

Instructional Responsiveness: Teachers' Adaptive Teaching Practices for Learners with Learning Difficulties

Llianie A. Salvante¹; Manuel V. Estera²

^{1,2}School of Graduate Studies, St. Louise De Marillac College of Sorsogon, Inc., Sorsogon City, Philippines

Publication Date: 2026/01/20

Abstract: This study examined the adaptive teaching practices of teachers handling learners with learning difficulties at Barcelona Central School, focusing on how instructional responsiveness can be enhanced through supportive systems and professional development. Guided by the principles of learners with learning difficulties, the research aimed to identify the adaptive strategies currently implemented, determine teachers' perceptions of their effectiveness, explore the barriers encountered, and assess the availability of institutional support that promotes adaptive practices. Anchored on the idea that quality education must be equitable and accessible to all, the study sought to provide actionable insights for improving the teaching and learning experiences of learners with learning difficulties. Using a descriptive research design, data were gathered from teachers through survey questionnaire and documentary analysis. Results revealed that teachers consistently apply adaptive strategies such as visual aids, scaffolding, peer collaboration, and differentiated instruction to accommodate diverse learner needs. Teachers perceived these practices as highly effective in improving comprehension, participation, and confidence among learners with difficulties. However, findings also indicated significant challenges, including limited access to instructional materials and assistive technologies, insufficient training, and inconsistent administrative support. Despite these barriers, teachers demonstrated creativity, commitment, and compassion in ensuring inclusive learning environments. The study concluded that adaptive teaching is both a pedagogical and moral commitment that reflects the teacher's dedication to equity and learner success. To sustain adaptive teaching practices, the study recommends continuous professional development, strengthened administrative support, and resource allocation aligned with learners with learning difficulties policies. Ultimately, the research underscored that the realization of learners with learning difficulties depends on empowering teachers as catalysts of transformation who embody empathy, adaptability, and excellence in every classroom.

Keywords: *Adaptive Teaching, Learners with Learning Difficulties, Learners with Learning Difficulties, Instructional Responsiveness, Professional Development, Teacher Support System.*

How to Cite: Llianie A. Salvante; Manuel V. Estera (2026) Instructional Responsiveness: Teachers' Adaptive Teaching Practices for Learners with Learning Difficulties. *International Journal of Innovative Science and Research Technology*, 11(1), 1214-1232. <https://doi.org/10.38124/ijisrt/26jan539>

I. INTRODUCTION

The global education landscape is facing continuous problems with catering to the needs of learners who have difficulties, with international frameworks determining basic rights to inclusive and equitable education. The United Nations Convention on the Rights of the Child (1989) insists that all children, no matter their abilities, are entitled to a good education that meets their needs explicitly states that nations that have signed the treaty are obligated to remove barriers in learning by providing individualized support and accommodations.

Such international agreements are supported by Sustainable Development Goal 4 (SDG 4), which demands inclusive and equitable education systems that are able to reach and support the most vulnerable learners. Research

from the OECD Programme for International Student Assessment (PISA) shows that socioeconomic differences, language barriers, and lack of instructional support are some of the most serious causes of learning problems, and that the most disadvantaged students are often performing below the proficiency level. The global findings call for a systemic intervention to support instructionally vulnerable learners; this challenge is very much a reality in the Philippine context.

Imagine a classroom where every student thrives. Now confront the reality: in virtually every learning space, learners with learning difficulties grapple with significant barriers: dyslexia, trauma, language acquisition, fragmented prior knowledge, or simply a mismatch with traditional teaching methods. These students, despite their potential and educators' best efforts, often experience frustration and

disengagement, casting ripples that disrupt the entire teaching-learning process.

This affects the delicate synergy between how teachers teach and how students learn—becoming strained, impacting pacing, resource allocation, peer dynamics, and ultimately, learning outcomes for everyone. Faced with this complex reality, teachers don't merely deliver lessons; they become strategists, counselors, and improvisers, constantly coping with stress and time pressures while managing the intricate task of adapting instruction without sacrificing broader classroom goals.

The term coping and managing process essentially addresses the various parties involved in education who are looking for ways to solve the issues of students who have learning difficulties. Coping here refers to the quick reaction of teachers to support students who are in learning trouble by changing instructional methods or by giving individual help. At the same time, managing is the more long-term and systematic implementation of ideas such as educational policies, curriculum adjustments, and intervention programs (which are meant to help learners), that change students.

On the other hand, learners with learning difficulties refer to students who consistently experience academic difficulties despite conventional instructional approaches, often performing significantly below grade-level expectations in core subjects such as reading, mathematics, or science (Vaughn & Bos, 2012). These learners may face challenges due to cognitive differences, socioeconomic barriers, language acquisition difficulties, or inadequate instructional support, requiring targeted interventions to bridge their learning gaps (Fuchs et al., 2014).

The concept encompasses not only students with diagnosed learning disabilities but also those whose academic struggles stem from environmental factors, instructional mismatches, or emotional-behavioral barriers (Archer & Hughes, 2011). International research demonstrates that approximately 20-30% of students in typical classrooms require specialized support to achieve academic proficiency, with neuroscience evidence confirming that appropriate interventions can induce measurable changes in brain organization and learning pathways (Dehaene, 2020).

Vygotsky's (1978) sociocultural theory, especially the Zone of Proximal Development, which is all about the necessity of personalized support, along with Tomlinson's (2017) Differentiated Instruction Framework, which encourages changing teaching methods to meet the various needs of learners, form the core of this approach.

Furthermore, the commitment to the provision of support to those learners who are encountering difficulties is very persuasive here, as it is a key feature in international and national legislation. In a global context, the United Nations Convention on the Rights of the Child (UNCRC, 1989) are human rights treaties that require member countries to establish learners with learning difficulties, i.e., systems that

accommodate all learners, particularly those who face academic challenges.

The research by scientists showed that the interventions are efficient. Neuroscientific experiments from Dehaene (2020) are for one, they establish targeted instructional strategies that can produce brain changes measurable in learners with learning difficulties, whereas large-scale assessments such as OECD's PISA (2022) show that the achievement gap remains wide; thus, there is an urgent need for interventions that are based on evidence.

In the Philippines, the legal framework for learners with learning difficulties is grounded in Republic Act 10533 (Enhanced Basic Education Act of 2013), which mandates a learner-centered approach, thereby necessitating schools to adapt their teaching methodologies to accommodate diverse learners. In addition, Republic Act 10157 (Kindergarten Education Act) focuses on early intervention strategies to prevent learning gaps from becoming wider.

According to a study by the Philippine Institute for Development Studies (PIDS), the bloated classrooms, insufficient teacher training in differentiated instruction, and the socioeconomic hurdles are the major reasons, which in turn call for localized solutions that are school-specific.

Philippine studies reveal that learners with learning difficulties often contend with compounded challenges, including large class sizes, multilingual educational settings, and limited access to remedial resources, necessitating culturally responsive and policy-aligned support systems (DepEd Order No. 21, s. 2019). This introduction frames the critical examination of how Barcelona Central School identifies, supports, and monitors its struggling learner population within both global pedagogical frameworks and local implementation realities.

Legal mandates such as DepEd Order No. 8, s2015, on classroom assessment, which requires teachers to monitor progress and modify instruction accordingly, is in place, while the Child Protection Policy (which is aligned with RA 10627, the Anti-Bullying Act) strives to make the environment free from bullying and harassment. Though these policies exist, there is still some inconsistency in their implementation in classrooms.

Barcelona Central School is like a mirror reflecting the ongoing challenges in the education sector, with internal assessments indicating that 28% of students are not proficient in core subjects for their grade level. The school follows national policies through DepEd's Learning Continuity Plan, which also features targeted remediation for learners with learning difficulties. However, it is still struggling with the implementation of the plan because of the limited resources, high student mobility, and varying parental engagement.

This study is an investigation of how teachers at Barcelona Central School deal with and provide for the needs of learners who are having difficulties, thus checking whether there's consistency between the legal frameworks and

strategies on the ground. This research will establish the role of international, national, and local policies in identifying effective interventions aimed at bridging policy mandates with practical teaching solutions, thus becoming the most significant contribution to students' equitable learning outcomes.

➤ Objectives

The research provided actionable insights into teachers' adaptive teaching techniques, resource utilization, and policy implementation to improve learning outcomes for learners with learning difficulties. The following are the objectives of the study:

- Identify the adaptive teaching techniques employed by teachers at Barcelona Central School in addressing the needs of learners with learning difficulties.
- To examine how teachers perceive the effectiveness of adaptive teaching practices in addressing the needs of learners with learning difficulties.
- To determine the barriers and limitations faced in implementing adaptive teaching practices.
- To proposed support system in professional development opportunities to enhance instructional responsiveness among teachers handling learners with learning difficulties.

II. METHODS

This study employed a descriptive research design, specifically utilizing a descriptive-correlational approach to explore how learners with learning difficulties and their teachers cope with and manage the teaching-learning process at Barcelona Central School.

The respondents of the study were 26 teachers handling learners with learning difficulties at Barcelona Central School. Learners with learning difficulties were identified through academic performance records, teacher referrals, and behavioral indicators observed within the classroom. Teachers who directly handled these learners were also selected to provide insights into the strategies and

adjustments they employed. This research had a total of 26 respondents.

Purposive sampling was used to ensure that participants genuinely reflected the core focus of the study—learners who consistently faced challenges in mastering academic competencies and teachers who actively managed these learning difficulties. This composition of respondents enabled the study to obtain perspectives from both sides of the teaching-learning process, thereby enriching the analysis.

III. RESULTS

The results are organized according to the stated problems of the study and are presented through both quantitative data and qualitative insights.

➤ Adaptive Teaching Practices Implemented for Learners with Learning Difficulties

More than just a theoretical framework, adaptive teaching is an everyday response to the challenges of diversity in learning. This section presents the strategies that teachers currently implement, drawing from both the numerical results of the survey and the voices of participants who shared how these practices are carried out in their daily instruction.

Table 1 presents a list of adaptive teaching practices. These strategies are designed to support learners with learning difficulties. The table includes the frequency and percentage of each strategy's implementation. It reflects data collected from a sample of 26 respondents. The information provides insight into commonly used classroom interventions.

Presented in Table 1 is a statistical profile of adaptive teaching practices implemented for learners with learning difficulties, based on a sample of 26 respondents. The most universally adopted strategy is the use of visual aids—such as diagrams, charts, and pictures—reported by 100% of participants. This reflects the enduring relevance of visual scaffolding in supporting comprehension and retention, especially for learners with dyslexia, ADHD, and language processing challenges.

Table 1 Adaptive Teaching Practices Implemented for Learners with Learning Difficulties

Adaptive Teaching Strategies	Frequency	Percentage
Use of visual aids (e.g., diagrams, charts, pictures)	26	100
Peer tutoring or Buddy System	21	81
One-on-one instructional support	17	65
Reteaching concepts (Conceptual Reframing)	17	65
Flexible or ability-based groupings	16	62
Scaffolded instruction (guided practice, prompts)	15	58
Multi-sensory instruction (visual, auditory, kinesthetics)	14	54
Task breakdown	10	38
Adjusted pace of instruction (Extended time for task)	10	38
Use of learning stations or centers	6	23
Behavior or learning contracts	6	23
Use of assistive technologies (tablets, speech- to-text software)	5	19
Use of Individualized Education Plans (IEPs) or personalized learning plans	5	19

Peer tutoring or buddy system followed closely at 81% or 21 respondents, underscoring the value of collaborative learning and social scaffolding, consistent with Vygotsky’s sociocultural theory and recent studies on peer-mediated

instruction. One-on-one instructional support and conceptual reteaching each appear in 65% or 17 respondents, indicating strong reliance on personalized remediation and reframing to address misconceptions and deepen understanding.

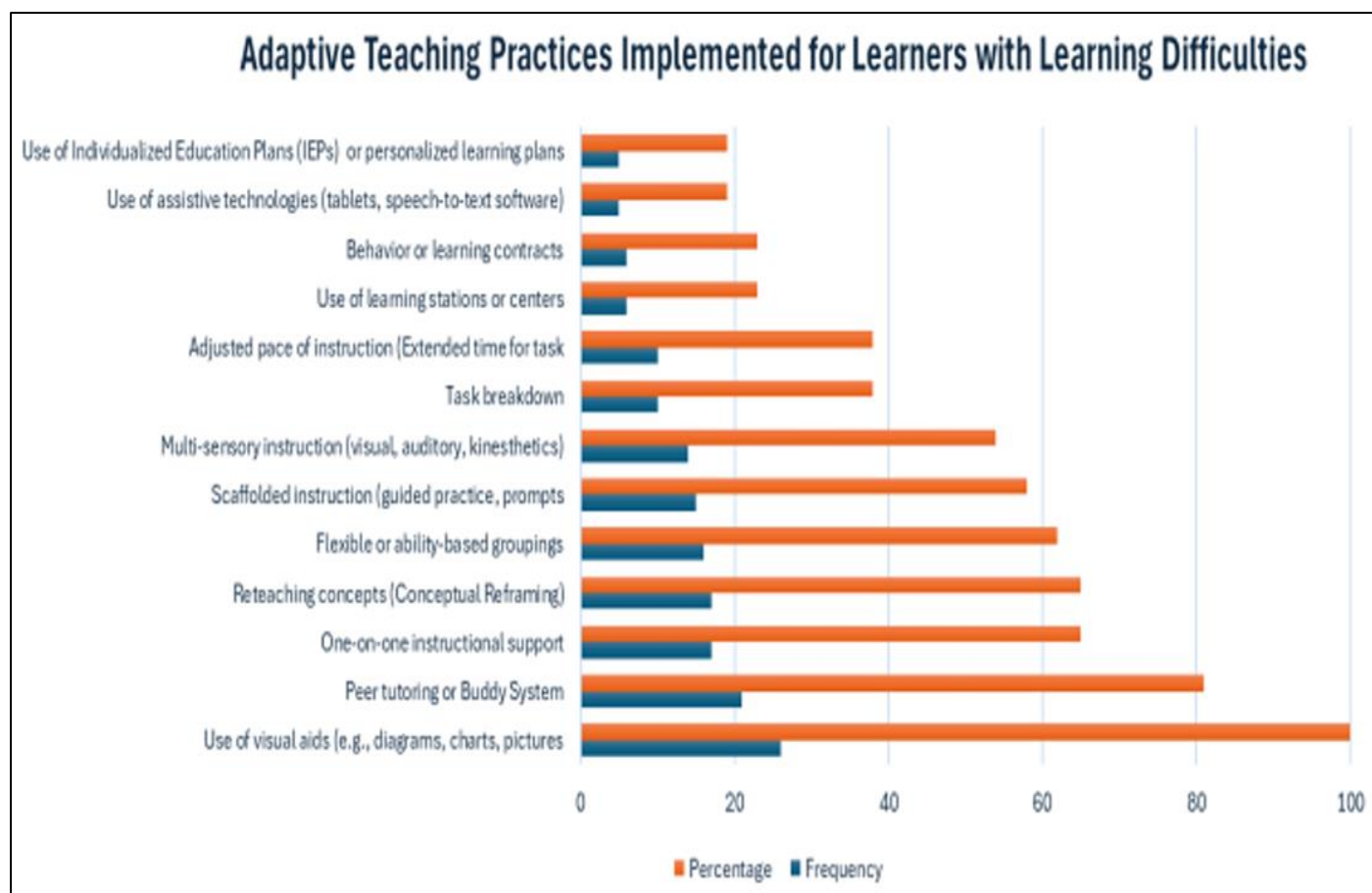


Fig 1 Adaptive Teaching Practices Implemented

Flexible or ability-based groupings had 62%, and scaffolded instruction, 58%, or 16 and 15 of the respondents utilized such practices, respectively. Multi-sensory instruction—engaging visual, auditory, and kinesthetic modalities—is used by 54% of educators, aligning with research on embodied cognition and sensory integration, particularly for learners with dyslexia and autism spectrum conditions.

However, strategies that support executive functioning and task management—such as task breakdown and adjusted pacing—are less frequently implemented (38%), possibly due to curriculum pacing pressures or limited training. Even less common are the use of learning stations and behavior contracts (23%), which may reflect logistical constraints or inconsistent classroom management practices. Notably, the least implemented strategies are assistive technologies and individualized education plans (IEPs), each at 19%.

This low uptake may indicate systemic barriers, such as inadequate infrastructure, limited professional development, or weak policy enforcement, despite the proven efficacy of

learners with learning difficulties. The data suggest a strong preference for traditional, low-tech, and socially embedded interventions, while more specialized or resource-intensive strategies remain underutilized.

➤ *Teachers' Perception of the Effectiveness of Adaptive Teaching Practices in Addressing the Needs of Learners with Learning Difficulties*

Understanding how teachers perceive the effectiveness of adaptive teaching practices is essential in determining not only which strategies are commonly used but also which are genuinely valued in addressing the needs of learners with learning difficulties.

Table 2 presents the teachers' perceived level of effectiveness of the various adaptive teaching practices. The results reveal mean scores ranging from 4.73 to 5.00, all falling under the description *Very Effective*. This demonstrates that teachers highly value adaptive strategies as instrumental in promoting student engagement, comprehension, and overall learning success.

Table 2 Teachers' Perceived Level of Effectiveness of the Adaptive Teaching Practices

Adaptive Teaching Practices	Mean	Description
Use of visual aids	5.00	Very Effective
Sustain attention of learners	5.00	Very Effective
Support recall of the lesson	5.00	Very Effective
Help to simply the concepts	5.00	Very Effective
Scaffold instruction	4.96	Very Effective
Enhance the learners' ability to analyze	4.97	Very Effective
Develop planning skills	4.96	Very Effective
Build learners' ability to analyze	4.95	Very Effective
Task breakdown	4.96	Very Effective
Enable learners to follow a step-by-step process	4.97	Very Effective
Develop techniques for sequencing	4.95	Very Effective
Help learners to regulate effort	4.96	Very Effective
Multisensory instruction	4.92	Very Effective
Strengthen learners' ability to synthesize	4.94	Very Effective
Enhance learners' connection between abstract and concrete ideas	4.90	Very Effective
Maintain learners' focus	4.92	Very Effective
Flexible and ability-based groupings	4.92	Very Effective
Promote mutual support	4.94	Very Effective
Encourage peer interaction	4.93	Very Effective
Tailor content with learners' needs	4.89	Very Effective
Learning contracts	4.88	Very Effective
Help learners to identify areas for growth	4.88	Very Effective
Align task with learners' interests	4.89	Very Effective
Take ownership of learning journey	4.87	Very Effective
One-on-one instructional support	4.85	Very Effective
Address individual learning needs	4.87	Very Effective
Foster learner confidence and engagement	4.84	Very Effective
Enable timely feedback	4.84	Very Effective
Build confidence among learners	4.90	Very Effective
Adjusted pace of instruction	4.85	Very Effective
Help in gaining concepts	4.87	Very Effective
Reflect learners' progress at a manageable rate	4.85	Very Effective
Help learners to engage in deeper	4.83	Very Effective
Peer searching or Buddy System	4.77	Very Effective
Promote collaborative learning	4.79	Very Effective
Reinforce understanding	4.77	Very Effective
Provide accessible support analysis	4.75	Very Effective
Use of assistive technology	4.73	Very Effective
Enable learners to perform independently	4.75	Very Effective
Assist learners to create ideas	4.72	Very Effective
Allow learners to express ideas	4.72	Very Effective
Use of learning stations	4.73	Very Effective
Allow learners to take initiative	4.74	Very Effective
Enable learners to perform independently	4.73	Very Effective
Encourage peer interaction	4.72	Very Effective
Overall	4.88	Very Effective

The strategy Use of Visual Aids obtained the highest mean rating of 5.00, indicating unanimous agreement among teachers on its effectiveness. They believe that visual tools are essential in *sustaining learners' attention, supporting recall of lessons, and simplifying complex concepts*. This finding corresponds with Participant A's reflection that "When I use visual materials like charts and illustrated

examples, my learners immediately show more interest. Pictures and colors help them remember better than just hearing words." This reflects teachers' appreciation of how visuals enhance understanding and make abstract ideas more concrete, leading to improved learner retention and participation.

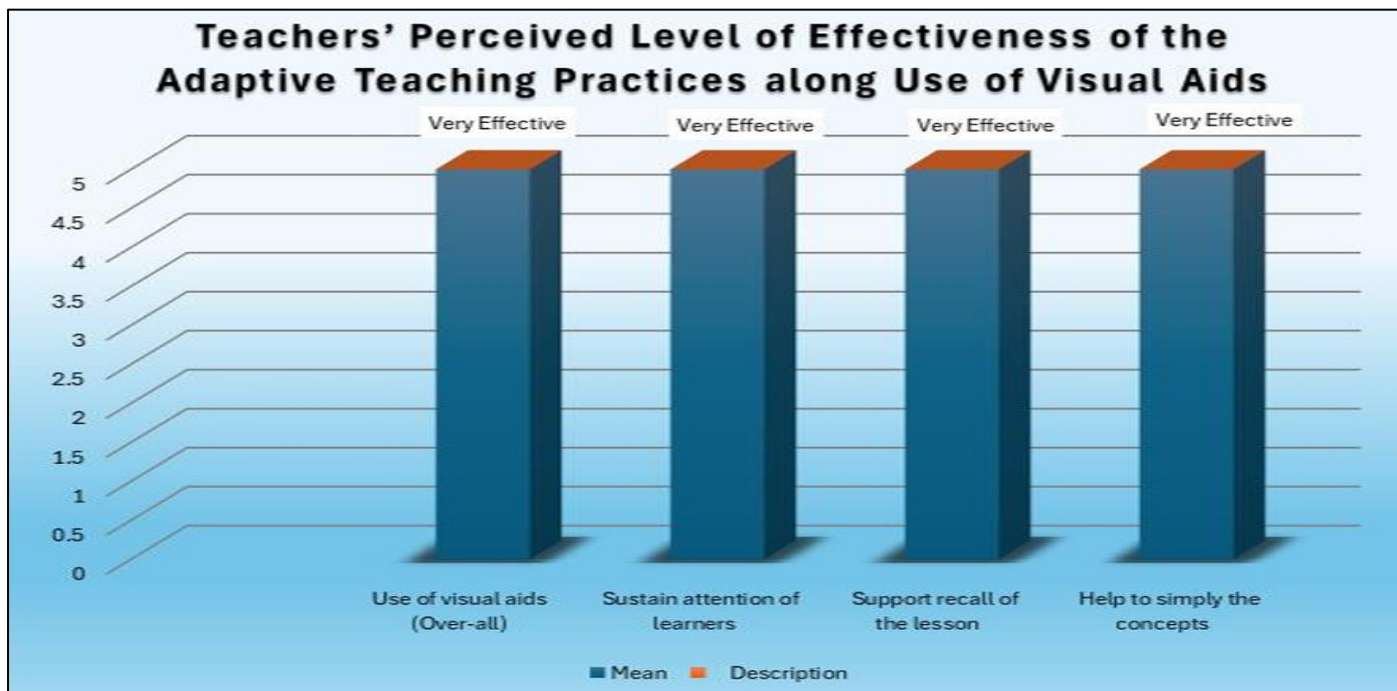


Fig 2 Level of Effective of the Use of Visual Aids

Scaffold Instruction followed closely with a mean of 4.96. Teachers recognize that this approach effectively enhances learners' ability to analyze, develop planning skills, and build analytical capacity. This implies that providing structured guidance allows learners to progress gradually

toward independence, building both competence and confidence. As Participant B shared, "Scaffolding allows my learners to understand lessons one step at a time. When I guide them first, then let them try on their own, I can see them gain confidence and start enjoying the learning process."

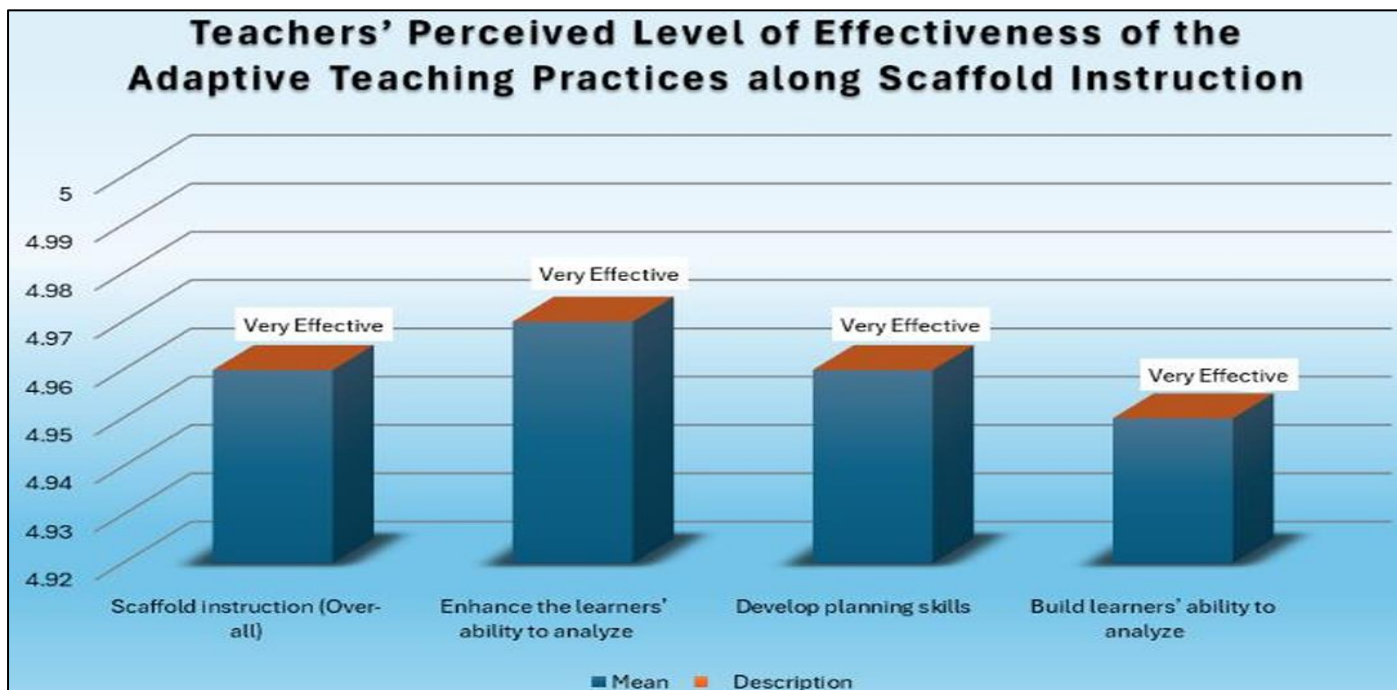


Fig 3 Level of Effectiveness of Scaffold Instruction

The strategy Task Breakdown also received a high mean of 4.96. Teachers perceive that breaking lessons into smaller steps helps enable learners to follow a step-by-step process, develop techniques for sequencing, and regulate effort. This structured approach ensures clarity, allowing students to grasp each stage of the learning task more easily and maintain

focus throughout. This was supported by Participant C, who emphasized that "Most of my pupils struggle when tasks are too long or complicated. By breaking them into smaller parts, I can monitor their progress, and they feel more accomplished when they complete each step."

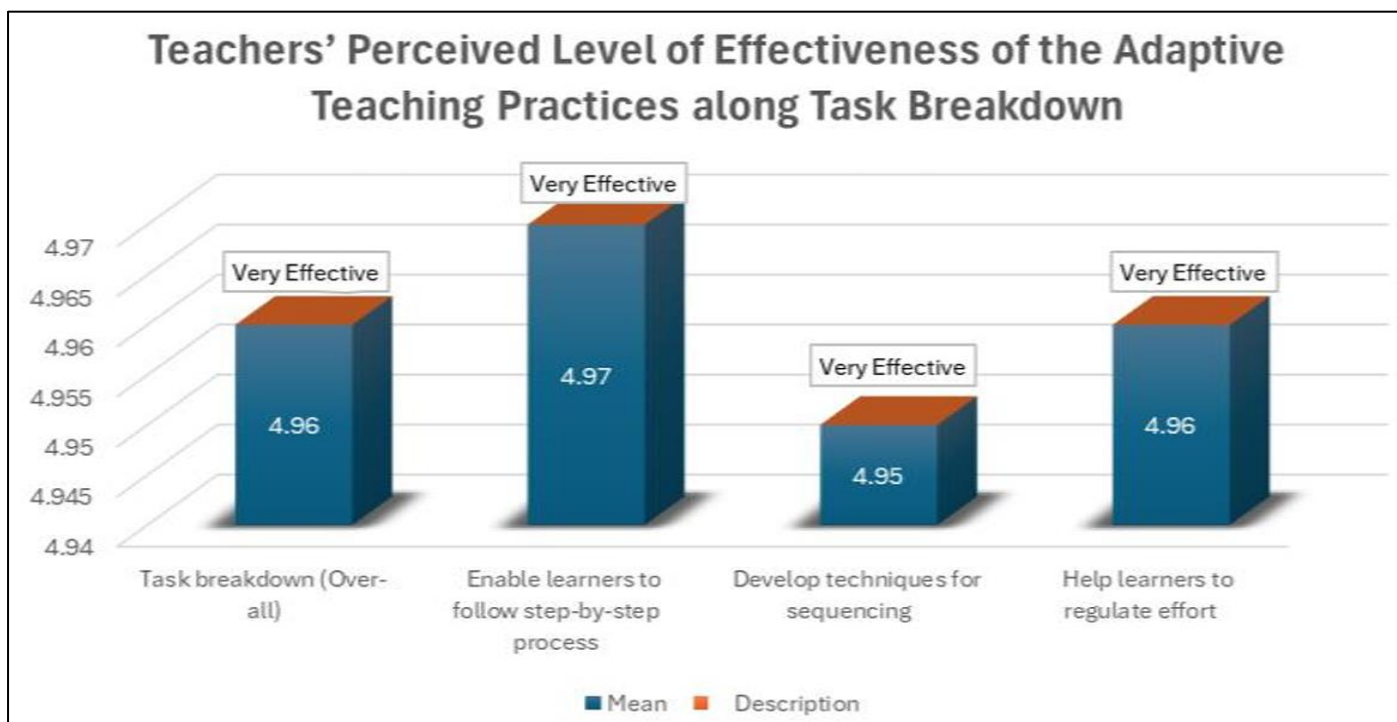


Fig 4 Level of Effectiveness of Task Breakdown

Another highly rated strategy is Multisensory Instruction, which obtained a mean of 4.92. Teachers find this approach valuable in *strengthening learners' ability to synthesize, enhancing connections between abstract and concrete ideas, and maintaining learners' focus.* By engaging multiple senses, teachers help students internalize lessons

more deeply and accommodate different learning styles within the classroom. *"Some children learn best when they can touch or move. When I combine visuals, gestures, and real-life materials, they engage more and retain the lesson longer."* Says Participant A

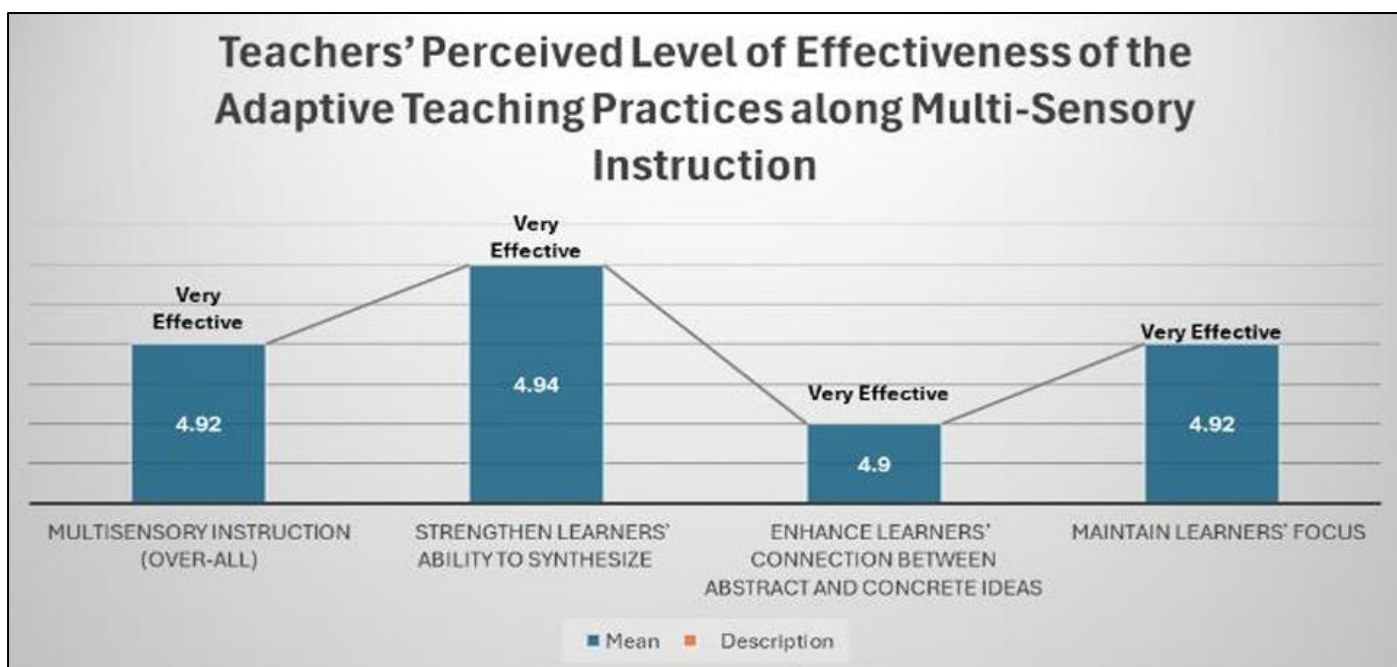


Fig 5 Level of Effectiveness of Multi-sensory Instruction

Similarly, Flexible and Ability-Based Groupings earned a mean of 4.92. Teachers view this as an effective way to *promote mutual support, encourage peer interaction, and tailor content to learners' needs.* Such groupings nurture collaboration and inclusivity, giving students opportunities to

learn from and with one another while receiving instruction suited to their individual capabilities. Participant E highlighted that *"Pairing learners helps them build confidence. Those who struggle feel less isolated when they learn from peers instead of always relying on the teacher."*

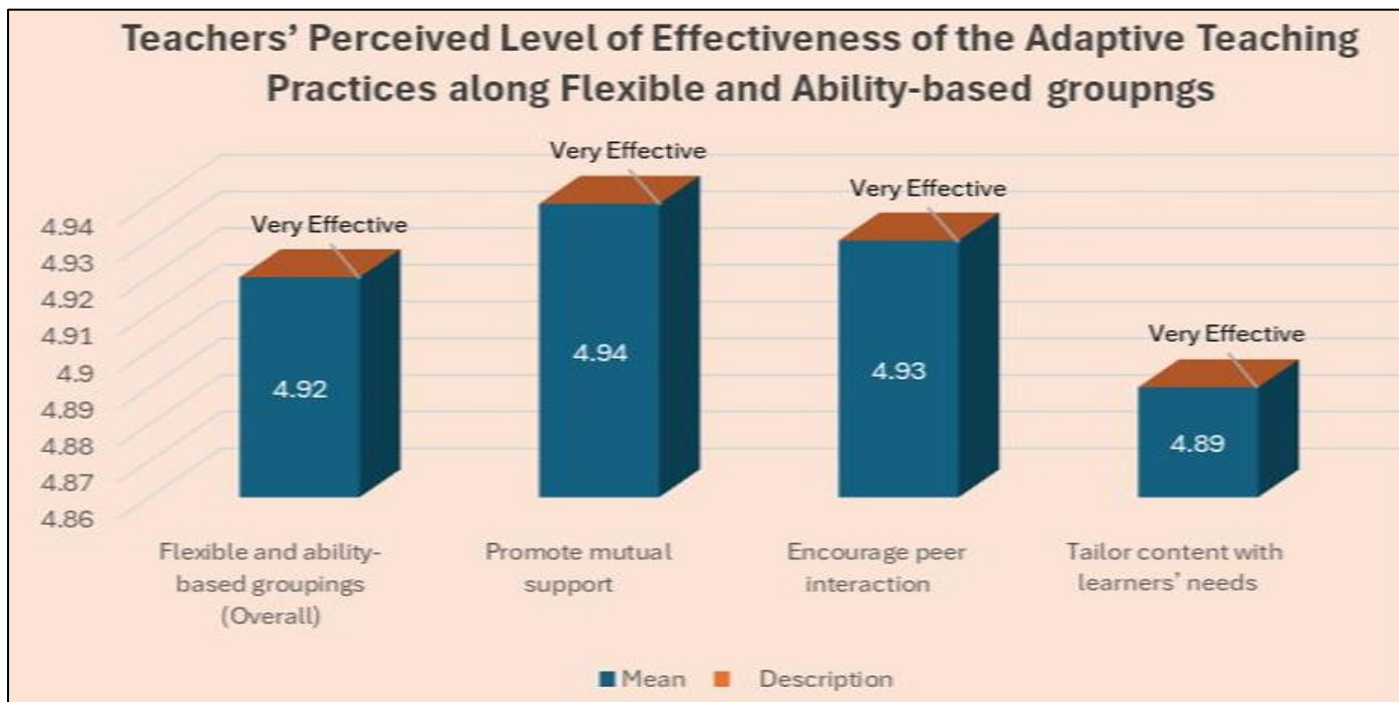


Fig 6 Level of Effectiveness of Ability-Based Groupings

The practice of Learning Contracts received a mean rating of 4.88. Teachers noted that this approach helps learners identify areas for growth, align tasks with personal interests, and take ownership of their learning journey. Participant J commented that “When learners help set their

goals through learning contracts, they feel more responsible. I also take time to meet them individually, and it really makes a difference in their performance.” This demonstrates a shift toward learner-centered teaching, where students are encouraged to take responsibility for their own progress.

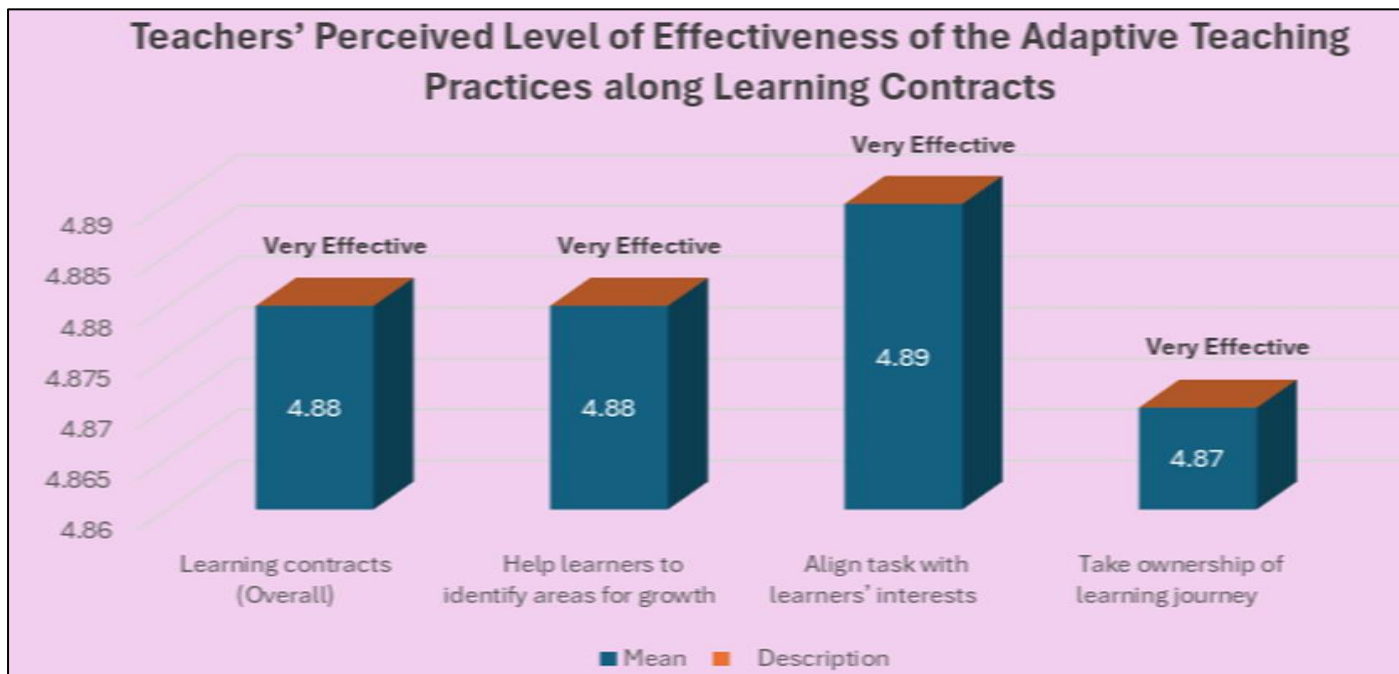


Fig 7 Level of Effectiveness of Learning Contracts

One-on-One Instructional Support obtained a mean of 4.85. Teachers value its ability to address individual learning needs, foster confidence and engagement, enable timely feedback, and build learners' self-assurance. Personalized instruction allows teachers to identify each student's challenges and provide immediate guidance, resulting in

better academic performance and stronger teacher-student relationships. Participant G commented on this area that “Some learners just need time and personal guidance. When I sit beside them, explain slowly, and give feedback, they understand better and become more confident.”

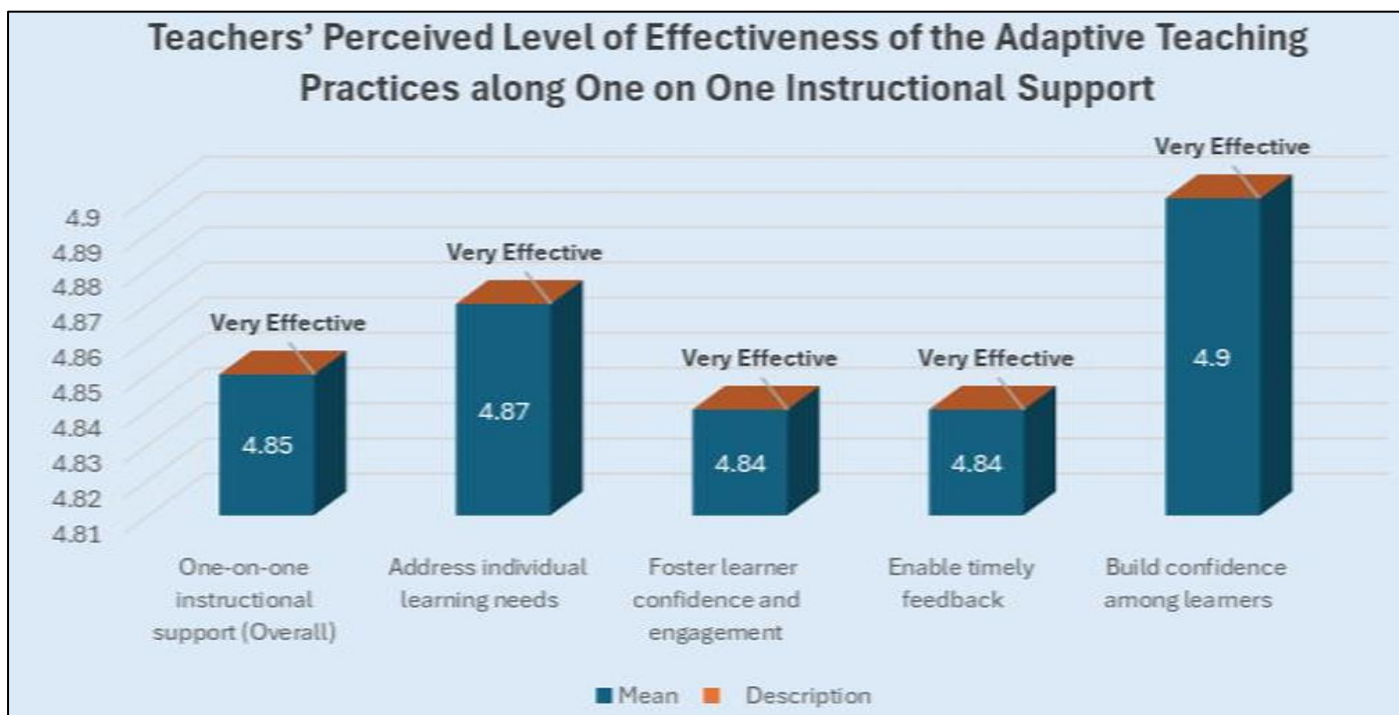


Fig 8 Level of Effectiveness of One-on-One Instructional Support

The strategy Adjusted Pace of Instruction also achieved a mean of 4.85. According to Participant A, “Adjusting the pace helps my slower learners catch up. It also lets learners review and deepen their understanding faster. Everyone benefits when we move at a comfortable speed.” Teachers

emphasize that this practice helps *learners gain concepts effectively, reflect progress at a manageable rate, and engage in deeper learning.* Adjusting instructional pace ensures that lessons are accessible to all learners, allowing each to advance at a comfortable speed without being left behind.

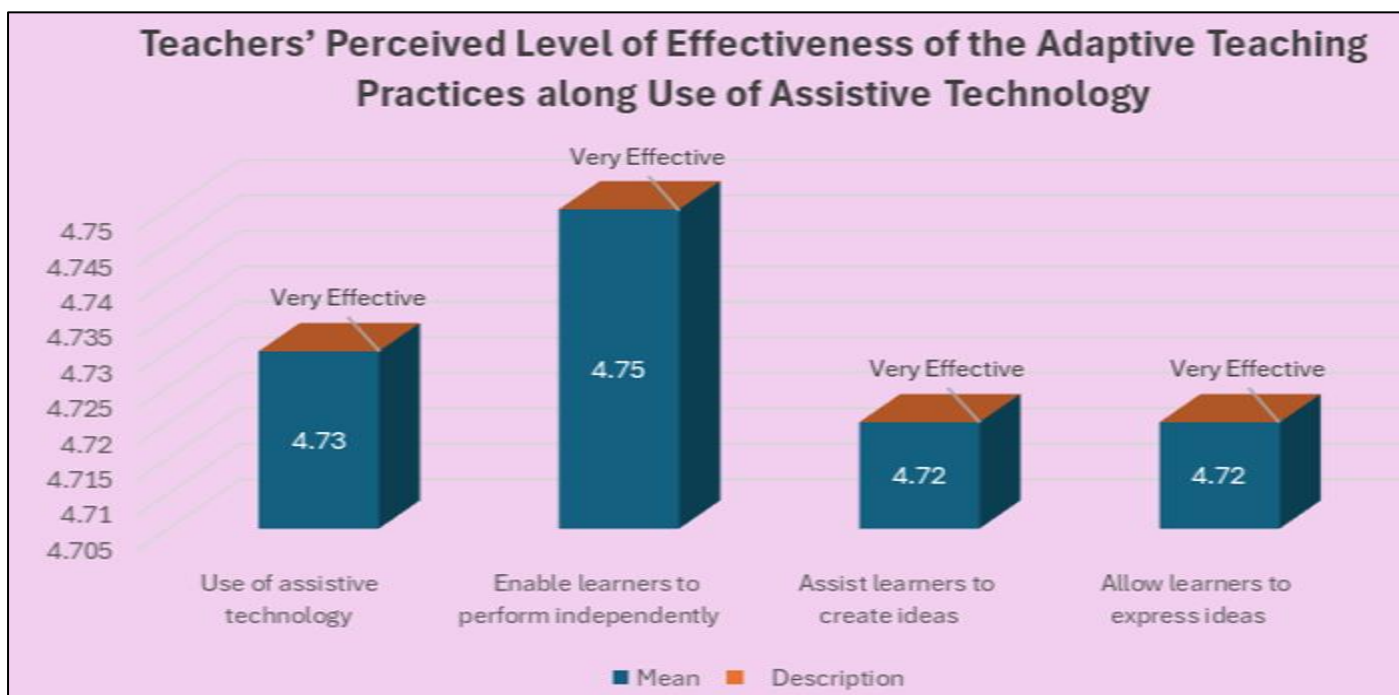


Fig 9 Level of Effectiveness’ of Adjusted Pace Instruction

Peer Searching or Buddy System earned a mean of 4.77. Teachers find it effective in *promoting collaborative learning, reinforcing understanding, and providing accessible support.* This approach encourages cooperative problem-solving and mutual assistance, fostering a classroom

environment where students learn empathy and teamwork. This was supported by Participant E, who states that “*Pairing learners together makes them feel they’re not alone. They learn from each other, and even those who struggle feel more accepted.*”

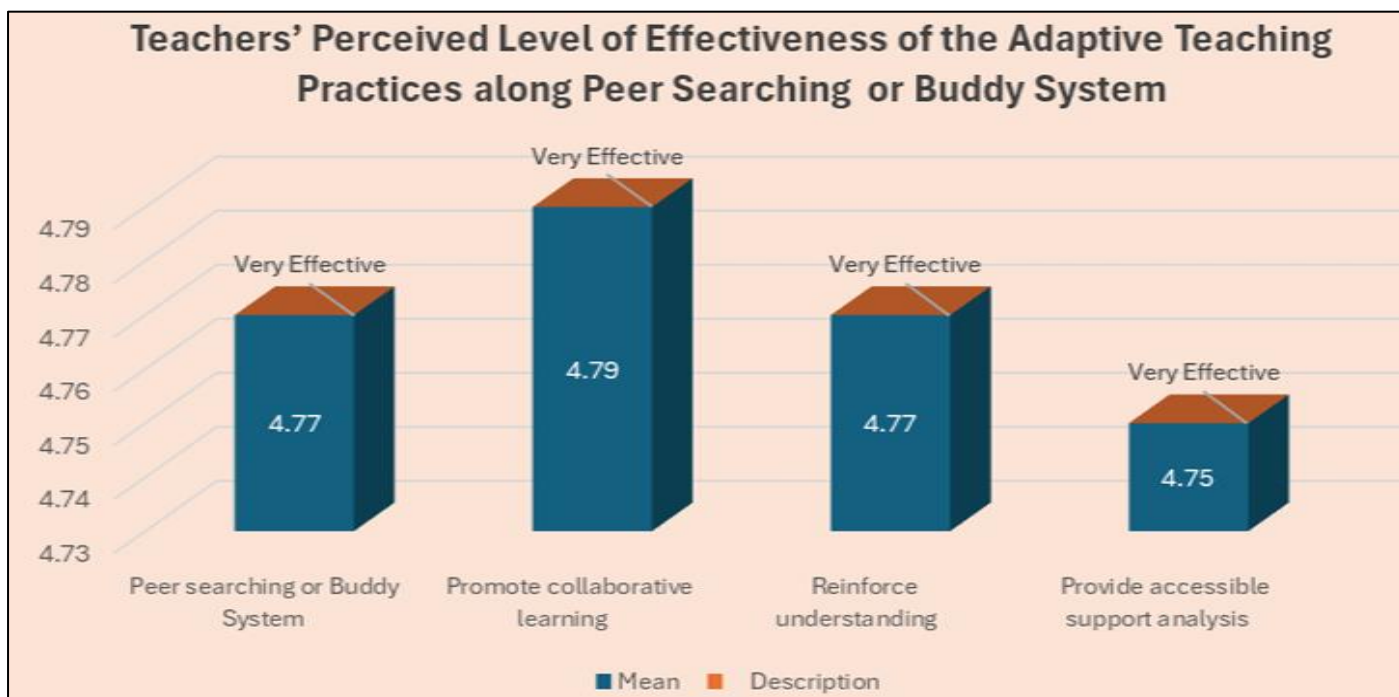


Fig 10 Level of Effectiveness of Buddy System

The Use of Assistive Technology recorded a mean of 4.73. Teachers recognize that technology helps *enable learners to perform independently, assist in idea creation, and allow them to express ideas creatively*. Although slightly lower in mean compared to other strategies, this result may reflect varying access to technological tools. Nevertheless,

teachers still regard technology as an empowering aid that promotes inclusion and digital competence. In this regard, Participant K observed that *“We know assistive tools can help, but not all teachers are trained or have access to them. We make do with what’s available, but more support from the school would really help.”*

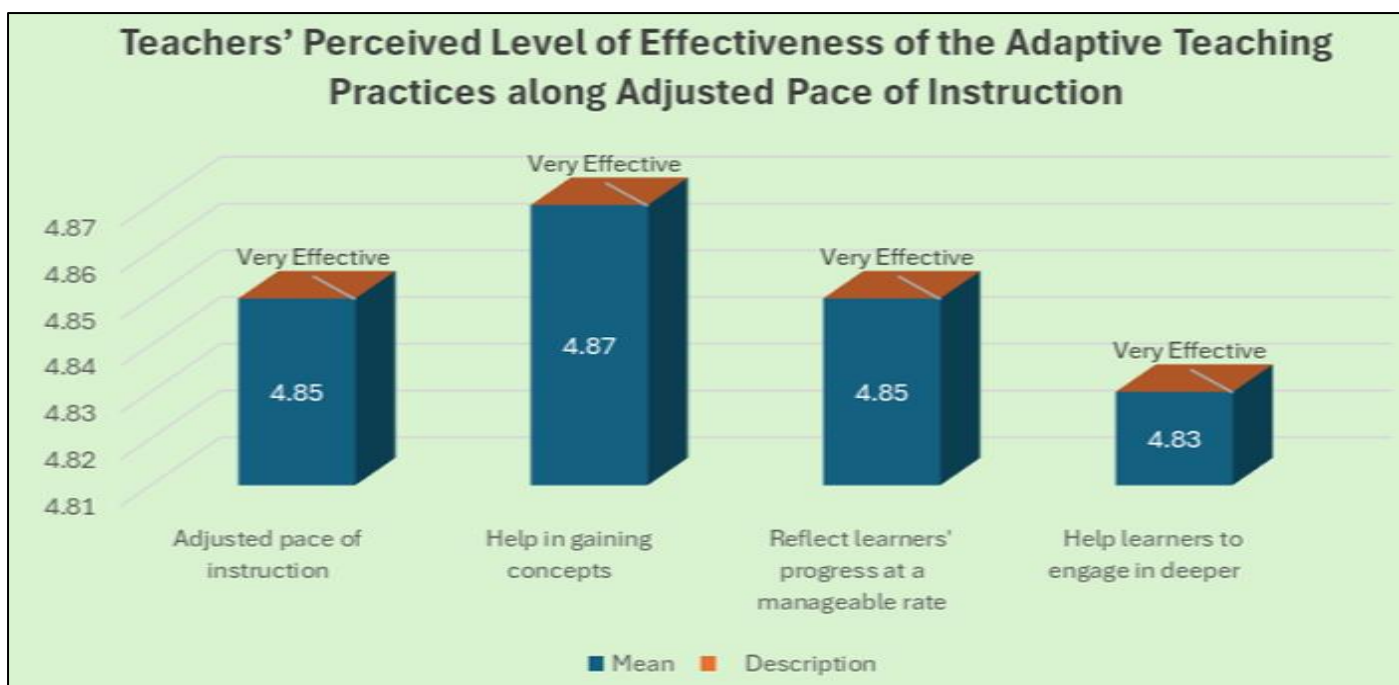


Fig 11 Level of Effectiveness of the Use of Assistive Technology

Finally, the Use of Learning Stations also obtained a mean of 4.73. Teachers believe that this approach helps *learners take initiative, perform independently, and encourage peer interaction*. Learning stations promote active

participation by allowing students to move, collaborate, and engage in diverse activities that cater to different learning needs and interests.

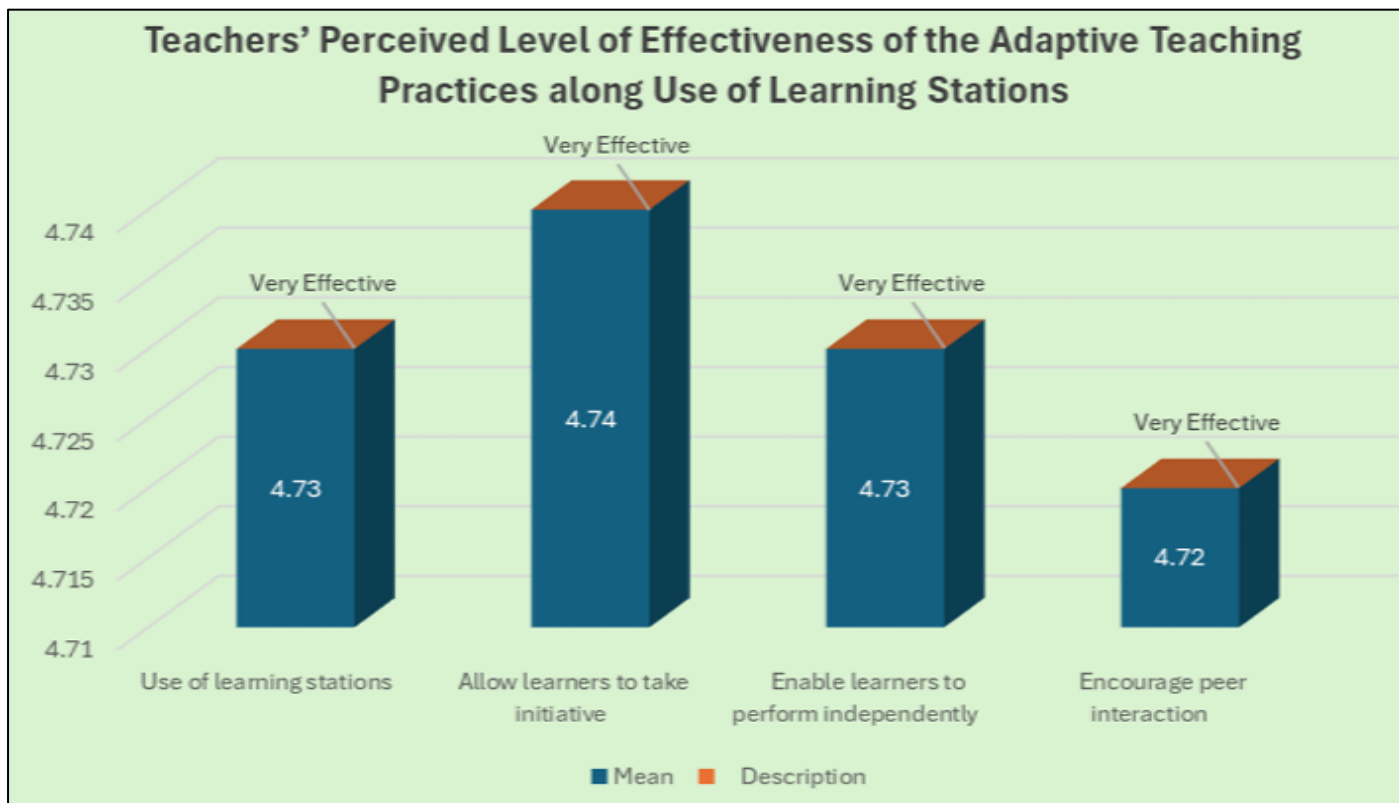


Fig 12 Level of Effectiveness of Learning Stations

All strategies were evaluated as very effective, yielding a grand mean of 4.88. This suggests that teachers consistently apply adaptive teaching practices that respond to learners' individual differences, foster engagement, and enhance

comprehension. The high ratings across all strategies affirm teachers' commitment to inclusive, flexible, and responsive instruction—one that recognizes every learner's unique pace, ability, and potential to succeed.

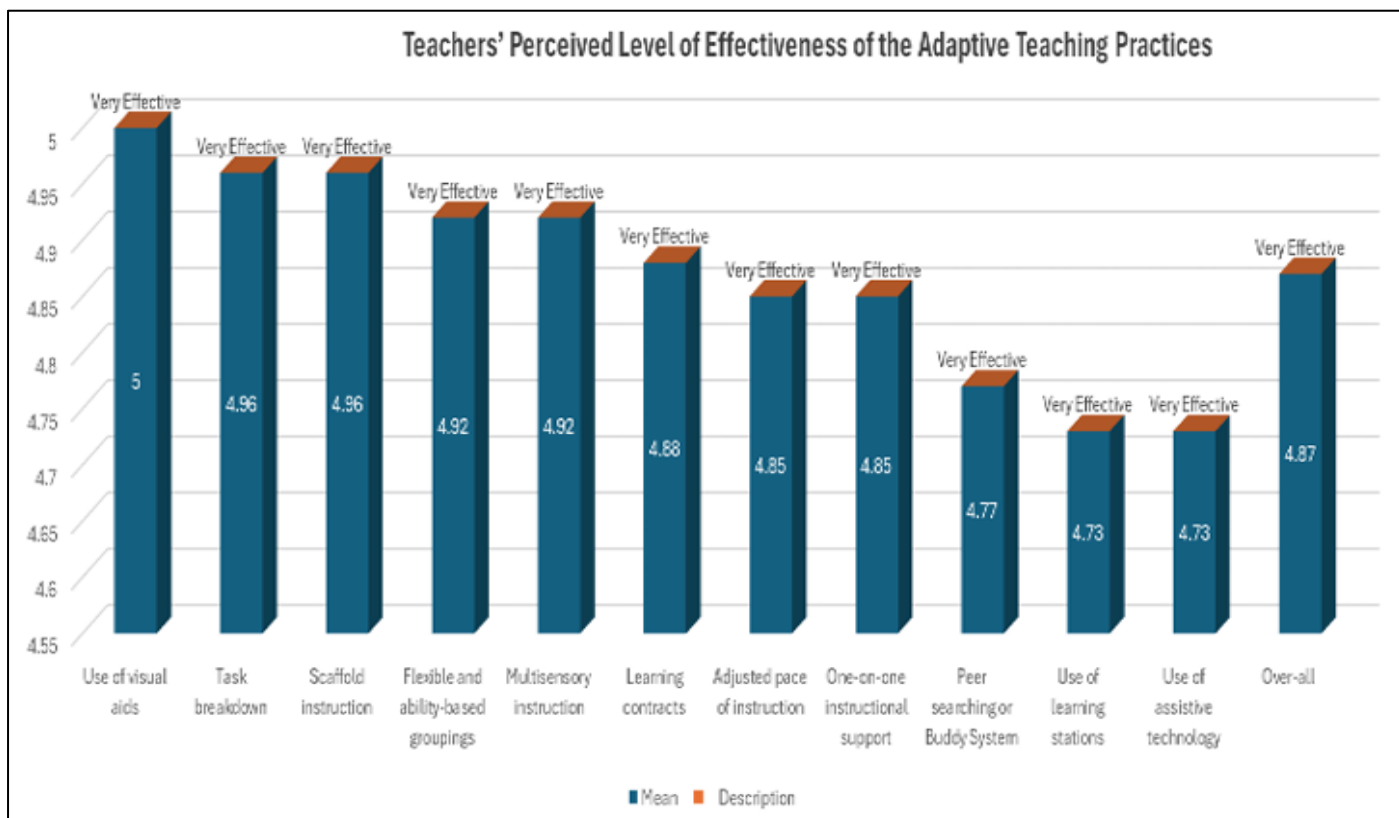


Fig 13 Level of Effectiveness of Adaptive Teaching Practices

➤ *Barriers and Limitations Faced in Implementing and Adapting Teaching Practices for Learners with Learning Difficulties*

While adaptive teaching practices are highly valued and widely perceived as effective, their implementation is not without challenges. Teachers often find themselves

navigating between their commitment to meet learners' needs and the realities of classroom limitations such as time, resources, and training. Identifying these barriers is crucial, as it highlights the gap between what teachers aspire to do and what they are practically able to implement.

Table 3 Barriers and Limitations in Implementing Adaptive Teaching Practices for Learners with Learning Difficulties

Barriers and Limitations	Frequency	Rank
Limited access to assistive technologies	19	1
Lack of training about adaptive teaching practices	16	2
Limited instructional materials intended for adaptive teaching practices	15	3
Lack of resources for multisensory instruction	12	4
Limited time that hinders the use of adaptive teaching practices	10	5.5
Passivity of some duty bearers in implementing certain adaptive teaching practices	10	5.5

Understanding the barriers and limitations faced by teachers in implementing adaptive teaching practices is crucial in identifying the challenges that hinder inclusive and effective instruction for learners with learning difficulties. Teachers' insights offer a realistic view of the factors that prevent them from fully implementing adaptive strategies, which are essential in addressing individual learning needs. By examining these barriers, stakeholders and policymakers can develop responsive interventions that strengthen teacher support systems, improve access to resources, and enhance the delivery of learners with learning difficulties.

Table 3 presents the barriers and limitations encountered by teachers in implementing adaptive teaching practices for learners with learning difficulties. The findings reveal several factors that affect the successful and consistent use of adaptive strategies in classrooms.

The most frequently cited barrier was limited access to assistive technologies, with a frequency of 19, ranking first among the identified challenges. This indicates that most teachers experience difficulties in integrating digital tools and technological devices designed to support learners with special needs. The unavailability of such tools restricts opportunities for learners to work independently, express ideas, and access learning materials that match their abilities. This finding highlights the pressing need for schools to improve technological resources and ensure that assistive tools are readily available to enhance teaching and learning for students with learning difficulties.

The second barrier was the lack of training in adaptive teaching practices, reported by 16 respondents. This suggests that many teachers feel inadequately prepared to implement differentiated and adaptive instructional strategies. Without proper training, teachers may find it challenging to modify lessons or adopt innovative methods that cater to diverse learning needs. This emphasizes the importance of continuous professional development programs focused on inclusive and adaptive teaching approaches to equip teachers with the necessary skills and confidence.

Ranking third, with a frequency of 15, was the limited availability of instructional materials intended for adaptive

teaching practices. This indicates that teachers often struggle to find or create materials suited to learners with learning difficulties. The scarcity of customized learning resources, such as tactile aids, visual supports, and simplified reading materials, restricts teachers' ability to deliver lessons that accommodate varying abilities. Providing adequate instructional materials can significantly improve the implementation of adaptive practices and enhance student engagement.

The fourth barrier, with a frequency of 12, was the lack of resources for multisensory instruction. Teachers recognize the importance of using multisensory approaches—engaging learners through sight, sound, and touch—to enhance comprehension and retention. However, the absence of sufficient resources, such as manipulatives and audio-visual tools, limits their ability to apply this approach consistently. This finding underscored the need for better resource allocation to enable teachers to employ multisensory instruction effectively.

Two barriers shared the fifth rank, each with a frequency of 10. The first was the limited time that hinders the use of adaptive teaching practices, which suggests that heavy workloads and tight schedules prevent teachers from preparing and implementing adaptive lessons effectively. The second was the passivity of some duty bearers in implementing certain adaptive teaching practices, which indicates that some school leaders or stakeholders may lack active involvement or support for inclusive practices. This lack of administrative initiative can discourage teachers from consistently applying adaptive strategies in their classrooms.

The findings in Table 3 indicate that teachers face several challenges that limit the effective implementation of adaptive teaching practices. The most significant barriers are related to the lack of technological access, inadequate training, and insufficient instructional resources. These limitations highlight the need for stronger institutional support, increased access to materials and technologies, and ongoing professional development for teachers. Addressing these challenges is essential in ensuring that adaptive teaching practices are effectively implemented to meet the diverse needs of learners with learning difficulties.

➤ *Proposed Support System and Professional Development Opportunities to Enhance Instructional Responsiveness of Teachers Handling Learners with Learning Difficulties*

• *Rationale*

The proposed program titled Enhancing Instructional Responsiveness: A Comprehensive Support System and Professional Development Framework for Teachers Handling Learners with Learning Difficulties at Barcelona Central School is a holistic initiative designed to strengthen teachers' capacity to deliver adaptive and differentiated instruction. It was developed in response to the study's findings, which revealed that while teachers consistently demonstrate dedication, creativity, and compassion in supporting learners with difficulties, they remain constrained by limited resources, insufficient training, and weak institutional support systems. The program seeks to bridge these gaps by creating an environment where teachers are empowered, supported, and continuously guided in their professional growth. It emphasizes that teaching is not the sole responsibility of the teacher but a collective duty that involves administrators, parents, local government units, and the entire school community.

This program is a holistic initiative designed to strengthen teachers' capacity to deliver adaptive and differentiated instruction. It was developed in response to the study's findings, which revealed that while teachers consistently demonstrate dedication, creativity, and compassion in supporting learners with difficulties, they remain constrained by limited resources, insufficient training, and weak institutional support systems.

This program seeks to bridge the gaps by creating an environment where teachers are empowered, supported, and continuously guided in their professional growth. It emphasizes that teaching is not the sole responsibility of the teacher but a collective duty that involves administrators, parents, local government units, and the entire school community.

This system envisions an education community where teachers are supported, learners are valued. It recognizes that sustainable learners with learning difficulties cannot rest solely on teacher initiative—it must be upheld by structures, collaboration, and continuous learning. Through this integrated approach, Barcelona Central School can become a model of responsive and compassionate education—where every learner, regardless of difficulty, is allowed to succeed.

At its core, the program integrates two major components: an Integrated Support System for Responsive Teaching and a Professional Development Framework for Teachers. The Integrated Support System aims to institutionalize collaboration and provide tangible assistance through four key mechanisms: the Multi-Stakeholder Task Force (MSTF) to ensure accountability and shared governance in learners with learning difficulties; the Assistive Resource Mobilization Hub to inventory, produce, and share locally made assistive tools and materials; the Learners with learning difficulties Help Desk to serve as a

peer-support and referral center for teachers seeking pedagogical advice; and the Learning Difficulty Early Alert System (LDEAS) to help teachers identify, monitor, and respond to early signs of academic or behavioral challenges among learners. These interconnected structures promote early intervention, sustained teacher support, and collective problem-solving within the school community.

Parallel to this, the Professional Development Framework focuses on enhancing teachers' competence and confidence in managing learner diversity. It features a Modular Training Series on Adaptive Pedagogy, which equips teachers with strategies in differentiated instruction, Universal Design for Learning (UDL), and the use of low-tech and culturally responsive materials; an Instructional Coaching and Classroom-Based Mentoring Program, where mentors and master teachers provide continuous feedback and co-teaching support; Action Research Grants for Innovation, encouraging teachers to design and document evidence-based interventions; and Duty Bearer Accountability Workshops for school heads, division supervisors, and local education officers to strengthen leadership commitment to learners with learning difficulties.

By merging professional growth with structural reform, the program envisions an education system where teachers are fully supported to respond compassionately and effectively to every learner's needs. Ultimately, this initiative aspires to cultivate a culture of equity at Barcelona Central School—one where adaptive teaching, collaboration, and empathy converge to ensure that no learner is left behind.

IV. DISCUSSION

The discussion blends the survey evidence with teachers' voices to show how inclusive practices are shaped by both pedagogical conviction and everyday constraints.

➤ *Adaptive Teaching Practices Currently Implemented*

This focuses on the teaching practices that teachers employ to respond to the diverse needs of learners with learning difficulties. The findings of the study revealed that teachers at Barcelona Central School genuinely strive to respond to the needs of learners with learning difficulties by using a wide range of adaptive strategies. Their practices show not only competence but also compassion. Teachers shared that they could not simply rely on one method of teaching because their learners absorb information differently. As a result, they have learned to adjust, explore, and innovate so that every child can participate in the learning process.

One of the most noticeable practices is the frequent use of visual aids and multi-sensory materials. Teachers explained that many learners struggle with purely verbal explanations, so they turn to pictures, charts, videos, and graphic organizers to make lessons clearer and more concrete. This approach is strongly supported by the findings of Freeman, Marginson, and Tytler (2017), who showed that visual and problem-based instruction can significantly improve understanding among struggling learners. Similarly,

Dommett, Gardner, and Van Tilburg (2019) found that interactive visual tools help students stay focused and reduce cognitive overload. The teachers' preference for visual strategies in the present study reflects the same realization—children learn better when they can see what they are trying to understand.

Teachers also commonly use scaffolded instruction, giving step-by-step guidance and gradually withdrawing support once learners begin to gain confidence. Many teachers described this approach as “holding their hand at first, then slowly letting go.” This method mirrors the findings of Hwang, Lai, and Wang (2017), who reported that scaffolding reduces anxiety and helps learners process information more deeply. It also echoes Vygotsky's idea of the Zone of Proximal Development, where learners achieve more when guided by someone more knowledgeable. Panadero, Jonsson, and Botella (2017) further supported this by showing that structured guidance helps learners develop stronger self-regulation skills—skills that many struggling students have difficulty internalizing without teacher assistance.

Peer tutoring is another strategy teachers rely on. They intentionally pair learners who need extra help with classmates who can guide them patiently. Teachers described this technique as a way to “allow children to learn from each other,” which not only lightens the teacher's workload but also builds confidence for both tutees and tutors. Research by Ardasheva, Tretter, and Kinny (2018) supported this finding, showing that peer-assisted learning enhances comprehension, especially for students who often fall behind. Tomas et al. (2020) also found that peer tutoring boosts academic confidence and mastery. The present study reflects exactly this dynamic: learners become more comfortable, encouraged, and willing to participate when they receive support from classmates rather than always depending on the teacher.

One-on-one teaching support also surfaced as a major adaptive practice. Teachers shared that some students need closer guidance, especially those who easily get lost during group activities. By sitting beside a learner, repeating instructions softly, or breaking tasks into smaller steps, teachers help struggling students regain focus and understand the lesson better. This aligns with the findings of Begey et al. (2018), who reported that individualized interventions significantly improve reading and comprehension skills among learners with persistent difficulties. It also echoes Lee and Hannafin (2016), who emphasized that personalized support reduces disengagement among vulnerable learners.

Many teachers also incorporate hands-on and interactive activities—such as manipulatives, simple experiments, or group tasks—to help learners grasp concepts more concretely. This practice resonates with Yildirim and Kizilkaya-Cumhur (2020), who found that hands-on learning boosts motivation and persistence among students with learning difficulties. In the same way, Lu, Chen, and Chen (2018) showed that active learning strategies help learners develop independence and ownership of tasks. The teachers'

use of interactive methods in the present study reflects their understanding that children learn best when they are actively involved in the process.

Overall, the adaptive practices observed in the school reveal a deeper truth: teachers understand that effective instruction is not rigid. It is responsive, flexible, and shaped by the needs of the children in front of them. This philosophy closely aligns with Tomlinson's Differentiated Instruction, which advocates tailoring teaching to students' readiness, interests, and learning profiles. It also supports the goals of learners with learning difficulties embodied in Republic Act 7277, DepEd Order No. 72 (s. 2009), and DepEd Order No. 44 (s. 2021), all of which emphasize that schools must create learning environments where every child has the opportunity to succeed.

The findings of this study mirror the work of Florian and Black-Hawkins, who argued that teaching is not a separate set of strategies reserved for a few. Instead, it is the everyday practice of responding to the unique needs of all learners. The teachers at Barcelona Central School demonstrate this clearly—their adaptive strategies are not just professional obligations, but heartfelt efforts to make learning fair, meaningful, and accessible for every child.

➤ *Teachers' Perceptions of Effectiveness of Adaptive Practices*

The findings of the study revealed that teachers genuinely believe adaptive teaching practices are not just helpful—but essential—in meeting the needs of learners with learning difficulties. Their confidence in these strategies comes from what they witness every day inside their classrooms. When instruction is adjusted, simplified, or made more interactive, teachers notice that learners who once hesitated to participate begin raising their hands, asking questions, and showing signs of understanding. These observable changes strengthen the teachers' belief that adaptability is key to helping learners feel capable and included. They repeatedly emphasized that “small adjustments create big differences,” especially for children who struggle with traditional teaching approaches.

Teachers shared that visual aids, task breakdown, scaffolded steps, and multisensory activities are among the most powerful tools in helping learners grasp difficult concepts. They explained that many children with learning difficulties become overwhelmed by lengthy explanations or abstract ideas, but when lessons are presented in smaller, clearer, and more concrete pieces, students feel less anxious and more willing to engage. This experience aligns with the findings of Schneider et al. (2020), who reported that clear, timely, structured instructional support significantly improve comprehension among academically vulnerable students. Similarly, Hwang, Lai, and Wang (2017) found that scaffolding and step-by-step instruction reduce learning anxiety and boost confidence, allowing struggling learners to process lessons at a pace they can manage.

Teachers also expressed that flexible grouping, peer collaboration, learning contracts, and one-on-one instruction

help learners build independence and self-awareness. They observed that learners become more motivated when they feel supported by peers or when given tasks tailored to their abilities. These perceptions reflect research by Ardasheva, Tretter, and Kinny (2018), who found that collaborative and inquiry-based environments help low-achieving and language-challenged students strengthen both understanding and confidence. Likewise, Tomas et al. (2020) showed that peer-assisted learning boosts engagement and persistence, especially among students who previously hesitated to participate in class.

The teachers' belief in the effectiveness of adaptive teaching is also deeply supported by the Universal Design for Learning (UDL) framework, which advocates offering learners multiple pathways to access information, demonstrate understanding, and stay motivated. The principles promoted by CAST and Edyburn affirm that varied, flexible, and scaffolded learning environments lead to higher retention, improved performance, and greater learner empowerment—outcomes that teachers in the present study confirm through their day-to-day experiences. When teachers adjust materials, modify activities, or provide alternative ways to show mastery, they are directly applying UDL principles that have been proven to support learners with diverse needs.

Their perceptions also resonate strongly with Vygotsky's Sociocultural Theory, particularly the idea that learning is most effective when children receive guided support. Teachers notice that when they assist learners within their Zone of Proximal Development—offering enough guidance but still allowing room for independence—students show significant improvement in both skill and confidence. This belief is reinforced by Panadero, Jonsson, and Botella (2017), who found that structured self-regulation and guided learning contribute to long-term academic growth.

What stands out most in the findings is the teachers' emotional commitment. They do not view adaptive teaching as an extra burden or a mere requirement; instead, they see it as an act of care. Teachers openly shared that they want their classrooms to be places where all learners feel capable, valued, and included. This human element echoes the insights of Alegre and Molinari (2021), who found that warm, responsive teacher-student relationships significantly strengthen learner effort and reduce disengagement. The teachers in this study embody this principle—they believe adaptive strategies work because they see how profoundly these methods change the learning experience for children who often feel left behind.

Ultimately, the teachers' perceptions highlight a powerful truth: adaptive teaching is not only an instructional technique but a commitment to fairness, empathy, and the belief that every child deserves a chance to succeed. Their faith in these practices is shaped by evidence, strengthened by experience, and guided by compassion.

➤ *Barriers in Implementation*

The findings of the study revealed that even though teachers are deeply committed to helping learners with learning difficulties, they continue to face multiple barriers that complicate the implementation of adaptive teaching strategies. These challenges are not simply technical concerns but reflect the everyday realities, pressures, and emotional weight that teachers carry as they strive to uphold learners with learning difficulties. Many teachers described feeling torn between what they want to do for their learners and what the system actually allows them to do.

One of the most significant barriers reported by teachers is the limited availability of instructional materials and assistive technologies. Many teachers shared that they frequently need to improvise visual aids and hands-on tools using their own resources because schools cannot always provide the necessary materials. This challenge is widely recognized in studies such as those by Shaddock et al. (2009) and Florian & Rouse (2009), who observed that insufficient resources often force educators to rely on personal creativity and out-of-pocket expenses to support learners with disabilities. The teachers' experiences echo these findings, illustrating how lack of materials restricts the consistent and effective use of adaptive strategies.

Another barrier highlighted in the findings is inadequate training on specialized approaches for learners with learning difficulties. Teachers expressed that most professional development programs available to them are either too general, too infrequent, or do not fully address the practical challenges they meet in the classroom. This sentiment aligns with research by Forlin (2010) and Lalvani (2013), which argues that teacher confidence and competency in learners with learning difficulties are strongly influenced by the quality of pre-service and in-service training they receive. Without continuous and targeted training, teachers often feel unprepared to implement more advanced or specialized adaptive practices.

The study also uncovered significant challenges tied to time constraints and heavy workloads. Teachers reported that adapting lessons, preparing differentiated materials, providing one-on-one support, and documenting learners' progress require substantial time—time they often do not have due to administrative tasks, large class sizes, and extensive paperwork. Research by Urton, Wilbert, & Hennemann (2014) supports this, acknowledging that workload pressures often prevent teachers from fully applying inclusive practices even when they believe in their effectiveness. Teachers in the present study expressed frustration and exhaustion, noting that the lack of time sometimes forces them to choose between what is ideal and what is realistically manageable.

A final and equally important barrier uncovered in the findings is the lack of consistent administrative and institutional support. Some teachers shared that while learners with learning difficulties exist, their implementation at the school level can vary greatly, often depending on the priorities or awareness of school leaders. When

administrators do not provide clear guidance, allocate resources, or encourage collaborative problem-solving, teachers feel isolated in their efforts to support learners with difficulties. This concern is supported by studies such as those by Ainscow (2020) and Boyle et al. (2011), which emphasized that strong administrative support is a crucial determinant of successful learners with learning difficulties. Without this support, adaptive teaching practices become heavily dependent on the personal commitment of teachers rather than a shared institutional responsibility.

The challenges faced by teachers in this study mirror broader national and international concerns. Laws such as Republic Act 10533 (Enhanced Basic Education Act of 2013) advocate for inclusive and learner-centered education, while DepEd policies (e.g., DO 72, s. 2009, and DO 44, s. 2021) call for Universal Design for Learning and stronger support systems in schools. However, the findings highlight a recurring gap between policy and practice—a gap that educators often struggle to bridge with their own effort and compassion.

Overall, the realities and challenges faced by teachers show that equity is not just an instructional responsibility but a systemic one. The findings underscore the need for stronger professional development programs, better resource allocation, and deeper administrative engagement. Teachers in the study demonstrated remarkable dedication, often compensating for the system's limitations with their own perseverance, creativity, and empathy. Yet, true learners with learning difficulties requires more than individual effort; it demands coordinated institutional support. By addressing these barriers, schools can empower teachers to sustain adaptive practices that truly reflect the vision of accessible, equitable, and humanized education for all learners.

➤ *Support Systems and Professional Development*

The findings of the study highlight the urgent need for a strengthened and more coordinated support system that empowers teachers to sustain inclusive and adaptive instruction. Teachers expressed that while they are deeply committed to meeting the needs of learners with learning difficulties, they cannot do this work alone. Their lived experiences demonstrate that learners with learning difficulties thrive not just on instructional skill, but on a shared ecosystem of support—one that connects teachers, administrators, families, and the broader community. It is from these grounded insights that the proposed support mechanisms were developed.

One of the major recommendations is the establishment of a multi-stakeholder task force, a school-based group composed of teachers, administrators, parents, focal persons, and barangay representatives. The purpose of this task force is to create a unified space where challenges can be discussed, solutions co-designed, and interventions coordinated. Teachers expressed that many of their struggles stem from working in isolation, and research by Ainscow & Sandill (2010) confirmed that collaborative decision-making reduces the burden on teachers while improving institutional responsiveness. This mechanism transforms inclusion from

an individual responsibility into a shared community commitment.

The study also proposes the creation of an assistive resource mobilization hub, a centralized system where instructional tools, visual aids, manipulatives, and assistive technologies can be stored, shared, or borrowed. Teachers consistently noted the difficulty of producing adaptive materials due to limited resources, and this hub seeks to close that gap. Research by Sharma & Salend (2016) emphasized that access to appropriate materials is a key determinant of successful adaptive teaching. By organizing and expanding available resources, the school ensures that teachers are not hindered by logistical barriers when planning differentiated lessons.

Another important recommendation is the establishment of a Learners with learning difficulties Help Desk, which serves as a support channel for teachers who need immediate guidance on instructional adjustments, behavioral strategies, or policy concerns. This responds directly to teachers' expressed need for timely assistance, especially when faced with challenging cases. Similar support structures have been recommended by UNESCO (2020), which underscored that real-time professional assistance helps teachers confidently implement adaptive practices and prevents instructional delays that can negatively affect learners.

The study also recommends implementing a Learning Difficulty Early Alert System, a structured tool that enables teachers to identify learners who show early signs of difficulty in reading, numeracy, behavior regulation, or comprehension. Early detection allows for prompt interventions before the challenges escalate. This initiative is supported by research from Fuchs & Fuchs (2017), who affirm that early response-to-intervention models significantly improve outcomes for at-risk learners and reduce long-term learning gaps. Teachers emphasized that timely identification can prevent learners from falling behind and promote more positive classroom experiences.

Alongside these institutional supports, the findings strongly justify a comprehensive professional development program centered on adaptive teaching. Teachers articulated that while they are willing to learn and innovate, they need structured training that is practical, contextualized, and suited to the evolving needs of their learners. The proposed program includes modular training on adaptive pedagogy, allowing teachers to gradually build competence in areas such as multisensory instruction, differentiated assessment, and Universal Design for Learning (UDL). This approach aligns with UNESCO's (2020) emphasis on continuous, scaffolded capacity-building rather than one-time seminars.

The proposals also include mentorship through classroom-based coaching, where experienced teachers or specialists provide hands-on guidance. Teachers shared that observing strategies in real classroom settings makes learning more meaningful—an insight supported by the work of Florian & Black-Hawkins (2011), who found that

collaborative practice and peer coaching strengthen teacher confidence and sustain inclusive teaching long-term.

Lastly, the recommendation to offer action research grants encourages teachers to explore, innovate, document, and refine adaptive strategies based on their own students' needs. This not only uplifts teacher leadership but also builds a culture of reflective practice, consistent with the principles of the Code of Ethics for Professional Teachers (1997), which calls on educators to continuously improve their craft and contribute to educational advancement.

From a policy perspective, these proposed mechanisms operationalize the mandates of DepEd Order No. 44, s. 2021, which champions learners with learning difficulties, and the UN Convention on the Rights of Persons with Disabilities (2006), which asserts the right to accessible and equitable learning. More importantly, these supports honor the ethical and human commitment of teachers who, despite challenges, continue to prioritize the dignity and growth of every child.

In essence, the proposed support system is not just a technical solution—it is a moral response to the dedication teachers consistently demonstrate. It recognizes that true inclusion cannot rest on a teacher's shoulders alone. It must be shared, supported, and sustained by the entire educational community. Through collaboration, continuous learning, and strengthened institutional structures, schools can create an environment where adaptive teaching prospers, teachers feel empowered, and every learner, especially those who struggle, has the chance to thrive.

V. CONCLUSIONS AND RECOMMENDATIONS

By connecting the evidence with the study's objectives, these conclusions highlight the realities teachers face, the strategies they employ, and the support they need to make adaptive practices sustainable.

The following are the conclusions drawn by the study:

- Teachers employ adaptive strategies like differentiated instruction and scaffolding to meet diverse learners' needs, demonstrating a strong commitment to learners with learning difficulties
- The most effective adaptive teaching practices that addressed the needs of learners with learning difficulties are the use of Visual Aids, Scaffold Instruction, and Task Breakdown.
- The reported barriers in implementing adaptive teaching practices for Learners with Learning Difficulties are limited resources, insufficient training, and weak policy support, which impede the full implementation of best practices.
- Strong leadership, adequate resources, and continuous professional learning are needed to attain the school's educational mandate.

Grounded in the findings and conclusions of this study, the following recommendations are offered to help strengthen the use of adaptive practices in teaching:

- Provide regular training or sessions on differentiated instruction and scaffolding techniques to strengthen teachers' adaptive teaching skills.
- Teachers be encouraged to consistently use visual aids, scaffolded instruction, and task breakdowns to better support learners with learning difficulties.
- Schools address these barriers by ensuring adequate instructional resources, providing continuous professional development for teachers, and strengthening policy support for adaptive teaching practices.
- Establish a school-based support system that includes mentoring, technical assistance, and the provision of assistive tools.

REFERENCES

- [1]. Alegre, A., & Molinari, G. (2021). Teacher-student relationships and dropout intentions. *Teaching and Teacher Education*, 98, 103247. <https://doi.org/10.1016/j.tate.2020.103247>
- [2]. Ardasheva, Y., Tretter, T. R., & Kinny, M. (2018). English language learners and inquiry-based science instruction. *Journal of Science Education and Technology*, 27(6), 536-549.
- [3]. Baeten, M., Dochy, F., & Struyven, K. (2019). Effects of reflective scaffolding. *Studies in Higher Education*, 44(1), 65-78.
- [4]. Bandura, A. (1977). *Social learning theory*. Prentice-Hall.
- [5]. Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman.
- [6]. Begeny, J. C., et al. (2018). Small group reading interventions. *School Psychology Review*, 47(2), 178-190.
- [7]. Bruner, J. S. (1966). *Toward a theory of instruction*. Harvard University Press.
- [8]. Caprara, G. V., et al. (2018). Academic self-efficacy interventions. *Educational Psychology Review*, 30(2), 367-395.
- [9]. CAST. (2018). *Universal Design for Learning Guidelines version 2.2*. <http://udlguidelines.cast.org>
- [10]. Chang, C.-C., & Yang, F.-Y. (2019). E-learning modules and stress. *Interactive Learning Environments*, 27(8), 1058-1070.
- [11]. Çiftçi, S., & Cin, M. (2021). Gamification in mathematics. *Education and Information Technologies*, 26, 433-451.
- [12]. Collie, R. J., et al. (2019). School climate and engagement. *School Psychology Quarterly*, 34(2), 119-131.
- [13]. Darling-Hammond, L., et al. (2019). Integrated reforms. *Educational Researcher*, 48(6), 366-378.
- [14]. Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute.
- [15]. Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and self-determination of behavior. *Psychological Inquiry*, 11(4), 227-268. https://doi.org/10.1207/S15327965PLI1104_01

- [16]. Dommett, E. J., Gardner, B., & Van Tilburg, W. (2019). Technology-enhanced learning. *Computers & Education*, 142, 103641.
- [17]. Dweck, C. S., & Yeager, D. S. (2019). Growth mindset. *American Psychologist*, 74(6), 713-729.
- [18]. Evans, P., et al. (2020). Creative arts integration. *Journal of Educational Research*, 113(4), 265-277.
- [19]. Feuerstein, R., Feuerstein, R. S., & Falik, L. H. (2010). *Beyond smarter: Mediated learning and the brain's capacity for change*. Teachers College Press.
- [20]. Florian, L., & Spratt, J. (2013). Enacting inclusion: A framework for interrogating inclusive practice. *European Journal of Special Needs Education*, 28(2), 119–135.
<https://doi.org/10.1080/08856257.2013.778111>
- [21]. Freeman, B., Marginson, S., & Tytler, R. (2017). Problem-based STEM. *Studies in Science Education*, 53(1), 55-72.
- [22]. Friend, M., & Cook, L. (2016). *Interactions: Collaboration skills for school professionals* (8th ed.). Pearson.
- [23]. Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly*, 41(1), 93–99.
- [24]. García, E., & Weiss, E. (2019). The teacher shortage is real, large and growing, and worse than we thought. Economic Policy Institute.
- [25]. Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. Basic Books
- [26]. Goetz, T., et al. (2016). Academic emotions. *Learning and Instruction*, 44, 117-127.
- [27]. Guay, F., Ratelle, C. F., & Chanal, J. (2021). Academic motivation. *Contemporary Educational Psychology*, 64, 101948.
- [28]. Guo, J., et al. (2016). Expectancy-value theory. *Contemporary Educational Psychology*, 44-45, 26-35.
- [29]. Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- [30]. Hughes, M. T., et al. (2019). Tutoring and literacy gaps. *Journal of Learning Disabilities*, 52(4), 321-333.
- [31]. Hwang, G.-J., Lai, C.-L., & Wang, S.-Y. (2017). Mobile flipped classrooms. *Computers & Education*, 115, 82-95.
- [32]. Jang, H., Reeve, J., & Deci, E. L. (2016). Autonomy-supportive teaching. *Motivation and Emotion*, 40(4), 526-541.
- [33]. Kim, J., Park, M., & Jang, H. (2018). Problem-based learning for underachievers. *Asia Pacific Education Review*, 19(4), 543-555.
- [34]. Kim, M., et al. (2019). Mindfulness and test anxiety. *Mindfulness*, 10(3), 502-512.
- [35]. Koçdar, S., et al. (2018). Learning analytics dashboards. *Interactive Learning Environments*, 26(6), 745-757.
- [36]. Korpershoek, H., et al. (2016). Classroom management meta-analysis. *Review of Educational Research*, 86(3), 643-680.
- [37]. Lee, E., & Hannafin, M. (2016). Student-centered learning. *Educational Technology Research and Development*, 64(4), 707-730.
- [38]. Lee, H., & Recker, M. (2021). Motivational feedback. *Computers & Education*, 161, 104060.
- [39]. Liu, E. Z.-F., He, Y.-C., & Zhu, Z.-T. (2017). Teacher support and self-efficacy. *Educational Studies*, 43(2), 236-252.
- [40]. Lu, C., Chen, T., & Chen, Y. (2018). Project-based learning. *International Journal of STEM Education*, 5(1), 45.
- [41]. Martin, A. J., & Evans, P. (2018). Academic buoyancy. *School Psychology International*, 39(1), 88-106.
- [42]. Mastropieri, M. A., & Scruggs, T. E. (2018). *The inclusive classroom: Strategies for effective differentiated instruction* (5th ed.). Pearson.
- [43]. McCombs, B. L., & Miller, L. (2007). *Learner-centered classroom practices and assessments: Maximizing student motivation, learning, and achievement*. Corwin Press.
- [44]. McInerney, D. M., et al. (2019). Culturally relevant pedagogy. *International Journal of Educational Research*, 94, 1-13.
- [45]. Niemi, H., & Kumpulainen, K. (2020). Digital collaboration. *Education and Information Technologies*, 25, 755-779.
- [46]. Panadero, E., Jonsson, A., & Botella, J. (2017). Self-assessment meta-analysis. *Educational Research Review*, 22, 74-98.
- [47]. Raufelder, D., et al. (2016). Peer networks and motivation. *Learning and Individual Differences*, 47, 242-250.
- [48]. Rea, P., McLaughlin, V., & Walther-Thomas, C. (2002). Outcomes for students with learning disabilities in inclusive and pull-out programs. *Council for Exceptional Children*, 68(2), 203–222.
- [49]. Schneider, M., et al. (2020). Feedback practices. *Educational Psychology Review*, 32(1), 153-178.
- [50]. Skinner, B. F. (1957). *Verbal behavior*. Appleton-Century-Crofts.
- [51]. Sklad, M., et al. (2020). Social-emotional learning. *Frontiers in Psychology*, 11, 581036.
- [52]. Sousa, D. A., & Tomlinson, C. A. (2011). *Differentiation and the brain: How neuroscience supports the learner-friendly classroom*. Solution Tree Press.
- [53]. Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257–285.
https://doi.org/10.1207/s15516709cog1202_4
- [54]. Thompson, C. J., et al. (2018). Formative assessment and mastery. *Assessment & Evaluation in Higher Education*, 43(7), 1114-1125.
- [55]. Tomas, L., et al. (2020). Peer-assisted learning in math. *Teaching in Higher Education*, 25(7), 827-841.
- [56]. Tomlinson, C. A. (2014). *The Differentiated Classroom: Responding to the Needs of All Learners* (2nd ed.). ASCD.
- [57]. Tomlinson, C. A. (2014). *The differentiated classroom: Responding to the needs of all learners* (2nd ed.). ASCD.
- [58]. UNESCO. (2020). *Inclusion and Education: All Means All*. Global Education Monitoring Report.

- [59]. Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.). Harvard University Press.
- [60]. Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- [61]. Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press.
- [62]. Wang, M.-T., Hall, N. C., & Rahimi, S. (2018). Teacher self-efficacy. *Learning and Instruction*, 55, 63-73.
- [63]. Westbrook, J., et al. (2018). Active learning in low-resource settings. *International Journal of Educational Development*, 60, 103-115.
- [64]. Yildirim, B., & Kizilkaya-Cumhur, D. (2020). STEM and persistence. *International Journal of Technology and Design Education*, 30(2), 237-252.
- [65]. Zhao, Y., et al. (2020). Metacognitive training. *Thinking Skills and Creativity*, 35, 100631.