Towards Inclusive Learning: Identification of Effective Teaching Adaptations Used by Teachers for Inclusive Teaching

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https://doi.org/10.62345/jads.2025.14.1.44

Abstract

Advancement in human evolution appears to be in the hands of growth in education. The instructional approach towards inclusive classroom teaching is built by different disciplinary procedures and learning philosophies. In the wake of comprehensive study being completed in a classroom setting, dialogue and discussions are arranged. Over the last 20 years, different adjustments to teaching and learning practices in inclusive learning environments have revealed that educational quality and learning outcomes have improved much for students in developing nations worldwide. Objectives of research were to identify different teaching adaptations being used by teachers for students with impairments regarding reading, writing, speaking, hearing and listening in creating inclusive classrooms in primary level schools. According to School Information System (www.sis.punjab.gov.pk), Tehsil Gojra had total 113 male primary schools where 206 teachers were teaching. By maintaining a 95% confidence level and confidence interval 5, and using www.surveysystem.com, sample size of 134 was determined. Convenient method of sampling was used to select the respondents. A structured questionnaire was used to collect essential information from respondents. Statistical Package for the Social Sciences (SPSS) was utilized to process the collected information. 'Use computer games' with mean score of 2.22, 'shorten writing assignments' with mean score of 2.16, 'allow extra response time for processing' with mean score of 2.18, 'emphasizing key points' with mean score of 2.17 and 'provide material in large or braille print' with mean score of 2.18 were widely used adaptations by the teachers in inclusive learning regarding reading, writing, speaking, hearing and listening needs respectively. The data demonstrated how important teachers were in fostering an inclusive learning environment and how crucial it was to use a range of tactics and adaptations to help struggling students.

Keywords: Inclusive Classroom, Inclusive Learning; Inclusive Teaching; Teaching Adaptations, Teaching Strategies.

Introduction

The origins of inclusive education are grounded in a universally agreed human right to learning (Universal Declaration of Human Rights, 1948).

Most school-aged children who need extra care never get the chance to attend specific learning institutions, even if traditional schools are available and accessible. In contrast to their non-weak counterparts, students with weaknesses have a minimal probability of completing their education cycles successfully. Students with special needs and typical students attend mainstream schools where they are part of inclusive classrooms according to Punjab Education Sector Plan, 2020-24 (Chaudhry & Tajwar, 2021; Government of Punjab, 2019).

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Compliance with ethical standards: There are no conflicts of interest (financial or non-financial). This study did not receive any funding.

More and more people believe that inclusive education may help ensure that every child has a just future (Ackah-Jnr, 2020).

The SDGs, also called sustainable development goals, and the Salamanca Statement of 1994 have launched a change of perspective, finally promoting quality inclusive education based on equal opportunities as an essential human right (Majoko, 2020).

In United Nations Convention on the Rights of Persons with Disabilities (2006), there was a declaration stating that all philosophy of education should remove forms of barriers to ensure instruction of all children in mainstream classes within their communities regardless of differing circumstances (Köpfer & Óskarsdóttir, 2019). Ensuring that education is accessible to all learners is the key motive behind inclusive education (Slee, 2018).

To end discrimination, UNESCO (2003) promotes equal access to education. According to UNICEF, (2005), 70% of children with mild disability have been meaningfully included into mainstream schools in India. Besides merely improving the educational outcomes for all pupils, inclusive education has also been invoked to further greater benefits to society: it helps preserve local languages and traditions and preserve cultural heritage (Brusling & Pepin, 2003).

The Islamabad Proclamation of April 27, 2005: this act sought to achieve an inclusive education system all over Pakistan. It provided the bodies of the government with much-needed framework in preparing an accommodating environment that the children could achieve while being in educational institutions, starting from early childhood institutions to higher educational institutes. In addition to this, it provided a platform for the training of administrators and teachers in technology-based assessment tools and flexible curricula to cater to the divergent requirements of the learners (Malik et al., 2014).

The government of Punjab implements the Islamabad Declaration on Inclusive Education, which helps in including the children having physical impairments in the mainstream education. Among the selected institutions offering complimentary education and registration, admission with support services including meals is "Mohallahas." Regular education teachers are also trained by the special education department to work effectively. The government also has a program that identifies school-aged children with physical disabilities in small communities so as to make it possible for them to be included in the education system (Thakur & Abbas, 2017).

It has now emerged as a viable option for Pakistan because it has been incrementally showing progress toward accomplishment of requirements with respect to disable children’s education. They are crucially placed within the context of this important change, and the study analyses those perceptions through a descriptive design and survey method (Zia et al., 2023).

Child enrollment with disabilities is mostly out of school notwithstanding Pakistan's pledge to enrollment of all the children irrespective of any sort of impairment. The US Department of Education in its report informed that 60.5% of the students of the US with disabilities attended mainstream schools for more than 80% of their education. Pakistan claims on the international stage a commitment to equal educational opportunities but faces considerable difficulties in implementing inclusive educational practices despite its obligations (Manzoor et al., 2016).

In Pakistan, separate or special schools are kept to provide intellectual learning to disabled children categorized within four different disabilities: physical disability, intellectual disability, blindness, or deafness. Statistics suggest that 27 million of the population, 15% of the entire population in Pakistan, suffer from some form of disability. Till date, only 4% of that age group has been able to access any form of intellectual education (ASER, 2015).

According to the Directorate General of Special Education DGSE (2006) study, as a consequence, 91% of schools for children with disability fall in urban regions and only 9% lie in rural zones. The educational level remains very poor up to this date also; both by public and private sectors, and this regional pattern can never be harmonized with residential patterns.

Statement of the Problem

This study aimed towards the identification of different teaching adaptations being used by teachers for students with impairments regarding reading, writing, speaking, hearing and listening in creating inclusive classrooms in primary level schools.

Significance of Research

This research has significance as:

1. It provides insights about different teaching adaptations being used by teachers in creating inclusive classrooms in primary level schools for students with impairments regarding reading, writing, speaking, hearing and listening.
2. Future plans may be developed by the policy makers using insights of research to create inclusive learning environment in the institutes.

Literature Review

Fennema and Franke (1992) emphasized that inclusive learning environment; the child learner is central to the process and actively involved in his own construction of learning through whole-class exploration on topics with involvement in what the teacher organizes as thought-provoking activities.

Cook et al. (1999) suggested that favorable attitude and extensive administrative support have much to do with holistic inclusion of children in the specialized education. The play between regular and special education is an important feature of this integration. Howsoever, the severity of a condition of a student and the availability of resources determine the willingness of a school to make the necessary accommodations for children with disabilities.

Avramidis and Norwich (2002) reported that some research evidence also shows that several factors such as cooperation between the teachers, interrelation among the students, teaching methods, and beliefs of instructors determine the effectiveness of inclusive education. All persons can only realize effective inclusive learning when they are clearly aware of their duties and their own need for cooperation.

Jamieson (2003) concluded that a teacher has to develop an actual learning environment where, most probably, social skills, thinking skills, and stimulating classroom activities occur. Introducing both kinds of learning environments developed through small group instruction enables a learner to experience the degree of activity primarily associated with such learning.

Peters (2004) explored that the support toward exceptional children is very imperative through inclusive education, and the attitudes by the teachers can determine their inclusion. Therefore, this review aims at discussing contemporary studies that have been conducted on teacher's attitudes relating to influences on those attitudes and ways that a teacher's view can facilitate effectiveness in inclusive teaching strategies within elementary educational settings.

Flores and Day (2006) reported that despite these facts, inclusive education is still facing a myriad of problems resulting from poor funding, bad instructor training, ignorance, and lack of information concerning the issue. Student relationship, pedagogies, attitudes, and cooperation among instructors are other determinants of effective inclusive education. For a student to learn effectively under inclusive education, stakeholders need to embrace their selves as responsible for their actions.

Pashler et al. (2008) found that inclusive education caters to the student's development of critical thinking and leadership through the use of diverse themes and engaging methodologies. Teachers have to determine how they can stimulate the learner and even inspire an interest in reading. Schools stress inclusive pedagogy as much since they seek high-quality and innovative learning experiences. The developmental evidence buttresses such an approach as the resource and support mechanism requirement for the student completing inclusive education is created.

Kim (2011) concluded that however, what makes professional growth valuable in context of inclusion in education is that well-prepared educators were less anxious when their students were introduced to schools consisting of regular classrooms. And therefore, as a report consequence, it is indispensable that it calls for a recommendation wherein both programs for teachers' training and continuing professional development incorporate inclusion strategies both for teachers and policymakers.

Moon et al. (2012) determined that more important is the usage of English phonetics in the teaching mathematics and science which helped the students practically. Other new approaches to teaching for example, an inclusive classroom falls under this category. Though the notion of an inclusive classroom has many benefits if it is given to students with a negative perception on how to execute then it will not further motivate them towards becoming accepting of it.

Nind (2014) explored that this will keep parent-teacher relationships intact, encourage reflective learning, reduce error in learning, and identify differences between individuals in solving problems, storing information, memory, perception, and thought processes. It motivates learners to assume personal responsibility for learning and use their preferred styles of learning.

Mitchell (2015) concluded that all relevant classroom information, student concerns, and differences are significant for domain of the inclusive education. From delivery of programs designed for children having impairments, the inclusive education also includes activities for general education students. The program therefore supports learner-centered teaching, which is a different approach from the syllabus-delivery of knowledge, and brings closer general education teachers, specialists like special educators, support staff, evaluators, and parents.

Rose-Munro (2016) concluded that pictures were collected for photo elicitation so that the research became more valid. The view of the environment now became multidimensional instead of being single-dimensional. New ideas about life in the community came from the focus group and the interviews conducted with educators, their students, and school administrators. The article provides to the growth of universal inclusive learning settings by provision of innovative methods to the learning environment that allow children who have hearing impairments.

Loreman (2017) defined that inclusive pedagogies use innovative ideas to treat students equally by ensuring that learners obtain accurate information required for achieving academic goals and, consequently, piques interest in the concerned discipline.

Moreno (2017) explored for the students in an inclusive school, the homework-like homework with many classroom responsibilities is met by a variety of group projects, group discussions, peer-to-peer activities, and computer-based programs. In this regard, the students work on projects, think critically, and take part in online learning modules. The inclusive-classroom model makes use of Ed-tech which includes video technology for presentation of course material outside a class environment and to make instruction learner-centered. Implementation of this approach allows learners to engage in profound subject-related learning as well as rich educational experience.

Papageorgiou and Lameras (2017) reported that a gradual transition from more teacher-centered approaches by way of oral, written and graphic representations towards more student-centered modes by the means of gestural representations will be an example of meaning-making process as a mean to connect and combine various modes activated via the visual communication, collaboration, and exploration.

Limpo and Alves (2018) reported that although some of them seem to share their attention over a range of processes, the structurally pathological patients were in general more attentive to the auditory processing during the first and middle stages of the piece. Compositions built from longer words also took much less time than the controls to build up before the try.

Naraian and Schlessinger (2018) demonstrated that as a result, in an inclusive classroom, the teacher is involved less in knowledge transfer as the students take an active part in such activity by investigating the topics in-depth and engaging in activities effectively.

Mangope et al. (2018) stated that among the important factors that determine the education for special needs children in formal schooling settings, one would find time devoted to teaching and approaches taken up by the teacher for teaching; attitudes of educators; ability, knowledge, and skills held by teachers; and resources used.

Hewett et al. (2019) reported that inclusive educational environment is important for students with visual impairments but requires specific training and support within an institution of higher education. However, for all visually impaired students, effective communication of desired accommodations and strong independent study skills will help in the creation of an inclusive educational environment.

Lautenbach and Heyder (2019) concluded that the hostile environment is a discouraging factor to the learning experience of the children with disability; hence, advocacy through inclusion is fundamentally very important. According to Ministry of Federal Education and Professional Training, the inclusive education takes into account the totally different needs, potential, and goals of these learners.

Wakeman et al. (2021) explored that the facilitator lets this inclusive model of education work by helping in designing a collaborative learning environment. In this model, the structure comes with the possibility of reviewing the methods of instruction, embracing positive evaluation, and co-participating with learners in smaller groups. It is not an easy tactic; it helps the students find ways to improve their learning experience.

Singh et al. (2021) emphasized that this is why distant learning, one of blended learning methodologies, specifically through inclusive learning, accords with technology-enhanced strategies of instruction. What inclusive learning attends to in general are lifelong education, computer literacy, acquaintance with technological resources, and online communication capabilities-all particularly within the framework of what might now be considered the "new normal" following the pandemic.

Lelinge (2023) stated that often termed as an inverted classroom, inclusive education is an approach that promotes active participation of students in acquiring education through virtual tools such as screencasts and online video podcasts. Here, the teacher acts more of a coach and facilitator tapping on the Edmodo, YouTube, or even Teaching Channel sources for resources outside the school setting.

Achekzai (2024) concluded that there is empirical evidence that participants appreciated improvement of confidence; appropriately difficult tasks; friendly supportive environment; proper procedures for error correction; teamwork; support for friendly relationships; and group integration. Based on information provided by respondents, these would have eased the process through which they would participate in speaking classes significantly.

Methodology

Research Design

Descriptive research method was used in this research study which was quantitative in nature.

Area of Study

Tehsil Gojra of district Toba Tek Singh was selected to conduct this research. This was located in Punjab province of Pakistan which was the fifty-fifth largest city in Pakistan according to population of the 2017 census.

Population and Sample

As per data on the School Information System (www.sis.punjab.gov.pk), total 206 teachers were teaching in total 113 male primary schools of Tehsil Gojra. By keeping confidence interval 5 and 95% confidence level, and using www.surveysystem.com, the sample size of 134 was determined. Convenient method of sampling was used to select the respondents.

Data Collection

A structured questionnaire featuring a 3-point rating system was used to collect essential information from respondents. To ensure the validity of questionnaire, it was crafted under the supervision of study supervisor and research committee members. Twenty respondents in all were chosen to examine the questionnaire's reliability and validity. During pre-testing the value of Cronbach's alpha 0.845 demonstrated the reliability of data collection instrument. Reliability of the questionnaire was assessed by analyzing through Statistical Package for Social Sciences (SPSS) program. After giving the respondents necessary instructions to complete the questionnaire, the data was collected from them.

Data Analysis

The collected information was processed through Statistical Package for Social Sciences (SPSS).

Results and Discussion

Adaptations to meet students' needs facing difficulty in reading

There are many ways instructors can accommodate poor readers. Some of these include making print materials visually clear and simple, giving them more time to accomplish reading activities, listening with audiobooks or text-to-speech software, or using graphic organizers to make the work even clearer. Combining visual, aural, and tactile elements can be a great multisensory teaching method. These children may benefit from focused reading interventions and breaking reading assignments into manageable pieces. For example, one multisensory teaching strategy is the use of visual, aural, and tactile components in instruction. These children may benefit from focused reading interventions and the breaking of reading assignments into manageable pieces.

Table 1: Adaptations to meet students' needs facing difficulty in reading

Adaptations to meet students' needs facing difficulty in reading	1		2		3	
	f	%	*f*	%	*f*	%
Allow partner reading	28	20.90	64	47.76	42	31.34
Use peer tutoring	29	21.64	64	47.76	41	30.60
Use taped materials	88	65.67	30	22.39	16	11.94
Use videos with advanced organizers	71	52.99	28	20.90	35	26.12
Use computer games	22	16.42	60	44.78	52	38.81
Allow students to quietly read allowed	27	20.15	61	45.52	46	34.33
Teach self-questioning	65	48.51	27	20.15	42	31.34
Use visual imagery	46	34.33	43	32.09	45	33.58
Allow students to paraphrase	44	32.84	36	26.87	54	40.30
Allow students to summarize	45	33.58	41	30.60	48	35.82

Scale: 1. Low 2. Medium 3. High

Table 2: The mean value, standard deviation, weighted score and rank order according to Rank order of adaptations to meet students' needs facing difficulty in reading

Adaptations to meet students' needs facing difficulty in reading	Mean	S.D	WS	Rank order
Use computer games	2.22	0.71	298	1
Allow students to quietly read allowed	2.14	0.72	287	2
Allow partner reading	2.1	0.72	282	3
Use peer tutoring	2.09	0.72	280	4
Allow students to paraphrase	2.07	0.85	278	5
Allow students to summarize	2.02	0.83	271	6
Use visual imagery	1.99	0.82	267	7
Teach self-questioning	1.83	0.88	245	8
Use videos with advanced organizers	1.73	0.85	232	9
Use taped materials	1.46	0.7	196	10

Scale: 1. Low 2. Medium 3. High

The table 1 indicated that this study regarding adaptations to fulfill students' needs facing trouble in reading provided insight into the strategies teachers prioritize. The highest-ranked adaptation, 'Use computer games,' with a mean score of 2.22, suggested that integrating technology and interactive media was seen as the most effective approach. This method likely engaged students in a more dynamic and enjoyable way, potentially enhancing their reading skills in an interactive environment.

The next preferred strategy was to 'Allow students to quietly read aloud' (mean: 2.14). This technique could help students with reading difficulties by improving their phonemic awareness and pronunciation skills in a low-pressure setting. Similarly, 'Allow partner reading' and 'Use peer tutoring' (mean: 2.10 and 2.09, respectively) were also highly rated. These collaborative methods not only aided in reading comprehension but also fostered a supportive learning environment.

'Allowing students to paraphrase' and 'summarize' (mean: 2.07 and 2.02) were seen as beneficial adaptations. These strategies encouraged students to process and express information in their own words, enhancing understanding and retention.

'Use of visual imagery' (mean: 1.99) reflected an understanding that combining text with visual elements could aid comprehension, especially for students who might have difficulty processing written words alone.

Overall, the data indicated a preference for interactive, collaborative, and multimodal teaching strategies. These findings were similar to the findings of Papageorgiou and Lameras (2017) they explored that such approaches not only addressed the specific challenges faced by students with reading difficulties but also seemed to align with a broader educational shift towards more engaging and diverse teaching methods.

Adaptations to meet students' needs facing difficulty in writing

Ancillary supports also include lined and graph paper to support handwriting and templates or visual organizers. These tools provide a framework in which to work upon during their writing activities. Extended time for writing activities may also be used along with support provided by a scribe as needed, with content emphasized. Teachers may provide oral feedback or other alternatives, for example, by allowing the student to use speech-to-text software as an accommodation for those in need.

Table 3: Adaptations to meet students' needs facing difficulty in writing

Adaptations to meet students' needs facing difficulty in writing	1		2		3	
	f	%	*f*	%	*f*	%
Dictate ideas to peers	22	16.42	69	51.49	43	32.09
Shorten writing assignments	23	17.16	66	49.25	45	33.58
Require list instead of sentences	56	41.79	36	26.87	42	31.34
Allow collaborative writing	38	28.36	48	35.82	48	35.82
Provide model of writing	27	20.15	62	46.27	45	33.58
Allow visual representation of ideas	30	22.39	63	47.01	41	30.60
Provide fill in the blank form for note taking	60	44.78	34	25.37	40	29.85
Allow different position of writing paper	46	34.33	51	38.06	37	27.61
Allow use of flow chart for writing ideas	43	32.09	33	24.63	58	43.28
Use of different writing utensils and papers	49	36.57	43	32.09	42	31.34

Scale: 1. Low 2. Medium 3. High

Table 4: The mean value, standard deviation, weighted score and rank order according to Rank order of adaptations to meet students' needs facing difficulty in writing

Adaptations to meet students' needs facing difficulty in writing	Mean	S.D	WS	Rank order
Shorten writing assignments	2.16	0.69	290	1
Dictate ideas to peers	2.16	0.68	289	2
Provide model of writing	2.13	0.72	286	3
Allow use of flow chart for writing ideas	2.11	0.86	283	4
Allow visual representation of ideas	2.08	0.72	279	5
Allow collaborative writing	2.07	0.8	278	6
Use of different writing utensils and papers	1.95	0.82	261	7
Allow different position of writing paper	1.93	0.78	259	8
Require list instead of sentences	1.9	0.85	254	9
Provide fill in the blank form for note taking	1.85	0.85	248	10

Scale: 1. Low 2. Medium 3. High

The table 4 indicated that this study about adaptations for students facing difficulty in writing highlighted various strategies that teachers find effective. The highest-rated adaptation was 'Shorten writing assignments,' with a mean score of 2.16. This suggests that reducing the length of writing tasks could alleviate pressure on students who struggle with writing, making assignments more manageable and less daunting.

Equally rated was the strategy to 'Dictate ideas to peers' (mean: 2.16), indicating that verbal expression of ideas, which could then be transcribed by others, was seen as a beneficial way to circumvent writing difficulties. This approach allowed students to focus on their thoughts and ideas rather than the mechanics of writing.

Providing a 'Model of writing' (mean: 2.13) was another key adaptation. This involved giving students examples of good writing to guide and inspire their work, helping them understand structure, style, and content expectations.

'Allowing the use of a flow chart for writing ideas' (mean: 2.11) and 'Allowing visual representation of ideas' (mean: 2.08) were also well-regarded strategies. These methods helped students organize their thoughts visually, which could be particularly helpful for those who found linear, text-based planning challenging.

'Requiring lists instead of sentences' (mean: 1.90) and providing 'Fill in the blank forms for note-taking' (mean: 1.85) were seen as the least prioritized adaptations. While these strategies could reduce the writing burden, they might not be as effective in developing comprehensive writing skills as the other methods.

Overall, the data highlighted a preference for strategies that reduce the writing load, provide alternative means of expression, and offer structural guidance. These findings were similar to the findings of Limpo and Alves (2018) they explored that such adaptations not only assist students with writing difficulties but also cater to diverse learning styles, thereby fostering a more inclusive classroom environment.

Adaptations to meet students' needs facing difficulty in speaking

Teachers should encourage the use of alternative methods, like sign language, or communication boards, for children talking slowly or with difficulties. Encouragement of the use of technology in the way of speech-generating devices is also good. The teachers have to provide little extra time for the child to speak and ensure that they hear the words of the child; in this way, they will easily create an atmosphere that is supportive and patient.

Table 5: Adaptations to meet students' needs facing difficulty in speaking

Adaptations to meet students' needs facing difficulty in speaking	1		2		3	
	f	%	*f*	%	*f*	%
Use graphic organizers to organize ideas	27	20.15	66	49.25	41	30.60
Allow extra response time for processing	22	16.42	66	49.25	46	34.33
Say students names then state questioning	59	44.03	37	27.61	38	28.36
Use cues and prompts to help student know when to speak	44	32.84	46	34.33	44	32.84
Phrase questions with choices embedded in them	27	20.15	61	45.52	46	34.33
Use choral reading or speaking	26	19.40	66	49.25	42	31.34
Allow practice opportunities for speaking	49	36.57	37	27.61	48	35.82
Use rhythm or music	35	26.12	53	39.55	46	34.33
Give sentence starters	43	32.09	29	21.64	62	46.27
Use visuals	54	40.30	26	19.40	54	40.30

Scale: 1. Low 2. Medium 3. High

Table 6: The mean value, standard deviation, weighted score and rank order according to Rank order of adaptations to meet students' needs facing difficulty in speaking

Adaptations to meet students' needs facing difficulty in speaking	Mean	S.D	WS	Rank order
Allow extra response time for processing	2.18	0.69	292	1
Phrase questions with choices embedded in them	2.14	0.72	287	2
Give sentence starters	2.14	0.87	287	3
Use choral reading or speaking	2.12	0.7	284	4
Use graphic organizers to organize ideas	2.1	0.7	282	5
Use rhythm or music	2.08	0.77	279	6
Use cues and prompts to help student know when to speak	2	0.81	268	7
Use visuals	2	0.9	268	8
Allow practice opportunities for speaking	1.99	0.85	267	9
Say students names then state questioning	1.84	0.84	247	10

Scale: 1. Low 2. Medium 3. High

The table 3 indicated that the data regarding adaptations to assist students facing difficulty in speaking in your study illustrated various approaches prioritized by teachers. The adaptation rated highest was 'Allow extra response time for processing,' (mean: 2.18). This highlighted understanding that students having speaking challenges might need additional time to formulate and articulate their responses, emphasizing patience and accommodation in the classroom.

Equally important were strategies like 'Phrasing questions with choices embedded in them' and 'Giving sentence starters' (both with a mean of 2.14). These approaches provided structure and cues to help students engage in speaking activities, making it easier for them to participate in classroom discussions.

The use of 'Choral reading or speaking' (mean: 2.12) indicated the value of collective speaking exercises where students could speak in unison with others, reducing the pressure on individual students.

'Allowing practice opportunities for speaking' (mean: 1.99) emphasized the importance of regular practice to build confidence and competence in speaking, while 'Saying students' names then stating questioning' (mean: 1.84) was seen as a more direct but less prioritized method, signaling individual students to respond.

Overall, the data reflected a focus on supportive and structured strategies that encourage and facilitate speaking for students who found it challenging. These findings were in line with the findings of Achekzai (2024) who emphasized that such adaptations aimed to make classroom environment more participatory and inclusive, where every student feels supported and comfortable in verbal expression.

Adaptations to meet students' needs facing difficulty in hearing

It will help through a preparation of the classroom setting so the deaf or hard-of-hearing student can clearly view both the teacher and the other students and also through assistive instrumentation, such as FM systems. Using visual materials and tactile learning materials with written instructions and audio-visual material in written form will also help. A student should be encouraged to lip-read through talking to the student in full view and through using clear and communicative speech.

Table 7: Adaptations to meet students' needs facing difficulty in hearing

Adaptations to meet students' needs facing difficulty in hearing	**1**		**2**		**3**	
	f	**%**	***f***	**%**	***f***	**%**
Provide preferential seating	26	19.40	69	51.49	39	29.10
Provide reminder cues and prompts	23	17.16	68	50.75	43	32.09
Use highlighted texts	68	50.75	30	22.39	36	26.87
Repeat what other students say	48	35.82	48	35.82	38	28.36
Emphasize key points	25	18.66	61	45.52	48	35.82
Face students directly when speaking	25	18.66	64	47.76	45	33.58
Use captioned videos and films	50	37.31	38	28.36	46	34.33
Decrease distractions and background noise	36	26.87	51	38.06	47	35.07
Provide note-taking assistance during lectures	48	35.82	32	23.88	54	40.30
Use pre-printed outlines of materials	57	42.54	34	25.37	43	32.09

Scale: 1. Low 2. Medium 3. High

Table 8: The mean value, standard deviation, weighted score and rank order according to Rank order of adaptations to meet students' needs facing difficulty in hearing

Adaptations to meet students' needs facing difficulty in hearing	Mean	S.D	WS	Rank order
Emphasize key points	2.17	0.72	291	1
Provide reminder cues and prompts	2.15	0.69	288	2
Face students directly when speaking	2.15	0.71	288	3
Provide preferential seating	2.1	0.69	281	4
Decrease distractions and background noise	2.08	0.78	279	5
Provide note-taking assistance during lectures	2.04	0.87	274	6
Use captioned videos and films	1.97	0.85	264	7
Repeat what other students say	1.93	0.8	258	8
Use pre-printed outlines of materials	1.9	0.86	254	9
Use highlighted texts	1.76	0.85	236	10

Scale: 1. Low 2. Medium 3. High

The table 8 indicated that the data represented a survey or study on adaptations and strategies to fulfill the students' needs facing hearing difficulties. These adaptations aimed to produce more inclusive environment for them.

'Emphasizing key points' was the highest-rated strategy (mean: 2.17), indicating that teachers prioritize highlighting essential information during instruction. This approach helped students with hearing difficulties focus on crucial content. Additionally, 'providing reminder cues and prompts' (mean: 2.15) and 'facing students directly when speaking' (mean: 2.15) were also recognized as common practices. These strategies assisted in reinforcing important concepts and allowing students to lip-read and pick up visual cues.

'Preferential seating' (mean: 2.1) was another prevalent strategy. It involved placing students with hearing difficulties in positions that offer a clear line of sight to the instructor, improving their ability to hear and comprehend the content. 'Minimizing distractions and background noise' (mean: 2.08) was equally crucial, as educators acknowledge the need for a quiet and focused learning environment.

'Repeating what other students say' (mean: 1.93) ensured that students with hearing difficulties have the opportunity to catch all relevant information during class discussions. 'Providing pre-printed outlines of materials' (mean: 1.9) was a practice that helped students follow along with the content, particularly if they missed something during class.

While 'using highlighted texts' (mean: 1.76) was rated lower on the list, it could still be a helpful way to draw attention to key information within written materials.

In summary, educators recognized the importance of employing various strategies to support students with hearing difficulties, producing an accessible and inclusive environment for learning where these students could thrive academically (Rose-Munro, 2016).

Adaptations to meet students' needs facing difficulty in seeing

As an example, teacher can provide the same materials in large print, Braille, or audio for visually impaired students. For some other students, the same idea may be better learned through some form of tactile learning material such as models or raised-line drawings. He should also make his classroom well-organized and accessible. Digital tools should also be accessible because software such as text-to-speech and screen readers is pretty fabulous assistive technologies. In addition, it utilizes verbal descriptions of the visual elements to supplement understanding, and the seating arrangement has to be made in such a way to maximize the student's use of his vision.

Table 9: Adaptations to meet students' needs facing difficulty in seeing

Adaptations to meet students' needs facing difficulty in seeing	1		2		3	
	f	%	*f*	%	*f*	%
Describe what you are doing	26	19.40	67	50.00	41	30.60
Provide material in large or braille print	21	15.67	68	50.75	45	33.58
Be aware of lighting requirements	60	44.78	33	24.63	41	30.60
Use "books on tape"	44	32.84	43	32.09	47	35.07
Use black on-white printed handouts	28	20.90	62	46.27	44	32.84
Provide preferential seating	26	19.40	65	48.51	43	32.09
Allow extra time to complete tasks	49	36.57	38	28.36	47	35.07
Stand away from window glare while talking to students	36	26.87	52	38.81	46	34.33
Use tactual material	45	33.58	31	23.13	58	43.28
Give student an individual copy of visual information presented to the group	42	31.34	30	22.39	62	46.27

Scale: 1. Low 2. Medium 3. High

Table 10: The mean value, standard deviation, weighted score and rank order according to Rank order of adaptations to meet students' needs facing difficulty in seeing

Adaptations to meet students' needs facing difficulty in seeing	Mean	S.D	WS	Rank order
Provide material in large or braille print	2.18	0.68	292	1
Give student an individual copy of visual information presented to the group	2.15	0.87	288	2
Provide preferential seating	2.13	0.71	285	3
Use black on-white printed handouts	2.12	0.72	284	4
Describe what you are doing	2.11	0.7	283	5
Use tactual material	2.1	0.87	281	6
Stand away from window glare while talking to students	2.07	0.78	278	7
Use "books on tape"	2.02	0.82	271	8
Allow extra time to complete tasks	1.99	0.85	266	9
Be aware of lighting requirements	1.86	0.86	249	10

Scale: 1. Low 2. Medium 3. High

The table 10 indicated that these adaptations aimed to make learning environment for students with visual impairments more inclusive.

'Provide material in large or braille print' (mean: 2.18) adaptation ranked highest, indicating that educators highly valued making materials available in larger print or braille to accommodate visually impaired students effectively.

'Give student an individual copy of visual information presented to the group' (mean: 2.15) adaptation ranked second highest providing visually impaired students with their individual copies of visual information was another widely recognized strategy. It ensured that these students have equal access to the material being presented to the entire class.

'Provide preferential seating' (mean: 2.13) adaptation ranked third highest which depicted that offering preferential seating was a common practice, with educators recognizing the importance of placing visually impaired students in positions that optimize their ability to see and engage with instructional materials.

'Use black on white printed handouts' (mean: 2.12) indicated that using high-contrast materials, such as black on white printed handouts, was deemed valuable to enhance readability for visually impaired students.
'Describe what you are doing' (mean: 2.11) indicated that educators understand the significance of verbally describing actions and activities to ensure visually impaired students could follow along and grasp the context.
Use 'books on tape' (mean: 2.02) depicted that providing audio versions of materials through books on tape or other audio formats was a beneficial strategy to accommodate visually impaired students.
'Allow extra time to complete tasks' (mean: 1.99) depicted that recognizing visually impaired students may require additional time to complete tasks was important. This adaptation promoted equity and reduces time-related stress.
'Be aware of lighting requirements' (mean: 1.86) indicated educators acknowledge the importance of being aware of lighting conditions in the learning environment. Proper lighting ensures visually impaired students could access materials and interact effectively.
In summary, educators recognized the importance of implementing various adaptations and strategies to support students facing difficulties in seeing. These findings were also endorsed by Hewett et al. (2019) who found that such adaptations aim to produce an accessible and inclusive environment for learning where visually impaired students can thrive academically.

Conclusion

Adaptations to meet students' needs facing difficulty in reading

The data provided useful information about the strategies considered the most important by the educators. The top-ranked adaptation, 'Use computer games,' suggested that the insertion of technology and an interactive media is held as the best strategy. Probably, this approach energized students more intensely in a more dynamic and fun way, improving their reading skills in an interactive environment.

Adaptations to meet students' needs facing difficulty in writing

Data showed that several adaptation strategies teachers used on a regular basis. The adaptation strategy most frequently used was 'Shorten writing assignments'. This was an adjustment that made some burden, for example, of writing-stressed students less burdensome by making the assignment not so manageable but less formidable.

Adaptations to meet students' needs facing difficulty in speaking

Data represented different kinds of adaptations that were preferred by the teachers. The rated adaptation was 'Allow extra response time for processing'. It clearly indicated that knowledge about the inherent need of students with speaking difficulties for more time to organize and express thoughts contributes to patient and supportive learning environments.

Adaptations to meet students' needs facing difficulty in hearing

Among the conclusions drawn in this study are the adaptations carried out concerning the treatment of students with impaired hearing to offer an integrated school environment to the affected population. Among the various methods, pinpointing essential things was ranked as the highest. Educationists realized the need to point out key information during their teaching. This method enabled the visually impaired students to concentrate on a significant number of materials. Some of the other general practices that were agreed upon include providing reminder cues and prompts with other students to face interaction while speaking. This helped in repetition and reinforcement of salient concepts while also permitting lip-reading and catching visual cues.

Adaptations to meet students' needs facing difficulty in seeing

The changes made were to create a learning environment that was more accessible to the visually impaired students. Providing the resources in large print or braille was perceived to be the most effective as it showed educators to be greatly thankful to have the materials available to thoroughly assist the visually impaired learners. Another popular practice was providing students with their individual copies of the visuals shared with the class. This encouraged the thinking that such students were afforded the same chance to learn whatever lesson that class, as a whole group received. Teachers acknowledged that prior accommodation in seating was sometimes necessary and that the blind students should be placed in a way that could enhance their chance of seeing and engaging with learning materials.

Suggestions

Here are some suggestions for teachers to promote inclusive classrooms:

1. The teacher should introduce the self-questioning technique video with advanced organizers and taped material for the difficulty reader.
2. The writing paper, of course, is used at a different position than the note-taking student's paper; to help the student who cannot write for note taking, a list using note-taking form and a fill-in-the-blank would work.
3. The speaker should, therefore, practice speaking opportunities are given to speakers and say student's names then start questioning from the students who are not speaking fluently.
4. The teacher should also employ captioned videos and films, repeat sayings of other students, use printed outlines of materials and highlighted texts when the students are experiencing some hearing difficulty.
5. Teachers should utilize the tape books as well. Give additional time to finish the assignments; be observant of lighting requirements of certain students who may have vision impairments.

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