows the t-value -27.37 at $p=0.000$ is less than $\alpha=0.05$, hence the null hypothesis is discarded, alternate hypothesis is acknowledged and have great difference among the perception of phonemic and non-phonemic group students.

Effect Size of Opinionnaire

Hedges' $g = (1.71-1.18)0.693952=0.763$

Effect size value $g=.763$ ($.50>.76$), shows that there is very large difference between the perceptions of phonemic and non-phonemic groups.

Data Analysis of the Section-II of the Opinionnaire

Section-II based on method of 5 point Likert scale.

Table 4: Response of Groups to the Section-ii of the Opinionnaire Using Independent Sample 't-test'

Variable	Groups	n	Mean	SD	Mdif	t-test
<i>Section-II of the Opinionnaire</i>	Phonemic	53	3.96	.226	14.42	-.310 P=(0.000)
	Non-phonemic	85	3.65	.229		

Level of significance ($\alpha=0.05$)

Table shows the t-value -.310 at $p=0.000$ is less than $\alpha=0.05$ hence the null hypothesis is discarded, alternate hypothesis is acknowledged and have great difference among the perception of phonemic and non-phonemic group students.

Effect Size of t-test

Hedges' $g = (3.96-3.65)0.227858=1.360499$

Effect size of value $g=1.360499$ ($1.360499>1.20$).

According to Sawilowsky effect size 1.20 or more is considered large effect size. Therefore, there is very large difference between the perceptions phonemic and non-phonemic groups.

Discussion

The discussion is based on the results of objectives and research questions. It was analyzed that there was significant difference between the listening comprehension of phonemic and non-phonemic group participants. The value of effect size shows IPA symbols huge effect on students listening comprehension. Mohammad Saber Khaghaninejad, Abolfazl Maleki (2015), also concluded in the study 'The confirmation from the Iranian learners of English that clear pronunciation has great effect on listening comprehension' that there is an effect of pronunciation on listening comprehension of students of English learning as a foreign language learners. It is concluded from the research that students under this experiment brought improvements in their

own practice to comprehend the listening skills at the completion of pronunciation classes within a time frame.

The finding showed a great dissimilarity among both groups in spelling commands of phonemic and non-phonemic group students. The Effect size value of spelling command shows that there is very large effect on student's spelling command of IPA symbols. Fareeha (2015), in 'Impact of IPA symbols' showed that there was great impact of IPA symbols on those student's spelling command who were taught IPA as compared to those who were not taught. Study recommended that government of Pakistan should take steps and introduce IPA symbols in early classes of students.

The significant difference was seen between the perceptions of phonemic and non-phonemic group students. Effect size value of opinionnaire shows that there is very large difference between the perceptions of phonemic and non-phonemic groups. Valtteri & Nyssonen (April, 2017), in study titled 'University students' attitudes towards phonemic transcription as a teaching method: a survey of English students' revealed that learners and teachers have positive perception to phonemic transcription, majority participants replied positive response that teaching of phonemic transcription helping in language teaching careers.

The average result showed that phonemic group has greater percentage as compared to non-phonemic group. This reveals that phonemic group has positive perception for IPA symbols as compared to the non-phonemic group. (Knoblock, 2007), concluded that IPA symbols make mass of phonetics, the importance of IPA can never be denied in standardizing pronunciation of a language. (Delahunty, G.P., & Garvey, J.J., 2010), outcomes showed that IPA symbols considered being building blocks of phonetics in real sense.

Conclusion

It was concluded from the findings of research that there was great variation among both group students i.e. phonemic and non-phonemic in listening comprehension it has been proved that alternate hypothesis accepted and null hypothesis hence null hypothesis was discarded. Effect size value shows that has very large effect on students listening comprehension by IPA symbols. Further there was significant difference between the spelling commands of phonemic and non-phonemic group students' hence null hypothesis discarded. Effect size value of spelling command shows that there is very large effect on students spelling command by IPA symbols. Moreover there was a great differentiation between perception of both group students therefore the null hypothesis discarded. Effect size value of opinionnaire shows that there is very large difference between the perceptions of phonemic and non-phonemic groups.

In addition the average result of phonemic group has greater percentage as compared to non-phonemic group. This reveals that phonemic group has positive perception for IPA symbols as compared to the non-phonemic group.

Recommendations

The recommendations are as follows:

1-This research study recommends that the students should be taught IPA symbols from their primary level. As these symbols have composite nature, learners are unable to learn them in very short span of time at secondary level. Learning and mastery over the IPA symbols need continuous and repeated practice of listening sounds and transcription.

2- The present research recommends that introduction of IPA symbols should be a compulsory part of English curriculum for primary level public schools.

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