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Let's Start!

Strategies Used By Special Education Teachers For Phonological Awareness Among Learners With Hearing Impairment At Primary Level: A Survey Study Of The Punjab Province

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Strategies Used By Special Education Teachers For Phonological Awareness Among Learners With Hearing Impairment At Primary Level: A Survey Study Of The Punjab Province

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Abstract

Learners with hearing impairment find it difficult to learn like their hearing peers, so they need specific strategies for learning. During this study, it was aimed to find out effective strategies for teaching phonological awareness among learners with hearing impairment. This research was primarily a descriptive study in its nature. Our population was included special education teachers teaching to learners with hearing impairment employed in the special education department of the Punjab province. The convenience sample of study was comprised of sixty special education teachers. Data was collected through a self developed questionnaire. Descriptive statistics and inferential statistics helped the researchers to interpret the results. It was revealed that there was significant difference ($p<0.05$) in the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on experience. The researchers recommended that new strategies and methods need to be designed for teaching spelling skills to learners with hearing impairment according to their needs.

Keywords: Hearing impairement, Strategies, Phonological Awareness, Special Education Teachers

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INTRODUCTION

The term "deaf" refers to someone who cannot hear, whereas "hearing impaired" or "hard of hearing" refers to someone who can hear but very slowly. A physical disability, deafness can be acquired at birth or develop later in life. Prelingual deafness is the term used to describe hearing loss that occurs at birth or before the time at which language development normally occurs. Deafness is a rare disability, thus most teachers of deaf or hearing-impaired learners find it difficult to fully comprehend what their learners are saying. It has an impact on the level of instruction these learners receive. They don't receive the same education as learners who don't have hearing impairements (Hogan & Phillips, 2015).

As these learners are with hearing loss, they cannot listen what teacher is saying, that's why different strategies and methodologies are used for the purpose. The actual concern of a teacher is not just to deliver a lecture, the main aim is to teach what child should have to learn. Researcher has discussed the strategies which are used to teach spelling and develop phonological awareness and the way more strategies can be designed and applied to help student in learning and seeking phonological awareness skills. Spelling is the ability to arrange letters in correct order to make words. Development of spelling skill may help a child to write accurately and to read effectively (Jonah, 2011).

Deaf adults who are familiar with sign language tend to spell words more accurately than hearing adults who have trouble reading and writing. On a word-level, this group exhibited hardly any doubling errors, a form of inaccuracy that is widespread in several nations. For instance, many words in the English language must have doubled consonants, such as "comma". Spelling errors in this text make it difficult to determine when a consonant should be doubled and when it shouldn't be are prevalent among all learners in the targeted age group. A consonant may be mistakenly doubled, as in "seep" instead of "sip," or it may be mistakenly omitted, as in "kill" instead of "kill," to name just a few examples of double mistakes. In contrast, the deaf adults in the study exhibited more reversals, insertions, and morphological mistakes. Numerous studies on literacy focus on phonological awareness. Phonological awareness, or the understanding of sounds, how sounds can be divided into phonemes, and how sounds form words, is the first step in the formation of reading (in hearing children). It has been suggested that phonological awareness is a crucial building block for the development of reading, writing, and spelling (Park, Lombardino & Ritter, 2013).

Thus, it is reasonable to assume that the foundations of spelling are created for learners when they start fourth grade, or learners of about ten years old. The study also revealed that deaf persons were more likely to select terms that are visually like the target word, leading to a spelling method known as "spell as it looks," as opposed to a group of adults who had difficulty

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reading and writing, who spell "as it sounds." Additionally, it was shown that deaf adults demonstrated a varied pattern with no common production issues, but the pattern in the adults with reading and writing challenges was more homogeneous (Johnson et al., 1994). Therefore, it is vital to employ techniques and methodologies for such learners so that they can also gain high-quality knowledge. The issue is how these variables will combine or independently develop the phonological awareness of deaf and hearing-impaired learners, who may have varied possibilities to develop phonological awareness due to varying degrees of hearing or linguistic backgrounds. The majority of educators who work in the field of deaf education are mainly concerned with and focused on the language development of these learners. This research study mainly addresses the phonological awareness of children who are deaf or hearing impaired and concentrates on the spelling processes.

OBJECTIVES OF THE STUDY

The objectives of the study were to:

1. Find out strategies effectively used by teachers of learners with hearing impairment for giving them understanding of phonological awareness.
2. Assess strategies effectively used by teachers of learners with hearing impairment for memorizing phonological awareness.
3. Ascertain the difference in the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on their gender.
4. Figure out the difference in the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on their designation.
5. Determine the difference in the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on their experience.
6. Find the difference in the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on their locality.

RESEARCH QUESTIONS

The study was conducted to find answers to the following questions:

1. What are the effective strategies used by teachers of learners with hearing impairment for giving them understanding of phonological awareness?
2. What are the effective strategies used by teachers of learners with hearing impairment for memorizing phonological awareness?

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3. Is there any difference in the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on gender?
4. Is there any difference in the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on designation?
5. Is there any difference in the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on experience?
6. Is there any difference in the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on locality?

LITERATURE REVIEW

Children who cannot hear have a harder time learning to read. Lower than 50% of the 16- and 17-year deaf learners who were graduating from high school in 2000, according to Traxler's research, had reading and writing abilities equivalent to those of the grade 5 (Traxler, 2000). Deaf individuals usually depend on verbal correspondence, therefore reading and writing may be seen as more important for them than for hearing people (e.g., emails, texts, captioning). It has been proposed that difficulties with phonological processing are the cause of deaf people's poor reading abilities. Most hearing readers decode text by phonetically pronouncing words. Also with amplification, many deaf and hard of hearing-impaired learners are unable to hear many speech sounds. This encoding is crucial for reading because it enables readers to retain passages of text in their short-term memory for a period long enough even for their brains' significantly greater manufacturers to give them context. Educating methods may resemble those used with hearing children when teaching deaf and hard-of-hearing children who have sensory gadgets that allow them to access and absorb speech similarly to hearing children (Gentry, 1978). To improve auditory reception of spoken sounds, sensory equipment such as hearing aids and cochlear implants as well as assistive listening tools like FM systems and sound field systems should be used, as advised by the IEP team and audiologist.

Proponents of developmental early literacy models make the crucial premise that the transfer of knowledge and skills from reading to spelling will happen naturally and without official teaching (Frith,1980). In contrast, instruction-centered strategies start from the premise that there are essential prerequisite abilities that should be explicitly taught (Carnine et al., 1997). The distinction between these methods is emphasized in the discussion of created spelling, a common Western practice courses for junior primary in Australia. Several

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investigations were conducted to assess the impact of instruction on learners' proficiency in created and conventional spelling. Year wise data was acquired utilizing various research tools from a variety of contexts. Through a single case study, the relationship between phonological awareness and performance in beginning reading and spelling was initially investigated. Then, in order to determine whether mastery of the decoding of words was associated with spelling performance, a post-hoc study was carried out with a cohort of learners who had received systematic decoding instruction. This made it possible to examine common decoding and encoding sub-skills. In the main study, it was examined how utilizing a strategy that involves explicit phonological awareness and systematic decoding training affects several aspects of reading and spelling performance. In addition, it was examined learners who had explicit training in abilities known to aid in the development of early reading and spelling create better spelling samples. Allow the youngster to simultaneously view the book, your face, and the verbal/non-verbal signals. Expand on the images instead of being constrained by the print. Be theatrical; exaggerate, utilize props, display distinct personalities with varied facial expressions, eye gazes, and body movements. If a student requests it, read a story multiple times. After discussing the narrative, act it all out collaboratively.

Use the total communication approach and to make the contrasts between sign language and published phonological awareness of English story clear, use signed English, Cued Speech, and more finger spelling (Treiman & Bourassa, 2000). Encourage learners to make connections between all the provided types words and to translate between sign language and English. It focuses on memorizing phonological awareness. For visual depiction of instructional information, use multimedia techniques. The teacher does not have to turn away from the learners like they would with traditional chalk boards, therefore PowerPoint presentations and interactive white boards are preferred. This is crucial for learners whose receptive communication methods include speech reading, sign language, cued speech, and/or listening (Treiman, 2018). It is better to provide orderly vocabulary education (Hanna, 1971). The most successful strategies include a strong emphasis on a variety of methods, including word maps, semantic feature analyses, semantic maps, and classroom word discussions. It is frequently necessary to overexpose through repeating and a variety of forms (Pittman et al., 2022).

Children who can hear normally have an advantage over those who cannot because hearing aids help improve spoken language phonological awareness (Joshi et al., 2022). Mayberry et al. (2011) did a meta-analysis of phonological awareness and reading abilities regarding deaf readers and came to the conclusion that phonological awareness as a factor for deaf (and hearing) readers' reading abilities is overestimated. Instead, they discovered that among deaf youngsters, linguistic proficiency is a better indicator of reading accomplishment. It

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should be mentioned that deaf and hard of hearing-impaired learners can learn to use sign language to develop phonological awareness. According to study, literacy abilities and signed phonological awareness are positively correlated (Bourassa & Treiman, 2001). Children who are profoundly deaf can use written words, finger spelling, or other global qualities to help them comprehend phonological information in sign language. Using global qualities from written words, finger spelling, or lip reading, children who are profoundly deaf can face problems in decoding phonological information in sign language. They may consequently spell words incorrectly by omitting letters (for example, writing "orng" for "orange") or by reversing letters (for example, writing "sorpt" for "sport"). In writings produced by deaf youngsters who are familiar with sign language, omissions, insertions, and consonant errors have also been discovered. Lipreading was used to explain the errors in consonant since vowels are more distinguishable than consonants (Sutcliffe et al., 1999). However, words that adhere to normal spelling patterns will be simpler to spell, and by the second grade, youngsters appear to be able to decode phonological awareness.

However, it has been discovered that deaf and hard of hearing-impaired learners with residual hearing are more perceptive to phonological information than their deaf counterparts who are conversant in sign language (Marschark, 2009). Some of those learners appear to share some common patterns of miss spelt words, which have previously been observed in hearing learners. According to studies on learners with CI or hearing aids, many of them employ sounding techniques when spelling, which results in "plausible" spelling errors (mistakes based on sounds) (e.g., Geers and Hayes, 2011). It's interesting to note that Geers and Hayes (2011) also found that CI-users (Cochlear implant users) who used sign language in addition to oral language produced more implausible errors. This contrasts with CI users who solely communicate verbally. However, due to a lack of phonological awareness, this group still had issues spelling (Hammond, 2001).

Many hearing youngsters grow up in a richly linguistic environment and become fluent in their native language(s) by the time they are five years old. In contrast, the majority of deaf and hard of hearing-impaired learners grow up in an environment where access to a language is far less certain. The study contends that reading and spelling require two related but distinct talents, namely familiarity with a language and knowledge of the mapping between that language and the printed word, explaining why this is so difficult for deaf and hard of hearing-impaired learners. As a result, deaf and hard of hearing-impaired learners, especially those who are profoundly deaf, suffer on both counts (Van Staden, 2021). Additionally, studies have demonstrated that deaf and hard of hearing-impaired learners ' difficulties with language learning have a negative impact on their academic outcomes (Ontario Ministry of Education,

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2001). The reading and spelling difficulties of deaf and hard of hearing-impaired learners were further highlighted by comparison studies between deaf and hard of hearing-impaired learners and hearing learners (Bergman, 2012). Given the foregoing, one would expect teachers who are actively involved in the instruction of deaf and hard of hearing-impaired learners to get sufficient support and guidance in order to properly teach reading and spelling. The exact opposite, though, is true (Schleper, 2018). According to several studies, teachers must mostly rely on their personal experiences in order to teach reading and spelling to deaf and hard of hearing-impaired learners because they do not receive enough support in this area (Virginia Department of Education, 2019). According to research of (Allman, 2002), deaf learners compared to their hearing peers, employ more visual information, relying on auditory information for spelling. This thesis study focuses on delivering lessons that enable visual access and investigates how deaf and hard of hearing learners in the lower elementary school levels learn spelling methods for English words. Although it is acknowledged that deaf learners have phonemic awareness, they do not totally rely on phonics to learn the spelling of new English words, as do hearing learners (Hanson & Fowler, 1987; Hanson et al., 1989; Hanson & Lichtenstein, 1990; Schaper & Reitsma, 1993).

Researchers want to give teachers a cutting-edge approach for teaching deaf and hard-of-hearing children how to spell vocabulary in English by providing spelling sessions that contain more opportunities for learners to improve their Sign Language. The mainstream spelling curriculum assumes that learners are hearing and can utilize phonics fluently, hence there is an urgent need for new ways for teaching deaf and hard of hearing learners spelling. Learners who are deaf or hard of hearing need specialized instruction in learning how to spell English words so they can access the curriculum visually. In that initiative, learners were given a visual depiction of the words using sign language based finger-spelled stories. In order to generate a visual depiction of the words utilizing each letter, the children wrote their own finger spelling stories and use their English vocabulary and this strategy has many objectives (Gardenfors et al., 2019). A vital component of American Sign Language (ASL) is finger spelling, which gives learners access to a wide vocabulary in the language. Finger spelled words are important and functional elements of the language (Padden, 2006). The American sign language lexicon includes finger-spelled terms that hold semantic contrasts with other terminology as well as grammatical content (Padden, 2006). As a crucial component of language development, finger spelling should be introduced to deaf and hard-of-hearing youngsters. For deaf learners to learn how to write and communicate, spelling instruction is crucial. The study discussed some crucial methods for teaching children with hearing loss to spell. Therefore, the study will help to explore the problems faced by learners in reading phonological awareness (Gaston, 2009).

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Study will help to figure out the problem faced by teachers in teaching phonological awareness. Learners also faced many problems in learning phonological awareness, these are also assessed in this research. In this research, different strategies for teaching phonological awareness among learners are assumed. These strategies are designed for teachers to teach and for learners to learn phonological awareness. Study will highlight the new strategies for learners with hearing impairment to learn phonological awareness.

RESEARCH METHODOLOGY

RESEARCH DESIGN: In this study, the researchers employed quantitative research. This research was primarily descriptive and was aimed to describe the properties of the population or subjects being studied.

RESEARCH POPULATION: Population included the special education teachers employed in Govt. Special Education Institutes for the hearing impairment in the special education department of Punjab.

SAMPLE AND SAMPLING TECHNIQUE: Sample of study was comprised of sixty special education teachers teaching to learners with hearing impairment in the special education department of Punjab. Convenience sampling technique was used to select the sample of study.

Table 1: Demography of Teachers

Demographic variables	F	%
Gender		
Male Teachers	29	48.7
Female Teachers	31	51.3
Designation		
Senior Special Education Teachers	21	35.0
Junior Special Education Teachers	29	65.0
Experience of Teachers		
05-14 Years	25	43.7
15-24 Years	35	56.3
Locality of Teachers		
Urban	33	52.7
Rural	27	47.3
Age of Teachers		
16-20 Years	1	
21-25 Years	3	1.7
26-30 Years	19	5.0

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31-35 Years	14	31.7
36-40 Years	17	23.3
41-45 Years	4	28.3
46-50 Years	1	6.7
51-60 Years	1	1.7
Qualification of Teachers		1.7
B.Ed	14	
Masters	3	23.3
M.Ed	22	5.0
M.Phil	20	36.7
Ph.D	1	33.3
		1.7

RESEARCH INSTRUMENT: A structured self developed questionnaire was deisgned by researchers to explore the effective strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment. The research instrument had two parts, one comprised of teachers' demography and the second contained questioning portion. The questionnaire had two versions; first was" understanding phonological awareness" with five statements, and the second was "memorizing phonological awareness" with seven statements. First version was about strategies that were used by teachers to develop spelling understanding in their learners. Second version comprised of strategies for spelling memorization of learners used by special education teachers. This tool was presented to the five experts for its validity. According to the suggestions of the experts, changes were made in the tool. Later on, the experts approved the tool and after assuring its validity, data was collected through this instrument. As validation of instrument measured, it was important to determine reliability of instrument. SPSS was used to test the reliability of instrument which was found through cronbach alpha value equals to 0.96.

Table 2: Reliability Analysis of the Study Variable (N=60)

Variable	K	M	SD	Range		A
				Actual	Potential	
Teaching Strategies Questionnaire	29	98	20.1	59-121	29-121	0.96

K=No. of items in scale and subscale; M =Mean; SD=Standard Deviation; a= Cronbach's alpha

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Table 2 shows the good reliability of assessment measures to carry the further analysis of the study.

DATA COLLECTION PROCEDURE: Data was collected by using a structured self developed questionnaire. Researchers visited schools, met different teachers of special education department and collected data from the teachers. All the data was collected based on teaching experience of teachers.

DATA ANALYSIS: The collected data was then analyzed by using SPSS software to infer the results. The researchers employed descriptive statistics to obtain frequencies and percentages. Frequencies were the count of numbers in the data set and the percentages were the proportions of the specific number in relation to all the numbers in the data set of sixty special education teachers. Inferential statistics also helped the researchers to make predictions based on data and make conclusions of the study. Independent samples t-test compared the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on gender, designation, experience and locality.

DESCRIPTIVE STATISTICS

Table 3: Lecture method

Scale	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	4	6.7	6.7	6.7
Agree	44	73.3	73.3	80.0
Neutral	7	11.7	11.7	91.7
Disagree	4	6.7	6.7	98.3
Strongly Disagree	1	1.7	1.7	100.0
Total	60	100.0	100.0	

Table 3 showed the responses of participants on the strategy of “lecture method for teaching phonological awareness among children with hearing impairement”. Four (6.7%) participants were strongly agreed while forty-four (73.3%) participants were agreed. Seven (11.7%) participants showed their response neutral. Four (6.7%) participants were disagreed while 1 (1.7%) participant strongly disagreed with the idea.

Table 4: Visual Method

Scale	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	18	30.0	30.0	30.0
Agree	38	63.3	63.3	93.3

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Neutral	4	6.7	6.7	100.0
Total	60	100.0	100.0	

Table 4 showed the responses of participants on the strategy of "using visual method for teaching phonological awareness among learners with hearing impairment". Eighteen participants (30%) were strongly agreed while thirty-eight (63.3%) participants were agreed. Four (6.7%) participants showed their response as neutral.

Table 5: Demonstration Method

Scale	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	13	21.7	21.7	21.7
Agree	44	73.3	73.3	95.0
Neutral	3	5.0	5.0	100.0
Total	60	100.0	100.0	

Table 5 showed the responses of participants on the strategy of "Demonstration method for teaching phonological awareness among children with hearing impairement". Thirteen (21.7%) participants were strongly agreed while forty-four (73.3%) participants were agreed. Three (5%) participants showed their response neutral about the idea.

Table 6: Activity Method

Scale	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	20	33.3	33.3	33.3
Agree	39	65.0	65.0	98.3
Neutral	1	1.7	1.7	100.0
Total	60	100.0	100.0	

Table 6 showed the responses of participants on the strategy of "activity method for teaching phonological awareness among children with hearing impairement". Twenty (33.3%) participants were strongly agreed, thirty-nine (65%) participants were agreed. One (1.7%) participant showed neutral response about the idea.

Table 7: Morphological Awareness Method

Scale	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	7	11.7	11.7	11.7
Agree	24	40.0	40.0	51.7
Neutral	23	38.3	38.3	90.0
Disagree	4	6.7	6.7	96.7
strongly disagree	2	3.3	3.3	100.0

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Total	60	100.0	100.0

Table 7 showed the responses of participants on the strategy of "morphological awareness method for teaching phonological awareness among children with hearing impairement". Seven (11.7%) participants were strongly agreed, twenty-four (40%) participants were agreed, twenty-three (38.3%) participants showed their response as neutral, whereby four (6.7%) participants were disagreed, and 2 (3.3%) participants were strongly disagreed about the idea.

Table 8: Finger Spelling Method

Scale	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	22	36.7	36.7	36.7
Agree	35	58.3	58.3	95.0
Neutral	1	1.7	1.7	96.7
Disagree	2	3.3	3.3	100.0
Total	60	100.0	100.0	

Table 8 showed the responses of participants on the strategy of "Finger phonological awareness method for teaching phonological awareness among children with hearing impairement". Twenty-two (36.7%) participants were strongly agreed, thirty-five (58.3%) participants were agreed, one participant (1.7%) was neutral. Two (3.3%) participants were disagreed with the idea.

Table 9: *Writing Words Again And Again Technique*

Scale	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	23	38.3	38.3	38.3
Agree	33	55.0	55.0	93.3
Neutral	4	6.7	6.7	100.0
Total	60	100.0	100.0	

Table 9 demonstrated the response of participants on the strategy of "writing words again and again method for teaching phonological awareness among children with hearing impairement". Twenty-three (38.3%) participants were strongly agreed, thirty-three (55%) participants were agreed, four (6.7%) participants were neutral about the idea that they were using writing words again and again for teaching phonological awareness among the children with hearing impairment.

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Table 10: Sign language

Scale	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	36	60.0	60.0	60.0
Agree	23	38.3	38.3	98.3
Neutral	1	1.7	1.7	100.0
Total	60	100.0	100.0	

Table 10 showed the responses of participants on the strategy of "Sign language method for teaching phonological awareness among children with hearing impairement". Thirty-six (60%) participants were strongly agreed, twenty-three (38.3%) participants were agreed, whereby one (1.7%) participant was neutral regarding the statement.

Table 11: White board method

Scale	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Strongly agree	24	40.0	40.0	40.0
Agree	35	58.3	58.3	98.3
Neutral	1	1.7	1.7	100.0
Total	60	100.0	100.0	

Table 11 showed the responses of participants on the strategy of "white board method for teaching phonological awareness among children with hearing impairement". Twenty-four (40%) participants were strongly agreed, thirty-five (58.3%) participants were agreed, while one (1.7%) participants were neutral about the idea.

Table 12: Providing words daily to learners according to their ability

Scale	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Strongly agree	12	20.0	20.0	20.0
Agree	42	70.0	70.0	90.0
Neutral	4	6.7	6.7	96.7
Disagree	2	3.3	3.3	100.0
Total	60	100.0	100.0	

Table 12 showed the responses of participants on the strategy of "providing words daily to learners according to their ability method, for teaching phonological awareness among children with hearing impairement". Twelve (20%) participants were strongly agreed, forty-two

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(70%) participants were agreed, four (6.7%) participants were neutral, however two (3.3%) participants were disagreed with the idea.

Table 13: Revision method

Scale	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	17	28.3	28.3	28.3
Agree	42	70.0	70.0	98.3
Neutral	1	1.7	1.7	100.0
Total	60	100.0	100.0	

Table 13 showed the responses of participants on the strategy of "Revision method for teaching phonological awareness among children with hearing impairement". Seventeen (28.3%) participants were strongly agreed, forty-two (70%) participants were agreed, however, one (1.7%) participants were neutral about the statement.

Table 14: Hands on Practice Method

Scale	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
Strongly Agree	15	25.0	25.0	25.0
Agree	41	68.3	68.3	93.3
Neutral	4	6.7	6.7	100.0

Table 14 showed the responsess of participants on the strategy of "Hand on practice method for teaching phonological awareness among children with hearing impairement". Fifteen (25%) participants were strongly agreed, forty-one (68.3%) participants were agreed, whereby four (6.7%) participants were neutral about the idea.

Table 15: Summary of Strategies Used by Special Education Teachers for Teaching Phonological Awareness among Learners with Hearing Impairment

Sr. No	Statements	Occurance Percentage
	Teaching strategies for understanding spellings	
1	Special education teachers use "lecture method" for teaching phonological awareness among learners with hearing impairement.	55.1%
2	Special education teachers use "visual method" for teaching phonological awareness among learners with hearing impairment.	88.2%
3	Special education teachers use "demonstration	52.3%

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	method" for teaching phonological awareness among learners with hearing impairment.	
4	Special education teachers use "activity method" for teaching phonological awareness among learners with hearing impairment.	66.0%
5	Special education teachers use "morphological awareness method" for teaching phonological awareness among learners with hearing impairment.	89.6%
Teaching Strategies For Memorizing Spellings		
1	Special education teachers use "finger spelling method" for teaching phonological awareness among learners with hearing impairment.	64.8%
2	Special education teachers use "writing words again and again technique" for teaching phonological awareness among learners with hearing impairment.	77.2%
3	Special education teachers use "sign language" for teaching phonological awareness among learners with hearing impairment.	62.8%
4	Special education teachers use "white board practice method" for teaching phonological awareness among learners with hearing impairment.	84.4%
5	Special education teachers use "method providing words daily to learnersaccording to their ability" for teaching phonological awareness among learners with hearing impairment.	76.6%
6	Special education teachers use "revision method" for teaching phonological awareness among learners with hearing impairment.	82.7%
7	Special education teachers use "hand on practice method" for teaching phonological awareness among learners with hearing impairment.	94.7%

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Table 15 demonstrated that "morphological awareness method" and "visual method" for understanding spelling were very effective. Hence, "hand on practice method" and "white board practice method" for memorizing spellings were the most effective methods used by special education teachers to teach phonological awareness among learners with hearing impairment.

INFERENTIAL STATISTICS

Table 16: Independent Samples t-Test Comparing The Teaching Strategies Used By Special Education Teachers For Teaching Phonological Awareness Among Learners With Hearing Impairment Based On Gender.

Gender	N	Mean	SD	df	t	p
Male	29	3.99	0.670	58	0.592	0.143
Female	31	3.90	0.884			

Table 16 revealed that there was no significant difference ($p>0.05$) in teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on the bais of their gender.

Table 17

Independent samples t-test comparing the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on their designation.

Designation	N	Mean	SD	df	t	p
Senior Special Education Teachers	21	3.79	0.467	58	1.496	0.158
Junior Special Education Teachers	39	3.94	0.981			

Table 17 revealed that there was no significant difference ($p>0.05$) in teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on their designation.

Table 18

Independent samples t-test comparing the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on their experience.

Experience	N	Mean	SD	df	t	p
05-14 Years	25	3.72	0.662	58	1.501	0.001
15-24 Years	36	3.97	0.548			

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Table 18 revealed that there was a significant difference ($p<0.05$) in the the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on their experience.

Table 19

Independent samples t-test comparing the teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on locality of Faisalabad.

Experience	N	Mean	SD	df	t	p
Urban	33	3.86	0.474	58	1.901	0.165
Rural	27	3.70	0.731			

Table 19 revealed that there was no significant difference ($p>0.05$) in teaching strategies used by special education teachers for teaching phonological awareness among learners with hearing impairment based on their locality.

DISCUSSION

Having different levels of hearing or different linguistic backgrounds may result in different opportunities to develop spelling abilities. As an illustration, it is expected that young, normally hearing children may base their spelling decisions on a sounding strategy while learning to spell, which will result in common misspelt words with a close mapping of the grapheme and phoneme. When structures in either language are modified by bilingual proficiency, bilinguals may have cross-linguistic influence patterns in their language production. However, nothing is known about the spelling habits of bilingual bimodal youngsters who also have hearing impairements. Modifying teaching strategies is needed to meet the requirements of your visual learner by writing any homework assignments, class rules, and procedural modifications on the board. Confusion about these subjects is eliminated by providing a visual clue. Keep in mind not to speak to the learners while you are facing the other way. If a pupil is adept with computers, give them a laptop or computer so they may practice their phonological awareness. Use visual aids wherever you can by using posters, charts, flash cards, photographs, manipulatives, graphic organizers, artefacts, or any other visual things to demonstrate ideas since a hearing-impaired learner will rely on their vision as their primary way of information acquisition and use sign language during class.

It’s very important for teachers to assess the progress of all learners regularly, but specifically those learners who feel more difficulty in understanding and memorizing phonological awareness. Teachers must focus on the needs of deaf and hard of hearing-impaired learners and must follow the IEP. Teacher should provide words to student for writing and ask about their work regularly. Every normal child who borns in this world has an ability to

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learn its native language by the age of five. Some children have disability of hearing, and they are unable to learn and perform as normal children. Deaf or hard of hearing persons faced issues in communication. To communicate properly, one must be familiar with a language and understand the printed words. This communication barrier, have a poor effect on their academic performance persons showed reading and spelling delay compared to the normal ones. To overcome this communication barrier, the teachers must be provided with guidelines and support in teaching deaf and hard of hearing-impaired learners (Staden, 2021). But in most cases, these special teachers have to rely on their personal experience to teach deaf and hard of hearing-impaired learners as they are not provided with the support to teach them. Most of the teachers used the commercial materials and methods to teach spelling and reading to deaf and hard of hearing-impaired learners which is mostly unauthentic and unscientific. This results in unauthentic spelling and reading outcomes (Gardenfors, 2019).

Learners with hearing impairment face many problems to learning because hearing impaired learners have a very short vocabulary. And they cannot understand easily spelling so we use effective teaching spelling strategies to teach spelling for deaf and hard of hearing-impaired learners most effective strategies are sign language, demonstration method, visual method, hand on practice method and writing practice method. Children who can hear are better than others who cannot analyzed the abilities of these deaf people and conclude that phonological awareness predicts the reading abilities of such people. Special education teachers prefer most useful teaching strategies arrest, Hand on practice, visual method. These methods using to taught spelling of deaf and hearing impaired learners. And improve the learning skills and communication skills. According to research of (Allman, 2002) deaf learners compared to their hearing peers, employ more visual information, relying on auditory information for spelling. This thesis study focuses on delivering lessons that enable visual access and investigates how deaf and hard of hearing learners in the lower elementary school levels learn spelling methods for English words. A vital component of ASL is finger spelling, which gives learners access to a wide vocabulary in the language. Fingerspelled words are important and functional elements of the language. The ASL lexicon includes finger-spelled terms that hold semantic contrasts with other terminology as well as grammatical content (Padden, 2006).

CONCLUSION

Learners with hearing impairment face myriad problems in learning. These problems may be of different kinds and levels. It is teacher's and others responsibility to design different methods and strategies for teaching student according to their needs. It was noticed that the learners with hearing impairment faces many problems in learning phonological awareness. In this research, we focus on effective and appropriate strategies for teaching phonological

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awareness among learners with hearing impairment. The reserachers formulated different strategies and then asked from special education teachers to check the effectiveness of these strategies. By asking these strategies, we found that some of these strategies are more effective and some are less. But all the strategies that are suggested in this research are effective and applicable to some extent for learners according to their needs. Most effective strategies are "morphological awareness method" and "visual method" for understanding spelling and "hand on practice method" and "white board practice method" for memorizing spellings used by special education teachers to teach phonological awareness among learners with hearing impairment for memorizing spellings. These strategies can be used by special education teachers for teaching phonological awareness among learners with hearing impairment. All these strategies aim to overcome the problems faced by hearing impaired, deaf learners and their teachers.

SUGGESTIONS AND RECOMMENDATIONS

Based on the findings of the study, researcher presented the following recommendations:

1. Teachers should use strategies according to the need of learners.
2. New strategies and methods need to be designed for teaching spellings to learners with hearing impairment.
3. Professional trainings may be conducted to promote awareness amongst teachers about how to teach phonological awareness among learners with hearing impairment.

LIMITATIONS

The following were the limitations of the study:

1. The sample of the study was not very large so the findings of the study may not be generalizable to the whole population.
2. The questionnaire was self-administered thus, the factor of subjectivitvity might have impacted the results.
3. Survey study was conducted only through a structured questionnaire.

DELIMITATIONS

The following were the delimitations of the study:

1. The researchers delimited the study to only the schools of Punjab.
2. The researchers delimited the study to only quantitative data analysis.
3. The researchers delimited the study to only special education teachers teaching to learners with hearing impaired learners in the special education department of Punjab for data collection.

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