

## Teaching Urdu to the Students with Hearing Impairment: Exploring Teachers' Perspectives

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**Abstract:** *This research article examines the strategies used by teachers to teach Urdu to children with hearing impairment, based on their perspectives. A quantitative and descriptive research design was employed, and data was collected from a sample of 150 teachers in Punjab, Pakistan. The findings reveal that teachers recognize the effectiveness of strategies such as sign language, visual aids, and a multisensory approach, as well as adapting the curriculum to meet the needs of these students. However, the use of technology received lower agreement levels, indicating the need for further exploration. The study also identifies challenges including limited resources, insufficient professional development, and inadequate support from the school environment. Addressing these challenges requires collaborative efforts among educators, policymakers, and stakeholders to provide resources,*



*training, and support systems. Additionally, increasing awareness of the specific needs of children with hearing impairment and overcoming language barriers through training programs are crucial. The study concludes by recommending further exploration of technology integration, strengthening support systems, and promoting awareness and training to create inclusive learning environments that enhance communication and language development for children with hearing impairment in Urdu.*

**Keywords:** *Strategies, Teaching Urdu, Hearing Impairment*

## **Introduction**

Education plays a vital role in shaping the lives of individuals, enabling them to acquire knowledge, skills, and perspectives necessary for their personal and intellectual development (Schoon & Heckhausen, 2019). In recent years, there has been a growing recognition of the importance of inclusive education, which aims to provide equal educational opportunities for students with diverse abilities and needs. As part of this inclusive approach, children with hearing impairment are increasingly being integrated into mainstream educational settings, allowing them to learn alongside their peers without disabilities. While the inclusion of children with hearing impairment in mainstream classrooms is a positive step toward inclusivity, it presents unique challenges for teachers, particularly when teaching subjects that heavily rely on auditory input, such as language acquisition (Zavaraki & Schneider, 2019). Urdu, one of the most widely spoken languages in South Asia, presents a specific set of challenges for children with hearing impairment due to its complex phonetics, tonal variations, and reliance on auditory comprehension. Teaching Urdu to children with hearing impairment requires a multifaceted approach that addresses their specific learning needs and ensures their active participation in the learning process. Recognizing the significance of understanding the strategies employed by teachers in this context, this research article aims to explore and analyze the perspectives and experiences of educators who teach Urdu to children with hearing impairment (Manikam et al., 2017).

The research gap addressed by this article lies in the limited understanding of the specific strategies employed by teachers when teaching

the subject of Urdu to children with hearing impairment. While there is a growing recognition of the importance of inclusive education and the integration of children with hearing impairment into mainstream classrooms, there is a lack of comprehensive research that focuses specifically on the instructional approaches used for teaching Urdu to this particular group. By exploring the strategies employed by teachers and gaining insights into their perspectives and experiences, this research aims to bridge this gap and provide valuable knowledge on effective instructional practices tailored to the unique learning needs of children with hearing impairment in the context of Urdu education.

### **Research Objectives**

The following are the research objectives for this study;

1. To Explore the Strategies Used to Teach the Subject of Urdu to Children with Hearing Impairment.
2. To Explore the hurdles faced by teachers Teaching the Subject Urdu to Children with Hearing Impairment.

### **Literature Review**

Children with hearing impairment face unique challenges when it comes to language acquisition and education. In inclusive educational settings, where children with hearing impairment are integrated into mainstream classrooms, teachers encounter specific obstacles when teaching subjects like Urdu that rely heavily on auditory comprehension and phonetic nuances (Halliday et al., 2017). This literature review aims to examine existing research on teaching strategies and approaches for children with hearing impairment in the context of learning the Urdu language.

Language acquisition plays a crucial role in children's cognitive, social, and educational development. However, for children with hearing impairment, language acquisition can be particularly challenging due to limited auditory input. Research has shown that children with hearing impairment may struggle with phonetic distinctions and tonal variations in languages such as Urdu (Dewaele & Li, 2020). Therefore, it is important to explore effective teaching strategies tailored to their specific needs.

In recent years, inclusive education has gained recognition as an approach that promotes equal educational opportunities for all students, including those with diverse abilities and needs. Children with hearing impairment are increasingly being included in mainstream classrooms to foster social integration and enhance their educational experiences (Koller et al., 2018). However, this inclusive approach presents challenges for teachers when it comes to teaching languages like Urdu.

Several studies have explored effective teaching strategies for children with hearing impairment in various educational contexts. For instance, the use of visual aids, such as sign language, gestures, and visual representations, has been found to enhance language comprehension and expression (Gupta, 2017). Additionally, the incorporation of assistive technologies, such as hearing aids or cochlear implants, can provide auditory support and facilitate language development. Collaborative learning approaches, where children work together in small groups, have also shown promise in promoting language acquisition for children with hearing impairment (Arciuli & Bailey, 2021).

Teaching children with hearing impairment presents unique challenges and requires specialized strategies to ensure effective learning outcomes. The purpose of this literature review is to explore the strategies used to teach various subjects to children with hearing impairment. By reviewing existing research in this area, this article aims to provide insights into effective teaching methods that can support the educational needs of these children (Ismaili & Ibrahim, 2017).

Language and communication are fundamental aspects of education for children with hearing impairment. Several strategies have been identified to facilitate language development and communication skills in this population. One approach is the use of sign language, such as American Sign Language (ASL) or other sign systems, as a primary mode of communication. Studies have shown that sign language can enhance vocabulary acquisition, grammar skills, and overall communication competence in children with hearing impairment (Rastgoo et al., 2021).

Another strategy is the use of augmentative and alternative communication (AAC) systems, including visual aids, pictures, and technological devices. AAC systems can support expressive and receptive communication, allowing children with hearing impairment to actively participate in classroom discussions and activities. Additionally, auditory-verbal therapy (AVT) focuses on developing listening and spoken language skills through the use of amplification devices, speechreading, and auditory training (Moffatt et al., 2017).

Adapting the curriculum and instructional techniques is crucial for ensuring inclusive education for children with hearing impairment. One widely used strategy is the modification of teaching materials to suit their specific needs. This may involve providing captioned videos, visual aids, and written transcripts of audio content to enhance comprehension. The use of multimedia resources, such as interactive software and online platforms, can also facilitate engagement and knowledge acquisition (Bamu et al., 2017).

In terms of instructional techniques, a multisensory approach is often recommended. This approach integrates visual, auditory, and tactile modalities to reinforce learning. For example, teachers may use gestures, facial expressions, and visual cues to supplement spoken instructions. Hands-on activities and experiential learning are also effective in promoting understanding and retention of subject matter (Hung et al., 2017).

Collaboration among educators, specialists, and parents is crucial in optimizing the learning experience for children with hearing impairment. Research suggests that a team-based approach, involving teachers of the deaf, speech-language pathologists, and educational audiologists, can lead to better educational outcomes. These professionals can provide guidance, training, and support to both teachers and students, ensuring the implementation of appropriate strategies and accommodations (Sanchez et al., 2022).

Furthermore, involving parents as active partners in their child's education is essential. Parental involvement can positively influence the academic achievement, social development, and overall well-being of children with hearing impairment. Parents can work with teachers to reinforce learning

at home, practice language skills, and create an inclusive environment that supports their child's educational journey (Sanchez et al., 2022).

Various strategies have been explored to facilitate the teaching of Urdu to children with hearing impairment. Visual aids, such as sign language, visual representations, and gestures, have proven effective in enhancing language comprehension and expression. Augmentative and alternative communication (AAC) systems, including assistive technologies like communication boards and speech-generating devices, have also been found useful in promoting language development for children with hearing impairment. Additionally, teacher-student collaboration, individualized instruction, and differentiated approaches tailored to specific learning needs have shown promising results (Robinson, 2018).

Teaching Urdu, the national language of Pakistan, to children with hearing impairment poses unique challenges due to their limited auditory access. In such cases, sign language can serve as an effective tool to bridge the communication gap and facilitate language development. This literature review aims to explore the strategies used to teach Urdu to children with hearing impairment using sign language. By reviewing existing research in this area, this article provides insights into effective teaching methods that can support the educational needs of these children (Tariq & Naz, 2017).

Sign language, such as Pakistani Sign Language (PSL), can play a pivotal role in teaching Urdu to children with hearing impairment. Studies have demonstrated that sign language allows these children to acquire and comprehend the linguistic structure and vocabulary of Urdu more effectively. By using sign language as a medium of instruction, educators can promote language development, including vocabulary acquisition, sentence construction, and grammar comprehension (Tariq & Naz, 2017).

Trained sign language interpreters play a crucial role in facilitating communication between educators and students with hearing impairment. These interpreters possess a strong command of sign language and Urdu, allowing them to effectively convey complex concepts and instructions. Their presence in the classroom enables children with hearing impairment to access educational content in Urdu, participate actively in discussions, and engage in

learning activities. To enhance the teaching and learning of Urdu for children with hearing impairment, the utilization of visual resources and materials is vital. Educational materials such as books, posters, flashcards, and multimedia resources should incorporate visual cues, images, and illustrations that align with the Urdu language. This visual reinforcement can aid in the comprehension and retention of vocabulary, grammar rules, and language concepts (Alasim, 2018).

Adopting a multisensory approach can enhance the learning experience of children with hearing impairment when teaching Urdu. Alongside sign language, incorporating other sensory modalities such as visual and tactile cues can reinforce understanding and engagement. For instance, educators can use visual aids, gestures, facial expressions, and real-life objects to associate meanings with Urdu words and phrases. Effective collaboration between educators, sign language interpreters, and other professionals is vital for the successful teaching of Urdu to children with hearing impairment. Regular communication and training sessions between these stakeholders can improve instructional strategies, promote a deeper understanding of the language challenges faced by students, and foster a cohesive and supportive learning environment. Involving parents in the education of children with hearing impairment is crucial to reinforce learning at home. Parents can learn sign language alongside their children, allowing them to communicate effectively and support their language development in Urdu. Collaborating with parents can also help educators understand the specific cultural and linguistic needs of their students, resulting in a more personalized and inclusive educational experience (Imran et al., 2021).

### Research Methodology

**Research Design:** This research article aims to explore the strategies used by teachers to teach the subject of Urdu to children with hearing impairment. To achieve this objective, a quantitative and descriptive research design was employed. This design allows for the collection and analysis of numerical data, providing a systematic and structured approach to understanding the teachers' perspectives on the strategies used in teaching Urdu to children with hearing impairment.

**Research Population:** The research population for this study consists of teachers who are actively involved in teaching children with hearing impairment in Punjab, Pakistan. This population is selected due to their direct experience and expertise in implementing instructional strategies for teaching Urdu to children with hearing impairment. By focusing on this specific group of teachers, valuable insights can be gained regarding their perspectives and practices in this context.

**Sample & Sampling Technique:** A sample size of 150 teachers was selected from the population using a simple random sampling technique. This approach ensures that every teacher in the population has an equal chance of being selected for the study. By including a diverse range of teachers, the sample will be representative of the larger population, enhancing the generalizability of the findings.

**Research Tool:** To collect data from the participants, a self-developed questionnaire was used as the research tool. The questionnaire was designed specifically for this study, incorporating relevant questions that focus on the strategies used by teachers to teach Urdu to children with hearing impairment. The questionnaire was administered to the participants, allowing them to provide their perspectives and insights through structured responses.

**Data Analysis:** The collected data was analyzed using the Statistical Package for the Social Sciences (SPSS). SPSS is a widely used software program for statistical analysis that provides a range of tools and techniques for data manipulation, descriptive statistics, and inferential analysis. In this study, SPSS was utilized to analyze the quantitative data obtained from the questionnaire responses. Descriptive statistics such as frequencies, means, and standard deviations were calculated to summarize and interpret the data. Inferential statistics were also calculated to compare the difference in the mean of respondents.

### Descriptive statistics

**Table I**

*Frequency Distribution at the Basis of Demographics*

Title	Description	Frequency	Percentage (%)
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### Teaching Urdu to the Students...

Gender	Male	64	42.67%
	Female	86	57.33%
Designation	SSET(HI)	53	35.33%
	JSET(HI)	97	64.67%
Qualification	Master	113	75.33%
	M.Phil.	33	22.00%
	PHD	4	2.67%

**Table 2**

*Frequency Distribution for Strategies Used to Teaching the Subject Urdu to Children with Hearing Impairment*

Sr#	Statements of Questions	SA	A	UD	DA	SDA	M	SD
1	The use of sign language enhances the language development of children with hearing impairment in Urdu.	55 37%	69 46%	12 8%	12 8%	2 1%	4.44	0.7
2	Visual aids and resources effectively support the understanding of Urdu language concepts for children with hearing impairment.	23 15%	87 58%	13 9%	23 15%	4 3%	4.47	0.57
3	Incorporating a multisensory approach (e.g., visual cues, and gestures) improves the comprehension of Urdu among children with hearing	23 15%	112 75%	7 5%	6 4%	2 1%	4.39	0.65

	impairment.								
4	Adapting the curriculum to suit the needs of children with hearing impairments enhances their Urdu language learning experience.	51	94	3	2	0	4.35	0.83	
		34%	63%	2%	1%	0%			
5	The use of technology (e.g., educational apps, and interactive software) facilitates the learning of Urdu for children with hearing impairment.	22	115	2	1	10	4.11	0.8	
		15%	77%	1%	1%	7%			
6	Providing individualized instruction and support improves the progress of children with hearing impairment in learning Urdu.	106	41	3	0	0	4.18	0.83	
		71%	27%	2%	0%	0%			
7	Collaborating with sign language interpreters effectively enhances the communication and language development of children with hearing impairment in Urdu.	113	27	7	2	1	4.21	0.78	
		75%	18%	5%	1%	1%			

Table 3

## Teaching Urdu to the Students...

*Frequency Distribution for hurdles faced by teachers Teaching the Subject Urdu to Children with Hearing Impairment*

Sr#	Statements of Questions	SA	A	UD	DA	SDA	M	SD
1	Limited access to appropriate teaching resources and materials poses challenges in teaching Urdu to children with hearing impairment.	56 37%	77 51%	2 1%	11 7%	4 3%	4.41	0.67
2	Insufficient professional development opportunities for teachers hinder effective instruction of Urdu to children with hearing impairment.	34 23%	78 52%	12 8%	19 13%	7 5%	4.44	0.54
3	Inadequate support and collaboration from school administration and staff affect the teaching of Urdu to children with hearing impairment.	32 21%	107 71%	5 3%	5 3%	1 1%	4.36	0.62
4	Limited knowledge and training in teaching strategies specifically designed for children with hearing impairment hinder effective Urdu	56 37%	87 58%	4 3%	2 1%	1 1%	4.32	0.8

	instruction.								
5	The inclusion of children with hearing impairment in mainstream classrooms presents challenges in providing individualized instruction for learning Urdu.	76	63	3	2	6	4.08	0.77	
		51%	42%	2%	1%	4%			
6	Language barriers between teachers and children with hearing impairment affect the teaching and understanding of Urdu.	47	89	7	4	3	4.15	0.8	
		31%	59%	5%	3%	2%			
7	Limited awareness and understanding of the specific needs of children with hearing impairment hinder effective Urdu language instruction.	59	76	8	5	2	4.18	0.75	
		39%	51%	5%	3%	1%			

### Inferential Statistics

**Table 4**

*Comparison of Opinion of Respondents at the Base of Gender (Independent Sample t-test)*

Gender	N	M	SD	df	t	Sig.
Male	64	68.09	6.3	148	0.78	0.46

### Teaching Urdu to the Students...

Female	86	67.46	6.08
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*\*P > .05 Level of Significance*

The independent sample t-test revealed no significant difference between male (M = 68.09, SD = 6.3) and female (M = 67.46, SD = 6.08) participants in the measured variable,  $t(148) = 0.78$ ,  $p > .05$ . These findings suggest that gender did not have a meaningful impact on the variable in question.

**Table 5**

*Comparison of Opinion of Respondents at the Base of Designation (Independent Sample t-test)*

Designation	N	M	SD	df	t	Sig.
SSET(HI)	53	68.29	6.05	148	1.69	0.105
JSET(HI)	97	66.94	6.24			

*\*P > .05 Level of Significance*

The independent sample t-test showed no significant difference between the SSET(HI) group (M = 68.29, SD = 6.05) and the JSET(HI) group (M = 66.94, SD = 6.24) in the measured variable,  $t(148) = 1.69$ ,  $p > .05$ . These results suggest that the designation of being in the SSET(HI) or JSET(HI) group did not have a significant impact on the variable under investigation.

**Table 6**

*Comparison of Opinion of Respondents at the Base of Qualification (One-Way ANOVA)*

Qualification	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1038.88	3	257.219	6.638	.001
Within	7803.82	146	35.938		

Groups		
Total	8842.7	149

*\*P < .05 Level of Significance*

The one-way ANOVA results revealed a significant difference among the groups based on qualification,  $F(3, 146) = 6.638$ ,  $p < .05$ . The between-groups sum of squares was 1038.88, and the within-groups sum of squares was 7803.82. This indicates that there are significant variations in the measured variable across the different qualification groups.

### Findings

The research article explored the strategies used in teaching the subject of Urdu to children with hearing impairment, as perceived by teachers. The findings revealed that the majority of teachers agreed or strongly agreed on the effectiveness of various strategies in facilitating Urdu language learning. Sign language, visual aids, incorporating a multisensory approach, and adapting the curriculum to accommodate the needs of children with hearing impairment were highly favored strategies. However, the use of technology received comparatively lower agreement levels, with some teachers expressing disagreement. Providing individualized instruction and support, as well as collaborating with sign language interpreters, were also seen as effective strategies.

On the other hand, the hurdles faced by teachers in teaching Urdu to children with hearing impairment were also examined. Limited access to appropriate teaching resources and materials, insufficient professional development opportunities, inadequate support and collaboration from school administration and staff, and limited knowledge and training in teaching strategies for children with hearing impairment were reported as challenges. Additionally, the inclusion of children with hearing impairment in mainstream classrooms and the language barriers between teachers and students were identified as obstacles. Limited awareness and understanding of the specific needs of children with hearing impairment also posed difficulties in Urdu language instruction.

These findings emphasize the importance of implementing strategies such as sign language, visual aids, and curriculum adaptations to enhance the learning experience of children with hearing impairment in Urdu. The study highlights the need for addressing challenges related to limited resources, professional development, and support from the school environment. Furthermore, it emphasizes the significance of raising awareness and understanding of the unique needs of children with hearing impairment to improve the quality of Urdu language instruction.

### **Discussion**

The findings of this research article shed light on the strategies used in teaching Urdu to children with hearing impairment, as well as the hurdles faced by teachers in this context. The results indicate that teachers widely recognize the effectiveness of various strategies in facilitating Urdu language learning for children with hearing impairment. Sign language, visual aids, incorporating a multisensory approach, and adapting the curriculum to meet the specific needs of these students emerged as highly favored strategies. These findings align with previous research that highlights the significance of visual and tactile modalities in language acquisition for individuals with hearing impairment (Marschark, 2018). By utilizing sign language and visual aids, teachers can enhance communication, comprehension, and language development in Urdu for these students.

However, the relatively lower agreement levels regarding the use of technology highlight the need for further exploration and understanding of its potential benefits and limitations in the context of teaching Urdu to children with hearing impairment. It is crucial to consider individual preferences and learning styles when integrating technology into the classroom, as some students may find it less effective or encounter challenges in its usage (Duncan & Chan, 2017). Future studies could delve deeper into specific technological tools and applications that may better support Urdu language learning for children with hearing impairment.

The hurdles identified in this study provide valuable insights into the challenges faced by teachers in teaching Urdu to children with hearing impairment. Limited access to appropriate teaching resources and materials, insufficient professional development opportunities, and inadequate support

from school administration and staff are consistent with the barriers reported in inclusive education settings (Hartog et al., 2017). Addressing these challenges requires collaborative efforts among educators, policymakers, and relevant stakeholders to provide adequate resources, training, and support systems that empower teachers and enhance their ability to effectively teach Urdu to children with hearing impairment.

Furthermore, the findings emphasize the need for increased awareness and understanding of the specific needs of children with hearing impairment in Urdu language instruction. Language barriers between teachers and students, along with limited awareness of the unique challenges faced by these students, hinder effective communication and instruction. It is essential to promote inclusive practices and provide training opportunities that equip teachers with the necessary knowledge and skills to overcome language barriers and cater to the diverse needs of children with hearing impairment (Antia et al., 2011).

### Conclusion

The findings of this research article provide valuable insights into the strategies and challenges involved in teaching Urdu to children with hearing impairment. The majority of teachers acknowledged the effectiveness of strategies such as sign language, and visual aids, incorporating a multisensory approach, and adapting the curriculum to meet the needs of these students. These strategies align with previous research emphasizing the importance of visual and tactile modalities in language acquisition for individuals with hearing impairment. However, the use of technology received comparatively lower agreement levels among teachers, indicating the need for further exploration of its potential benefits and limitations in Urdu language instruction for children with hearing impairment. Future studies can delve deeper into specific technological tools and applications that better support language learning for these students.

The hurdles faced by teachers in teaching Urdu to children with hearing impairment were also identified in this study. Limited access to appropriate teaching resources and materials, insufficient professional development opportunities, and inadequate support from school administration and staff were reported as challenges. These findings align



with barriers commonly observed in inclusive education settings (Hartog et al., 2017). Addressing these challenges requires collaborative efforts among educators, policymakers, and stakeholders to provide teachers with the necessary resources, training, and support systems. Moreover, the study highlights the need to increase awareness and understanding of the specific needs of children with hearing impairment in Urdu language instruction. Language barriers between teachers and students, along with limited awareness of the unique challenges faced by these students, hinder effective communication and instruction. Promoting inclusive practices and providing training opportunities can equip teachers with the knowledge and skills to overcome language barriers and cater to the diverse needs of children with hearing impairment.

In conclusion, implementing strategies such as sign language, visual aids, and curriculum adaptations can significantly enhance the learning experience of children with hearing impairment in Urdu. Addressing challenges related to limited resources, professional development, and support from the school environment is crucial for ensuring quality Urdu language instruction. Raising awareness and understanding of the unique needs of children with hearing impairment will further contribute to their success in acquiring Urdu language skills. By addressing these aspects, educators can create inclusive learning environments that promote effective communication and language development for children with hearing impairment in Urdu.

### Recommendations

The following recommendations were made on the results and conclusions:

1. Enhance Technology Integration: Further exploration of the benefits and limitations of technology in Urdu language instruction for children with hearing impairment is recommended. Future studies should investigate specific technological tools and applications that can effectively support language learning for these students. It is important to consider individual preferences and learning styles when integrating technology, ensuring that it caters to the diverse needs of children with hearing impairment.

2. **Strengthen Support Systems:** Efforts should be made to address the challenges faced by teachers in teaching Urdu to children with hearing impairment. Collaborative initiatives involving educators, policymakers, and stakeholders should focus on providing adequate teaching resources, materials, and professional development opportunities. Additionally, school administration and staff should provide support and collaboration to enable teachers to effectively teach Urdu to children with hearing impairment. These efforts will empower teachers and enhance their ability to meet the unique needs of these students.
3. **Promote Awareness and Training:** Increasing awareness and understanding of the specific needs of children with hearing impairment in Urdu language instruction is essential. Language barriers between teachers and students should be overcome through training programs that equip teachers with the necessary knowledge and skills. Promoting inclusive practices and providing training opportunities will enable teachers to effectively communicate and instruct children with hearing impairment in Urdu, fostering their language development and overall academic success.

## **References**

- Alasim, K. N. (2018). Participation and interaction of deaf and hard-of-hearing students in inclusion classroom. *International Journal of Special Education*, 33(2), 493-506.
- Antia, S. D., Reed, S., & Kreimeyer, K. H. (2011). Including Students with Disabilities in General Education Classrooms: Perspectives of Teachers and Administrators. *American Journal of Community Psychology*, 47(1-2), 116-130. <https://doi.org/10.1007/s10464-010-9409-6>
- Arciuli, J., & Bailey, B. (2021). The promise of comprehensive early reading instruction for children with autism and recommendations for future directions. *Language, Speech, and Hearing Services in Schools*, 52(1), 225-238.

- Bamu, B. N., De Schauwer, E., Verstraete, S., & Van Hove, G. (2017). Inclusive education for students with hearing impairment in the regular secondary schools in the North-West region of Cameroon: Initiatives and challenges. *International Journal of Disability, Development and Education*, 64(6), 612-623.
- Dewaele, J. M., & Li, C. (2020). Emotions in second language acquisition: A critical review and research agenda. *Foreign Language World*, 19(1), 34-49.
- Duncan, H. E., & Chan, S. W. (2017). Using Assistive Technology and Instructional Media to Enhance Communication Skills of Individuals Who Are Deaf or Hard of Hearing: A Review of Literature. *Communication Disorders Quarterly*, 38(4), 255–268. <https://doi.org/10.1177/1525740117707474>
- Halliday, L. F., Tuomainen, O., & Rosen, S. (2017). Language development and impairment in children with mild to moderate sensorineural hearing loss. *Journal of Speech, Language, and Hearing Research*, 60(6), 1551-1567.
- Hartog, M. E., Suh, S., Jo, S., & Bolt, S. (2017). Teachers' perceptions of inclusive education: A cross-cultural investigation in the Netherlands, South Korea, and the United States. *Frontiers in Education*, 2, 34. <https://doi.org>
- Hung, Y. H., Chen, C. H., & Huang, S. W. (2017). Applying augmented reality to enhance learning: a study of different teaching materials. *Journal of Computer Assisted Learning*, 33(3), 252-266.
- Imran, A., Razzaq, A., Baig, I. A., Hussain, A., Shahid, S., & Rehman, T. U. (2021). Dataset of Pakistan sign language and automatic recognition of hand configuration of Urdu alphabet through machine learning. *Data in Brief*, 36, 107021.
- Ismaili, J., & Ibrahimi, E. H. O. (2017). Mobile learning as alternative to assistive technology devices for special needs students. *Education and Information Technologies*, 22(3), 883-899.

- Johnson, R. (2018). Challenges Faced by Teachers in Inclusive Classrooms. *Journal of Special Education*, 42(1), 80-95.
- Koller, D., Pouesard, M. L., & Rummens, J. A. (2018). Defining social inclusion for children with disabilities: A critical literature review. *Children & Society*, 32(1), 1-13.
- Mahoney, J. L., Weissberg, R. P., Greenberg, M. T., Dusenbury, L., Jagers, R. J., Niemi, K., ... & Yoder, N. (2021). Systemic social and emotional learning: Promoting educational success for all preschool to high school students. *American Psychologist*, 76(7), 1128.
- Manikam, L., Shah, R., Reed, K., Santini, G., & Lakhanpaul, M. (2017). Using a co-production prioritization exercise involving South Asian children, young people, and their families to identify health priorities requiring further research and public awareness. *Health Expectations*, 20(5), 852-861.
- Moffatt, K., Pourshahid, G., & Baecker, R. M. (2017). Augmentative and alternative communication devices for aphasia: the emerging role of “smart” mobile devices. *Universal Access in the Information Society*, 16, 115-128.
- Rastgoo, R., Kiani, K., Escalera, S., & Sabokrou, M. (2021). Sign language production: A review. In *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition* (pp. 3451-3461).
- Sanchez, C., Coto, J., Berrios, D., & Cejas, I. (2022). Impact of Auditory–Oral Education on Device Use in Children With Hearing Loss. *Language, Speech, and Hearing Services in Schools*, 53(1), 222-230.
- Schoon, I., & Heckhausen, J. (2019). Conceptualizing individual agency in the transition from school to work: A social-ecological developmental perspective. *Adolescent Research Review*, 4, 135-148.
- Smith, J. (2021). The Role of Education in Personal and Intellectual Development. *Journal of Educational Psychology*, 45(2), 40-55.

- Tariq, S., & Naz, S. (2017). Assessing the impact of Pakistan Early Learning System (PELS) Urdu alphabet learning in children with hearing impairment using a computer-assisted web-based program. *Annals of PIMS* ISSN, 1815, 2287.
- Zavaraki, E. Z., & Schneider, D. (2019). Blended learning approach for students with special educational needs: A systematic review. *Journal of Education & Social Policy*, 6(3), 75-86.