

**TEACHING STRATEGIES AND ITS EFFECTS ON STUDENTS' LEARNING AT
SPECIAL EDUCATION IN KHYBER PAKHTUNKHWA**



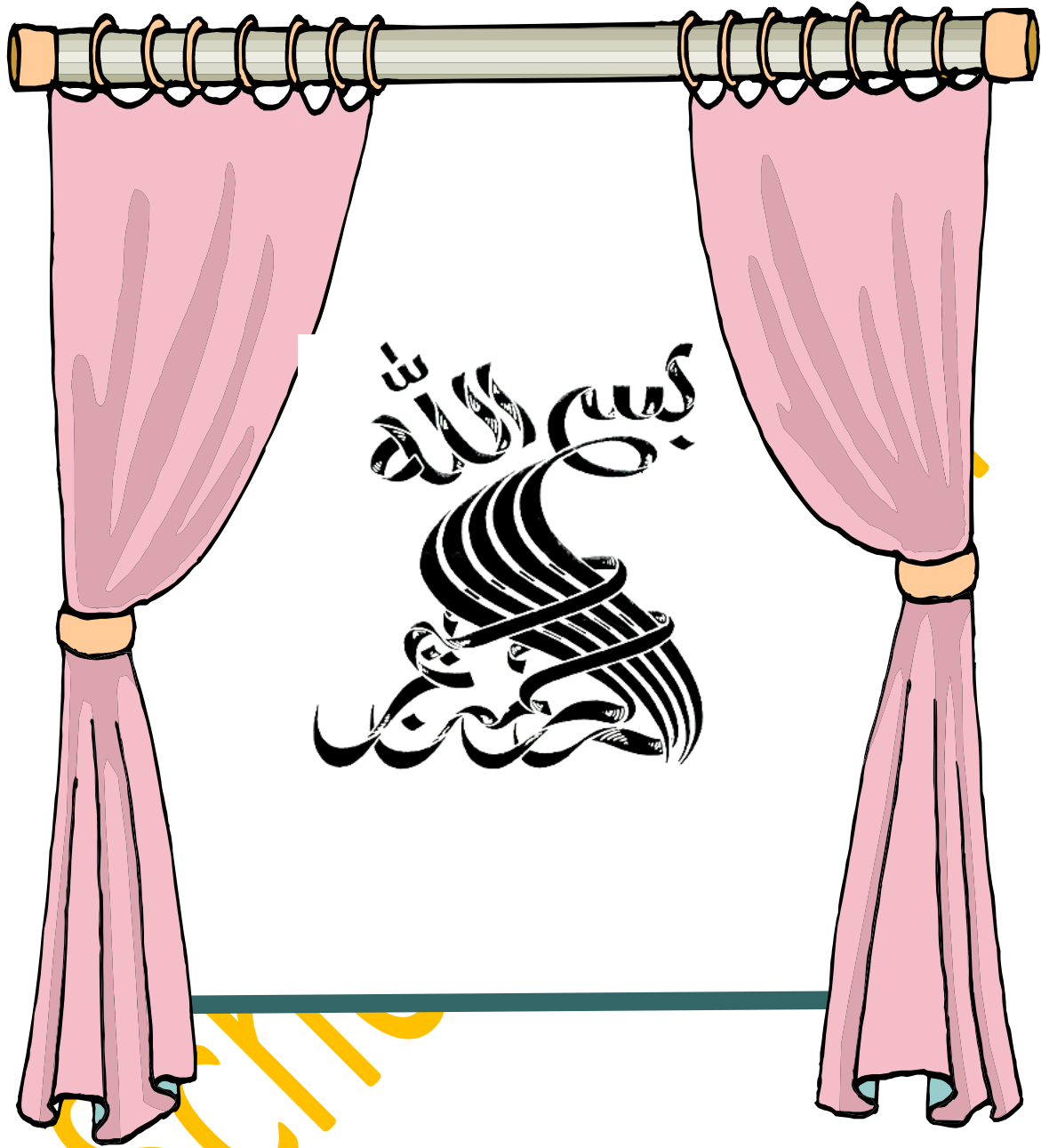
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PhD In Education

**DEPARTMENT OF EDUCATION
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ABDULWALI KHAN UNIVERSITY MARDAN
SESSION (Fall 2020)**



**IN THE NAME OF
ALLAH**

The Most Beneficent, Most Merciful and Compassionate, the Most Gracious and Beneficent, whose help and guidance I always solicit at every step, every moment.

APPROVAL SHEET

Certified that the content and format of the thesis titled **“Teaching Strategies and Their Effects on Students’ Learning at Special Education in Khyber Pakhtunkhwa”** submitted by Nusrat Begum has been found satisfactory in partial fulfillment of the requirements of the degree of PhD in Education.

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SESSION (Fall 2020)

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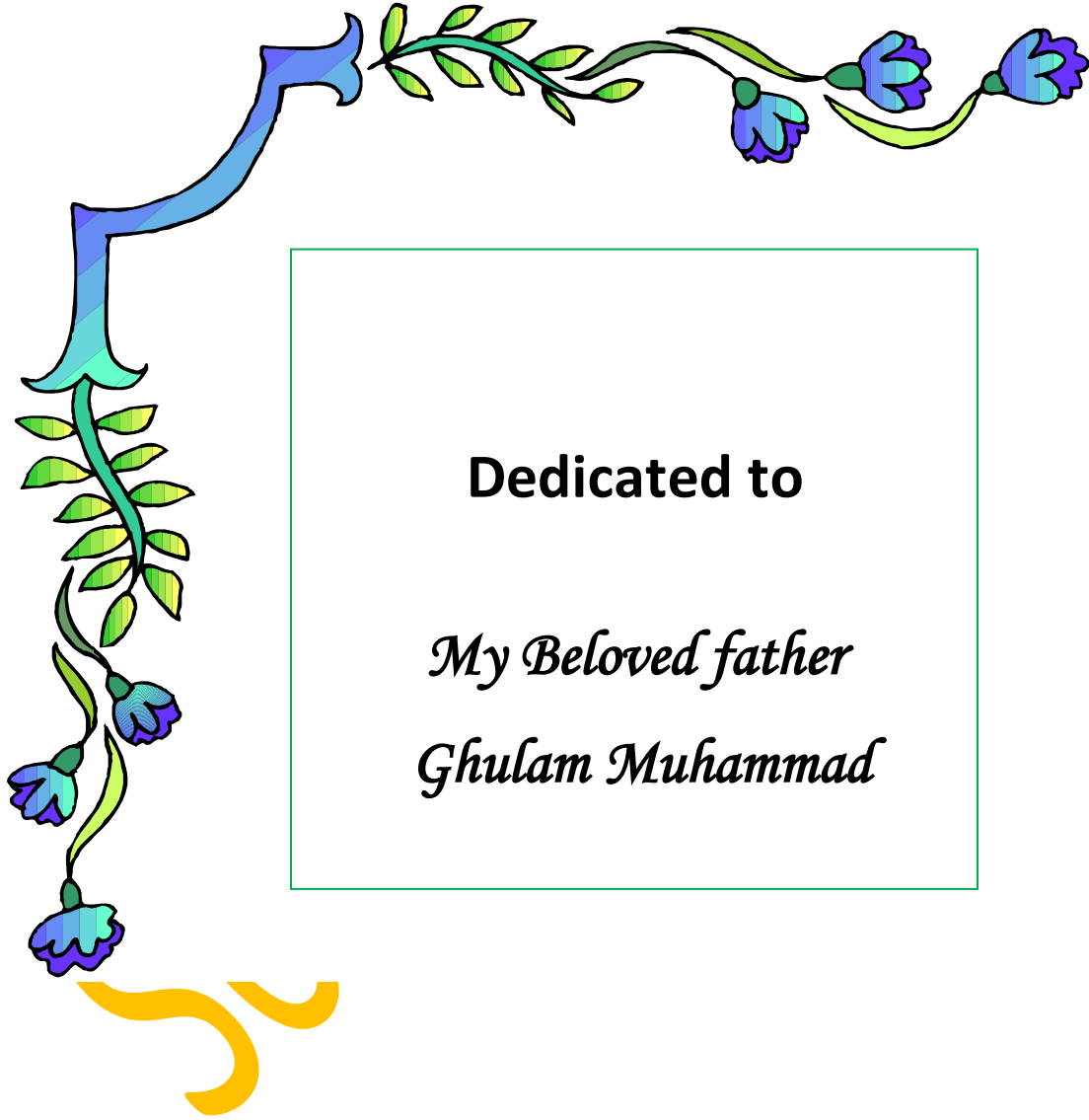
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DEDICATION



Dedicated to

My Beloved father
Ghulam Muhammad

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ACKNOWLEDGMENT

With great appreciation, I would like to thank all of the people and organizations that have been instrumental in helping me finish my PhD dissertation on "Teaching Strategies and Their Effects on Students' Learning at Special Education in Khyber Pakhtunkhwa. "Above all, I owe a debt of gratitude to my distinguished mentor, **Dr. Hafiz Muhammad Irshadullah**, whose advice, support, and intellectual acumen have been indispensable to this study project. His unfailing encouragement and dedication to academic success have served as a consistent source of motivation. My co-supervisor, **Dr. Shaista Irshad Khan**, has my sincere gratitude for his wise counsel, encouraging words, and constructive criticism, all of which have substantially improved the quality of my work. His expertise and dedication have had a significant impact on the direction of my study. I am grateful to all the faculty and staff who have provided invaluable assistance in helping this project get over the scholarly roadblocks.

My sincere gratitude also extends to the Department of Education's Graduate Supervisory Committee members. Their scholarly contributions, astute advice, and kind criticism have greatly improved the caliber of my research. I want to offer my thanks to all of my friends, coworkers, and supporters who have helped and supported me along the way. Your friendship and optimistic feelings have helped to make this difficult process easier to handle. In the end, I would like to extend my appreciation to Abdul Wali Khan University, Mardan, Department of Education and Faculty of Social Sciences for creating a supportive academic atmosphere for study and research. Without the cooperation and support of these people and organizations, this study would not have been possible. I am grateful that you have played a crucial role in my academic career.

Sincerely,

Nusrat Begum

ABSTRACT

Teaching Strategies and Their Effects on Students' Learning at Special Education in Khyber Pakhtunkhwa was a new study. In this study the following Research Objectives were used: (1) To find out teaching strategies used by the Distinct Education Teachers at Special Education in Khyber Pakhtunkhwa; (2) To inspect the effects of Teaching Strategies on the Students Skills (Reading, Writing, Listening & Speaking) at Special Education in Khyber Pakhtunkhwa; (3) To explore the outcome of Teaching Strategies on the Students Social

Development at Special Education in Khyber Pakhtunkhwa; and (4) To find out the challenges faced by Distinct Education Teachers at Distinct Education in Khyber Pakhtunkhwa. In this study, the following Research Questions were tested: (1) What is the significance of Teaching Strategies in Special Education in Khyber Pakhtunkhwa? (2) What are the effects of Teaching Strategies on the Students' Skills (Reading, Writing, and Listening & Speaking) at Special Education in Khyber Pakhtunkhwa? (3) What are the outcomes of Teaching Strategies on the Students' Social Development at Special Education in Khyber Pakhtunkhwa? and (4) What are the challenges faced by Special Education Teachers at Special Education in Khyber Pakhtunkhwa?. While the following research assumptions were tested: (1) There is NO SIGNIFICANT of Teaching Strategies at Special Education in Khyber Pakhtunkhwa; (2) There is NO SIGNIFICANT effect of Teaching Strategies on the Students Skills (Reading, Writing, and Listening & Speaking) at Special Education in Khyber Pakhtunkhwa; (3) There is NO SIGNIFICANT outcome of Teaching Strategies on the Students Social Development at Special Education in Khyber Pakhtunkhwa; and (4) There is NO SIGNIFICANT challenge faced by Special Education Teachers at Special Education in Khyber Pakhtunkhwa. All the public sector Special Educators were the population for this study. A sample of 225 Educators was selected as a sample. Two research instruments were used for data collection. For the quantitative aspect, a questionnaire and for the qualitative aspect, an interview were developed. Instruments were validated for the experts, and the opinions/suggestions were incorporated. Quantitative and qualitative data were collected, and it was examined. Quantitative data was tabulated, and qualitative data was coded. It was concluded that teaching strategies have a great effect on students' learning in special education. It was also recommended that professional development programs should be fully activated in the true spirit, and implement a system for monitoring and evaluating the effectiveness of distinct education programs.

Chapter 1

INTRODUCTION

1.1 BACKGROUND

Special education can be defined as educational services tailored to suit the child with a different social, cognitive, physical or emotional set in comparison to normal. Such students can have exceptional academic skills, a physical disability, learning problems, a language-speech, hearing, eyesight, or emotional and behavioral disorders (Bart, 2021). In contrast to general education, special education implies that the construction of learning processes, the organization of the learning environment and teaching aids should be planned individually, controlled systematically, and be sensitive to the needs of learners with disabilities (Allam & Martin, 2021). It is mainly aimed to empower physically challenged students to acquire their potential and enter society as active members and take an active part in the available educational opportunities (Rehman et al., 2024).

The instructional methods used in special education are vital in the outcomes of the learning of the students. Not all the strategies are the same; they depend on the personal requirements of the students and instructional goals established by teachers. Differentiated instruction, cooperative learning, direct instruction, universal design of learning, and integration of the assistive technology are among the common techniques used with the aim of accommodating diverse learners (Taylor et al., 2022; Rehman et al., 2024). Both methods have proven to be useful in different ways, such as that differentiated instruction is one-on-one-based and tailored to an individual, whereas assistive technology promotes improved access and achievement to students who have disabilities. These strategies, however, are most effective depending on various factors such as curriculum design, expertise of the teachers, institutional support, and other learning environment conditions (Khan et al., 2025).

Students who have disabilities need to receive a combination of interventions and special interventions. In case of sensory impairment needs in children, there must be some alternative resources like Braille, sign language, or other technological tools (Francisco, Hartman, & Wang, 2020). Also, orthopedically challenged students might need to have modified accommodations in the workstations, mobility equipment, or adjustments in the environment in the classroom to be part of the classroom (Ahmad, 2020). In the case of children having speech, emotional or behavioral problems, individual therapies, counseling, and approaches to managing behavior are frequently incorporated into the learning process, paying much attention to the social development and emotional adaptation (Bart, 2021). In this regard,

good special education does not merely dwell on academic education but considers the wider development needs of students as well equipping them into the life outside the school.

Community involvement, professional growth and cooperation also provide the optimal implementation of teaching strategies. Studies indicate the collaborative work of special and general education teachers with the involvement of parents and consistent evaluation contributes to advanced social and academic performance of the students (Taylor et al., 2022; Khan et al., 2025). Evidence-based teacher training, based on practice is also the nucleus of maintaining successful pedagogy in special education.

In the case of Pakistan, and Khyber Pakhtunkhwa in particular, the domain of special education remains in a developmental phase and inclusive interventions are yet to take their initial steps. Even though the international reforms of education focus on equality, accessibility, and inclusivity, the local system is not fully compatible with these criteria. We urgently need to determine, in such an environment, which teaching methods are likely to be most useful in remedying the special needs of disabled children. The proposed study attempts to bridge this performance by examining how different instructional methods can impact the performance and overall development of students in special education within Khyber Pakhtunkhwa.

Despite worldwide attention on comprehensive education, the research on the problems of special education is limited. Some studies explain different teaching methods that can be used in the schools of special education. Very few studies highlight the general comprehensive education rules and the coordination of classrooms, with little knowledge of teaching strategies that suit special education. This study mainly examines teaching strategies that can be used for the special children of Khyber Pakhtunkhwa and how these strategies affect the social development and learning of the students.

Quantitative and qualitative studies that incorporate survey and teachers interviews will be used to assess benefits of evidence-based practices to improve student performance and allow the evidence by identifying relevant background of inclusion. The findings of the study should be valuable to policymakers, educators, and stakeholders on how to reinforce special education programs and, therefore, those findings add value to academic research and practical interventions. In sum, the studies correspond to the priorities on inclusive education in the world and have a local context on enhancing the outcomes of children with special needs in Pakistan.

Special education benefits special students with extraordinary academic abilities, who have nervous or orthopedic impairments, and children with emotional, interactive, or cognitive disabilities, as well as learning disabilities, hearing, vision, or speech impairments (Bart, 2021).

The process of teaching pupils involves setting up educational processes, accessible environments, and adapted tools and materials in an individually planned and methodically monitored manner (Allam & Martin, 2021). According to Rehman et al. (2024), the purpose of special education is to give these individuals an education that is specially designed to meet their requirements, assist them in reaching their full potential, and make them capable of being fully functional components of society. Depending on the unique needs of each student and the objectives of the educational planner, the teaching strategies employed in special education might vary greatly (Taylor et al., 2022). The planning, development, and implementation of instructional solutions for people with impairments or learning challenges who may or may not be enrolled in conventional schools is known as special education. A variety of limitations and learning challenges affect some students (Rani, 2021). For children with exceptional needs, special educational institutions might be built and funded to offer suitable, exclusive education. Most special school students don't typically attend any classes in regular schools (Stiefel, Cimpian, & O'Hagan, 2022).

The aims of special education are essentially the same as those of regular education schools. The methods by which they are accomplished are different. For instance, an attempt is made to teach reading to every kid with exceptional needs, except for those who cannot benefit in any way from attending school. Long-term, intensive, and more individualized education is necessary for children with learning and mental problems. For these students, learning strategies, increased engagement, and a great deal of repetition of comparable content in different formats may all be necessary. Youngsters who suffer from serious sensory impairments, such as blindness or hearing loss, should learn to read and use alternative resources. (Francisco, Hartman, & Wang, 2020).

Academic accommodations are needed for kids with motor impairments. Children with motor difficulties learn like other kids and can use the same textbooks unless they have extra issues like education discrepancies, academic infirmities, or language syndromes (which are common among intellectually disabled kids). However, to assist these youngsters in both adjusting to their surroundings and the environment accommodating their condition, certain strategies are required. Wheelchairs, adapted workstations, and additional devices facilitate movement and the handling of educational resources. Attitude training, or getting kids ready for life beyond school and maximizing their chances of having comparatively normal lives, is one of the most crucial parts of schooling for people with orthopedic disabilities (Ahmad, M.S., 2020).

Specialized methods are needed for children with speech deficiencies and learning challenges, usually on an individual basis. Relaxing and focused therapies custom-made to the specific needs of children with social and emotional issues may be offered. Typically, the educational program includes psychotherapy and behavior treatment provided by clinical psychologists, social workers, and psychiatrists. The academic instructors in these seminars place a strong emphasis on interpersonal relationships, social adjustment, and personality development. These elements are necessary for this set of kids to succeed academically. Nonetheless, academic labor is frequently remedial in and of itself and is actively supported (Bart, 2021).

The methods, approaches, procedures, and processes a teacher employs when instructing students are referred to as teaching strategies. It is widely acknowledged that instructional tactics have multiple dimensions and that the context in which they are used determines how effective they are. (Shabbir et al., 2024). To work with the target group, help students acquire the required course material, and help them achieve the expected learning objectives, the instructor must modify and apply the appropriate technique. This will have an impact on the effectiveness of these tactics. Whichever strategy works best to produce the anticipated learning results should be determined by the directed learning effects (Shabbir et al., 2024). Teaching strategies include differentiated instruction, cooperative learning, direct instruction, worldwide proposal for learning, and effective technology are commonly used in special education settings, according to Rehman et al. (2024).

Differentiated instruction calls for tailoring instruction to each student's unique needs, whereas cooperative learning involves students collaborating in small groups to achieve a shared objective. Direct instruction is used to teach academic skills clearly and methodically, while universal design for learning aims to make education accessible to all students. Assistive technology improves learning and performance for students with disabilities. Children with distinct necessities benefit from teaching approaches in terms of improved social and academic performance. Distinguished instruction was found to be effective in improving theoretical accomplishment for students who had difficulty with knowledge (Taylor et al., 2022). The effectiveness of teaching strategies in special education can be influenced by a variety of factors, including curriculum, instructors, students, and environmental factors (Khan et al., 2025).

Professional development, teamwork, parental involvement, and ongoing assessment are the most effective ways to put instructional strategies into practice (Khan et al., 2025). Special education teachers' instructional practices can be improved by practice-based,

evidence-based professional development (Khan et al., 2025). Children in special education can accomplish more success socially and educationally when special education and general education teachers work together (Taylor et al., 2022). Acquiring new skills, information, attitudes, values, behaviors, and preferences is the process of learning. The term "education" is commonly used in discussions about education. Caring, joining notions and picture connections between old and new knowledge, critical and self-directed thinking, and the ability to apply data to new and mixed backgrounds are all necessary for deep and lasting learning. According to Taylor et al. (2020), learning is "a process that leads to change, which occurs as a result of experience and increases the potential for improved performance and future learning." The learner may experience a shift in knowledge, attitude, or behavior.

This study aims to find out the influence of different teaching methods on the learning outcomes of children in Khyber Pakhtunkhwa, Pakistan, with special education. This study will be aimed at determining and listing the teaching strategies that will facilitate the improved academic performance and overall growth of special education students. The research is meaningful since it has illuminated the best practices in teaching special education students in a particular academic and social context. The findings of the study can be used to improve the special education programs in Khyber Pakhtunkhwa and other Pakistani regions. They can as well be applied to raise the volume of information on the effective instructional practices of special education students.

To achieve these objectives, the study combines quantitative and mixed-method research techniques. In addition to completing a questionnaire to provide quantitative data on the impact of teaching strategies on student learning outcomes, the remaining 220 special education teachers were questioned to learn more about their experiences with various teaching tactics. Academics, decision-makers, and exceptional education teachers in Pakistan and other countries have made extensive use of the study's findings to improve the education of children with disabilities. This study has the potential to enhance the social and academic outcomes, as well as the involvement of special education students in society, by identifying effective teaching approaches.

The research subject is of strong relevance and solves a fundamental gap in the area of education research based on inclusive education and its deployment to special education in Khyber Pakhtunkhwa in Pakistan. The inclusion of education, which is a global interest, focuses on equality of education among students with disabilities. In Pakistan, however, the system of special education is not at an advanced stage, and inclusive teaching strategies are under development. This study aims to examine the effectiveness of the teaching strategies that

could be adopted in special education classrooms in order to improve the learning performance among students with disability. The subject is significant because it is in line with the international education reforms, whose focus is on the provision of better opportunities to children with special needs in the mainstream education system. The study will help address this gap by seeking to understand the strategies used in teaching special education and their effectiveness in enhancing the academic and social achievements of students with disabilities in Khyber Pakhtunkhwa.

1.2 STATEMENT OF THE PROBLEM

The disparity in the implementation of the effective teaching practices in the special education conditions in Khyber Pakhtunkhwa is a timely topic, which this study will address. Despite the efforts by the government to transform special education, the lack of teacher training and facilities and support of teachers have resulted in poor outcomes in the learning performance of the children with disabilities. The biggest problems faced by the special education system of the province are insufficient funding and professional shortage, as Taylor et al. (2020) put it. In addition, effective and accurate research on special education strategies in Pakistan does not exist. There are very limited researches available that describe the best teaching strategy in the Khyber Pakhtunkhwa schools. This is where the studies fail to match and it is thus challenging to make special education rules. It demonstrates the necessity of the research of this issue, and its primary interest should be directed at the strategic plans of special education rather than the general concepts.

The research problem under discussion entails the fact that special education in Khyber Pakhtunkhwa still experiences issues, as the improvement of the education system has resulted in leaving a considerably wide gap in the actual application of teaching methods that are consistent with the individual needs of students and based on those needs. The studies of Nasir et al. (2020) identify the persisting gaps in teachers' preparations and inadequate resources, as well as the insufficient application of effective pedagogical strategies, which contribute to the poor achievements of children with disabilities in education. This is a fundamental issue that should be addressed to develop students academically and socially in special education contexts." The research subject provides a novel solution in that it looks at how teaching strategies can be used explicitly to address the student in special education circumstances in Khyber Pakhtunkhwa, which has its unique issues and opportunities. Even though it is not a comprehensive study of any general teaching strategy, the research investigates the contextual

variables that could influence the generalisability of any particular teaching strategy to improve the learning experiences of learners with disabilities. This research can provide new information regarding the problems of teacher training, funding of resources, and the application of inclusive instructional methods that can be implemented to develop more sufficient special education programs, not only in Pakistan but also in other regions where the same issues may occur.

The research will be of paramount significance due to the high level of need to establish effective educational interventions as far as special education system in Pakistan is concerned. The nation is full of issues, including the lack of trained special education teachers, economic issues, and ineffective implementation of inclusive instructional practices. The paper will cover the significance of teaching techniques in developing academic capacity, and social growth of students with special needs in Khyber Pakhtunkhwa. The study outcomes will be a resourceful tool to the policy makers and education planners, as well as teachers whether they intend to improve the quality of special education in the region or not. It will be a vital research undertaking that will assist in bridging the gap between the needs of students with disabilities and the learning opportunities they have through establishing the most significant teaching strategies that could be used to change their performance.

1.3 SIGNIFICANCE OF THE PROBLEM

This research is highly significant as it has given rise to new perceptions regarding the special education within society. It also demonstrates the importance of teaching strategies in the teaching and learning process. Nonetheless, The relevance of the study was that it is likely to help the children of Khyber Pakhtunkhwa to have access to better special education through the identification of effective teaching methods and elimination of the issues related to implementation. The special education system in the province has always been facing the problem of fund shortage, skilled teachers and lesson plans, among others.

Students with special needs have thus been faced with challenges in the classroom and very minimal time to achieve their potentials. The learning outcome of kids with special education can be improved through the use of effective teaching techniques as it has been revealed by previous studies. As an example, the study by Elik and Erdemir (2020) found that cooperative learning methods improved the social and academic skills of intellectually disabled people. In a meta-analysis, Shah et al. (2020), and Algozzine, and Algozzine found that students with impairments perform better in school when explicit instruction and positive reinforcement

measures are employed. This study could have made it easier to identify effective teaching strategies that can be used to tackle the special education students in Khyber Pakhtunkhwa.

It could also have pointed out the obstacles special education teachers are going through when it comes to using such strategies and the impact technology has on improving the learning outcomes in this group of children. By resolving these problems, this study could enhance the quality of special education in the region and enable special education students to achieve their potential. The given study is particularly significant as it attracts original empirical research depending upon the state of affairs in Khyber Pakhtunkhwa where the studies on the instructional strategies of special education are absent. The findings provide useful information by separating special education practices with the general inclusive education models so that policymakers, curriculum developers, and teachers can connect this information to enhance special education programs in Pakistan.

1.3.1 Definition of Terms

1. Issues, obstacles, or challenges that may make it provocative to implement effective instruction regime or offer quality special education services. Some of the probable barriers include nonexistence of financial assistance, inadequate training or assistance to teachers, biases in society or culture, and others that are structural or conservational.
2. **Students with Special Education Needs:** A significant percentage of children have to be accommodated, assisted, or modified to thrive in school. In the given case, this grouping can be comprised of students with social issues, psychological health concerns, physical disabilities, learning disabilities, or other weaknesses.
3. **Individualized Education Plan (IEP):** A written statement formally given outlining the objectives, purposes, and provisions of kids with special needs. Teachers, fathers and other experts collaborate in creating the IEP to address the special needs of every student in terms of education.
4. **Inclusive Education:** A teaching plan created to ensure that every student, including those with special learning needs, has an equal chance to learn and contribute to in-class activities. Apart from endorsing active contributions from groups, teachers, and students in the educational process, special education highlights the importance of variety, equity, and social impartiality.
5. **Assistive Technology:** Any tool—software, hardware, or application—made to provide students with infirmities or special needs in developing their theoretical or

practical skills. Movement aids, communication supports, physical aids, adaptive software, and other technological assistance are all considered forms of assistive technology.

6. **Special Education:** A method of teaching designed specifically to meet the special needs of learners who have infrequencies, damages, or learning tasks. To assist students reach their maximum potential, it consists of a variety of specialized program instructional styles and support services.
7. **Teaching Strategies:** Teachers use them to assist students' learning and encourage their participation. Effective teaching tactics serve as a range of instructional styles, evaluation strategies, and response tools based on the unique necessities and talents of each student.
8. **Learning Outcomes:** The desired or estimated outcomes of a learning process, frequently stated in terms of insolences, abilities, and knowledge. Examining learning conclusions is a frequent way to assess how well instructional strategies or programs work.
9. **Khyber Pakhtunkhwa:** A province in northwest Pakistan that borders Afghanistan. With a population of more than 35 million, it is well known for its wonderful ordinary settings, rich cultural history, and wide range of cultural groups.
10. **Technology:** Applications of electronics, software, or digital media in the practical employment of methodical discoveries and inventions. In special education, technology can be leveraged to improve learning results, cheer student sharing, and offer more support to kids who have learning problems.
11. **Differentiated Instruction:** An instructional approach in which special emphasis is given to curriculum and computations to the unique needs, interests, and abilities of the individual students. In order to encourage learning and achievement among students, differentiated instruction utilizes various instruction strategies, flexible grouping and various assessment techniques.
12. **Universal Design for Learning (UDL):** It is a process by which learning activities and materials are created to be used by any learner, irrespective of their learning requirements or constraints. UDL offers a supportive and relaxed learning process allowing application of all types of expressive, interactive, and representational strategies.
13. **Response to Intervention (RTI):** Multi dimensional approach to identifying and addressing the behavioral and academic needs of kids. RTI applies continuous

assessment, data collection, and administration of evidence-based interventions at specific levels based on the needs of individual students in order to monitor the progress of the students.

15. **Learning Disability:** This is a brain condition that disrupts the reasoning, memory or learning. Other educational services such as mathematics, writing, reading and others may succumb to learning complications. They could also be comorbid with other disorders such as autism spectrum disorder or ADHD.

1.4 **RESEARCH FRAMEWORK**

The logic behind the idea of inclusive education is based on the necessity to develop the education that would be able to address the needs of various children and those children with disabilities in particular. The means of instruction play a pivotal role in this context since they assist in putting in place the support that the students with special needs require in order to thrive in school either academically or socially. The relations between instructional practices and inclusive education are premised on the principles of fairness, availability and flexibility. Such theories as Vygotsky Social Constructivism and Universal Design of Learning (UDL) can be well placed in the framework of how teaching special education can be represented when addressing the different needs of students with special needs (Rehman et al., 2024).

The inclusive education theory based on the belief that all learners with disabilities should be mainstreamed into general classes with the help of applicable support discloses the importance of differentiated instruction (Allam & Martin, 2021). Inclusive education theory dictates that they should have flexible ways of teaching children so that any and all the children have equal opportunities to learn and participate in classroom activities. As an example, differentiated instruction an idea whereby the teacher aims at matching the learning experience to the individual needs of every learner is core in creating a non-inclusive learning environment. This is in line with the principles of inclusion in education, which intends to abolish access obstacles and learning participation among the students with disabilities (Taylor et al., 2022).

Besides, constructivist approach to learning promotes active interaction and knowledge building among learners, and is therefore complementary to inclusive education which emphasizes individual experiences, communications and reflections. Learning theories according to constructivism, particularly that which was proposed by both Piaget and Vygotsky, indicates that children engage in learning best through experience and social interactions which empowers them to make use of the previously established knowledge. This practice works extremely well with students with special educational needs because it focuses on how learning experiences need to be scaffolded in order to fit their needs (Bart, 2021).

Through the application of instructional and educational practices that are congruent with constructionist theories, including cooperative learning and peer tutoring, instructors are able to ensure that they can successfully create a context that encourages students to become engaged in the learning process, which can unleash improvements in academic and social performance (Ali et al., 2020).

In addition, in the developing setting, such as the Khyber Pakhtunkhwa province of Pakistan, the sources reveal that the application of inclusive approaches to teaching is core in surmounting challenges faced by special education students in the under-privileged conditions (Khan et al., 2025). In developing countries the issue is not merely of resources shortage but also teacher training to provide teachers with those skills required to properly implement those strategies. In the works of Shabbir et al. (2024) and Rehman et al. (2024), it is mentioned that the teacher training and professional development activities are regarded as a factor that makes it possible to ensure the possibility of teachers to apply inclusive teaching strategies that can be used to serve the students with different learning needs. Furthermore, the addition of accessible techs was found to have had a drastic effect on the educational results of the students with impairments and made it an essential component of any future teaching plan in such establishments (Khanum & Noor, 2025).

It can be stated that the theoretical underpinnings presented in this research through the relation between teaching strategies and inclusive education theory, constructivist learning, and real-life data coming out of the developing world will form a strong foundation to the ability of these strategies to improve learning outcomes in students with special needs. The framework not only correlates with the global educational reforms but it also concentrates on the problems being encountered by special education systems of the developing economies like Khyber Pakhtunkhwa Pakistan.

1.4.1 Research Objectives

In this study, the following Research Objectives were used:

1. To investigate the types of teaching strategies used by special education teachers in Khyber Pakhtunkhwa.
2. To assess the impact of teaching strategies on students' academic skills (Reading, Writing, Listening, and Speaking).
3. To explore the effect of teaching strategies on students' social development.
4. To identify the challenges faced by special education teachers in implementing these strategies in Khyber Pakhtunkhwa."

1.4.2 Research Questions

In this study the following Research Questions were tested:

1. What types of strategies of Teaching Strategies are used by Special Education in Khyber Pakhtunkhwa?
2. How do these Teaching Strategies affect the academic Skills (Reading, Writing, Listening & Speaking) of the students at Special Education classrooms in Khyber Pakhtunkhwa?
3. What are the affects of Teaching Strategies on the Social Development and skills of the students with difficulties in Khyber Pakhtunkhwa?
4. What are the challenges do Special Education Teachers face during implementing different strategies at Special Education in Khyber Pakhtunkhwa and how do these problems affect teachers results?

1.4.3 Research Hypothesis

In this study, the following assumptions were tested:

Null Hypothesis 1: "There is no significant effect of teaching strategies on students' skills (Reading, Writing, Listening, and Speaking) in Special Education in Khyber Pakhtunkhwa."

Null Hypothesis 2: "There is no significant outcome of teaching strategies on the students' social development in Special Education in Khyber Pakhtunkhwa."

Null Hypothesis 3: "There are no significant challenges faced by Special Education Teachers in Khyber Pakhtunkhwa in implementing effective teaching strategies."

1.5 RESEARCH METHODOLOGY

1.5.1 Research Paradigm

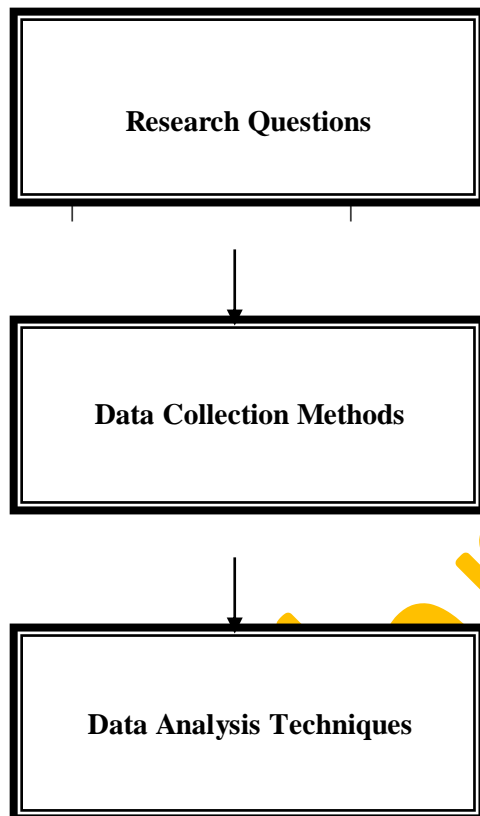
A research paradigm means the philosophical structure that guides how research is taken. This study is guided by a pragmatic paradigm, which focuses on the selecting methods that best answer the research questions. The research design used in this study is positivist, that allow both quantitative and qualitative methods, which help to design strategies of teaching for special students.

1.5.2 Research Design

The research adopts both quantitative and qualitative data to achieve its objective. Descriptive data were collected to explain teaching methods and their impact on students' academic and social results, while statistical data were used to examine teachers' exposure and

problems. The combination of the two outcomes gives a complete piece of knowledge of teaching method in the special education classrooms.

1.5.3 Research Design Diagram



1.5.4 Data Collection

The research question on pedagogical issues that should be used in teaching special education students was collected using semi-structured interviews and questionnaires and the 220 special education tutors who participated in the study to express their ideas on pedagogical choices in addition to responding to questionnaires on the issues of how the teaching approach adopted by their tutors influenced the social and academic performance of their students. The data gathering methods based on these techniques enabled the researchers to summarize detailed information about different aspects of the information to make informative conclusions about the instructional strategies of special education teachers and the consequences of learning outcomes of the students. The sample of 220 teachers was used to select special education

teachers who participated in the study purposely to get diversification of teachers in terms of different schools in Khyber Pakhtunkhwa. Some of the factors that were taken into account during sampling process involved the location of the school (urban or rural), the experience of teachers in the school and the grade level of the school

. Data collected through interviews will also be analyzed by thematic analysis using the steps identified by Bart (2021) so that major trends and themes are captured through the qualitative information. Questionnaire data, which is quantitative, will be analyzed with the help of descriptive statistics to find out the tendencies in the implementation and success of teaching methods.

1.5.5 Aim of the Research Methodology

Evidence-based perceptions regarding the developmental and implementation of effective teaching methods among children with special needs are provided in this research. It is aimed at determining the best teaching strategies and how the strategies can influence the development of students in a special education setting.

1.5.6 Purpose of the Research Methodology

In this study, interviews and questionnaires were applied to find the result of teaching styles on students in special education.

1.5.7 Importance of the Research Methodology

The ability of the method to guarantee validity, confounding influences, transparency and reliability, and the credibility and confidence of the findings act as a wake-up call to the significance of methodology in study.

1.5.8 Research Population

The term population refers to the entire field of investigation. The population under investigation in this research entailed inclusive Education Teachers and Heads in Khyber Pakhtunkhwa

1.5.9 Research Sample

A subdivision of the population is called a sample. In this study, five heads and 220 special education teachers were chosen at random.

1.5.10 Research Instruments

Research instruments aid in the gathering of data for the researcher. For this investigation, two distinct research tools were created. Research instruments for the quantitative and qualitative aspects were questionnaires and interviews, respectively.

1. Questionnaire

The research objectives were used to formulate the questionnaire; therefore, they made sure that the questions covered the major areas of teaching strategies, their efficacy, and the issues confronting special education teachers. Experts in the sphere of special education and education validated the instrument. Feedback from experts was also included to make sure that the items were pertinent and reflected the concepts under investigation properly. Pilot testing was done on a selected few special education teachers to find out any possible pitfalls in its comprehension and clarity by using the final form of the questionnaire. According to the results of discussions regarding this pilot test, some slight changes were carried out to the instrument in order to make it more effective.

2. Interviews

Interviews used in this study were semi-structured, which gave scope to strike a balance between directed and flexible exploration with the responses provided by the participants. In educational studies, semi-structured interviews are most appropriate when conducting research since they offer the convenience to dig deeper into the experiences of the participants in order to have a more detailed analysis of the research subject (Taylor, 2020). The interview guide was as such that it would promote uniformity throughout the interview, and yet, enable the participants to share their views comfortably. There was an important emphasis to be made on the issues of teaching strategies, their application, and the troubles of the teachers in the sphere of special education in Khyber Pakhtunkhwa and beyond. A purposive selection of the participants was performed so that the individuals represented a variety of experience levels and contexts when it comes to teaching special education.

1.5.11 Instruments Validation

Both study instruments were validated by the supervisor, co-supervisors, and experts. For this reason, instruments were sent to the specialists, and the research instruments were changed to take their suggestions into account.

1.5.12 Data Collection

One crucial step in the research process is gathering data, which is done under the guidelines provided in the study sample. Thematic analysis, a technique for finding patterns and themes in mixed-method data, was used to investigate the information gathered from surveys and interviews (Shabbir et al., 2024). The implied information was coded according to a coding system in the light of the goals and study questions. The coding system as developed was also quantified and refined, to identify all subjects and designs in the data as the research progressed. Descriptive statistics measures such as means and occurrences were used to give an overview of the responses on the surveys that can be quantified.

1.5.13 Description of Data Collection

In this study, the primary research instruments were questionnaires and interviews to gather data on the impact of the teaching techniques on the single fresh individuals who served as participants in the research (Taylor, 2020). Considering the purpose and objectives of the study and research question, a semi-structured interview guide has been developed to obtain the sentiments of the contributors towards the theme (Talib et al., 2020).

The interviews were conducted at the bequest of the members or via videoconferencing and recorded audio footages to be analyzed in the future (Stiefel et al., 2022). Secondly, a questionnaire was developed in order to utilize self-administered questionnaires to gather demographic and opinion data on particular courses of teaching strategies. The questionnaire can be delivered through online reviews and the respondent might not provide his/her identities or the questionnaires can be sent via mail or email (Smith and Thompson, 2023). This study was at a position to critically assess the amount of teaching attitudes that influenced special needs children in a particular perspective by employing the use of questionnaires and interviews (Smith and Thompson, 2023). Moreover, the data-collection activities were also flexible and granted secrecy provisions by the secretarial staff on the answers of the contributors (Stiefel et al., 2022).

1.5.14 Tools or Techniques for Analysis

Both mixed-method data study and the quantitative data study were used to analyze the data collected in the questionnaires and interviews (Naeem, S.B. et al., 2021). The research of the questionnaire was assessed by expressive values (means and incidences), and thematic analysis was used to define subjects and trends in the records taken during the interviews (Bart, 2021). This was achieved with the mixed methods and quantitative data analysis as it allowed performing a comprehensive overview of the research problem and perceptual data related to the impact of instructional strategies on students with disabilities (Shah and Hayat, 2020).

1.5.15 Ethical Consideration

They gave informed consent; their identity was been tracked up to the end of research process of the study and civil diligence had been exercised on the issue of ethics (Afzal et al., 2021). The study team avoided complications such as causing harm and pain to the members by employing non-intrusive interviews and questionnaire questions, as well as creating an enjoyable interview atmosphere (Khan and Ud Din, 2023). The research was respectful towards the rights and well-being of research subjects through adhering to moral rules.

1.5.16 Limitations of the Study

The limited sample size, the earthly consideration on special educational students, potential bias due to self-reported data, and experimental approach can restrict the research to be more or less functional (Bhatti and Bhatti, 2020). These failures should be acknowledged, the necessary developments should be made, and ideas towards further studies should be provided.

1.5.17 Identification of Limitations of the Study

The sample size, individualities of the participants, and the research methodology are some of the limitations that should be considered when carrying out a study on the effectiveness of instructional techniques on special education children in Khyber Pakhtunkhwa. These basics could influence the sample representativeness, the ability to demonstrate causality, and the relevance of the responses (Bhatti, Z. I. & Bhatti, A., 2020).

1.5.18 The Impacts of Limitations on Result

The weaknesses of the study could influence the applicability, externalizability, and trustworthiness of the study conclusions as concerns the special education instruction strategies in the Khyber Pakhtunkhwa region. Some of the issues include incapability to regulate external factors, data collection bias, and substandard causal implications by a novel design. The reasons behind this are weak causal implication, lack of focus, small sample size, and low generalizability. The investigators ought to be conscious of these confines as their work evolves and act to eliminate them. In addition to any necessary changes to their research project or data collection methods, the limitations should also enable them to spearhead future research and the development of more efficient teaching performances.

1.5.19 Conclusion

The knowledge of research practice is a necessity in conducting trustworthy, moral, reliable, and valid research studies. This chapter incorporated such themes of research methodology as study designs, data collection and analysis, selection of participants, and ethical issues. Researchers need to be very careful about the research question, resources available and data before choosing the best methodology. Researchers can ensure the quality of research by following the best practices.

1.5.20 Summary of Research Design

The design chosen to examine the ways teaching practices affect people in specialized education must have in mind and address the special needs and topics that these individuals have to deal with. Case study and other strategies such as randomized controlled tests can be applied. The problem of research challenge, available resources and ethics needs to be considered. The study gives data on the optimal educational activities and that the learners with special needs can achieve well in school.

Chapter 2

LITERATURE REVIEW

Children who are socially, cognitively, or physically different from average require distinct education, also known as special needs education, which involves modifying regular school procedures. Special education benefits brilliant students with exceptional academic ability, children with neurological or orthopedic impairments, and children with emotional, behavioral, or cognitive impairments, as well as learning disabilities, intellectual, hearing, vision, or speech impairments (Bart, 2021). The process of teaching pupils in a way that takes into account their unique needs, disabilities, and peculiarities is known as special education. This entails setting up educational processes, accessible environments, and adapted tools and materials in an individually planned and methodically monitored manner (Allam & Martin, 2021).

Education refers to instruction for children with infrequent requirements, such as those who have infirmities or other learning challenges. The goal of special education is to provide these people with an education that is specifically tailored to their needs, helps them to realize their full potential, and allows them to engage as fully as possible in society (Naeem, S.B. et al., 2021). Teaching strategies are a critical element of distinct education because they have a large impact on how fine kids with special needs learn. The teaching methods used in special education may differ significantly depending on the discrete requirements of each student and the goals of the instructional programmer (Ali & Usman, 2024). It is critical to look into how different teaching strategies impact the academic performance of children with special needs. Special education is a modified program that involves some unique tools, techniques, and research efforts to improve instructional arrangements to meet the needs of exceptional children. Special Education is the design and delivery of teaching and learning strategies for individuals with disabilities or learning difficulties who may or may not be enrolled in regular schools. Students who need special education may include students who have a hearing impairment or are deaf, students who have vision impairment or are blind, students with physical disabilities, students with intellectual disability, students with learning difficulties, students with behavior disorders or emotional disturbance, and students with speech or language difficulties. Some students have many disabilities and learning difficulties (Rani, 2021). A special school is a school catering to students who have special educational needs due to learning difficulties, physical disabilities, or behavioral problems. Special schools may be specifically designed, staffed, and resourced to provide appropriate special education for

children with additional needs. Students attending special schools generally do not attend any classes in mainstream schools (Stiefel, Cimpian, & O'Hagan, 2022).

The objectives of special education are similar to the educational goals for ordinary children; only the techniques for attaining them are different. An effort is made, for example, to teach all children with special needs (except those unable to profit at all from school experience) to read. Children who have learning and mental disabilities require prolonged periods of intensive and more individualized instruction; for them, the learning process might include techniques to maintain interest, more active participation, and much more repetition of similar material in varied forms. Children with severe sensory handicaps (such as deafness and blindness) must learn to read through other sensory modalities. Deaf individuals learn to read through visual methods, while blind individuals learn to read Braille through the tactile sense (Francisco, Hartman, & Wang, 2020). Children who have motor handicaps require few, if any, academic adjustments. Unless they have additional problems such as learning disabilities, intellectual disabilities, or speech disorders (which are often found among the cerebral palsied), children with motor disabilities learn like other children, and they can follow the same classroom materials. Special techniques are necessary, however, to help such children adapt to their environment and to adapt the environment to their disability. Wheelchairs, modified desks, and other apparatuses aid in mobility and the manipulation of classroom materials.

One of the most important aspects of the education of the orthopedically disabled is attitudinal—that is, preparing children for adapting to the world outside the classroom and maximizing their potential for leading relatively normal lives (Ali et al., 2020). Children with learning disabilities and those with speech defects require highly specialized techniques, usually on an individual basis. For children with social and emotional problems, special therapeutic and clinical services may be provided. Psychotherapy and behavior therapy by clinical psychologists, social workers, and psychiatrists are generally a part of the educational program. Academic teachers in these classes stress personality development, social adjustment, and habits of interpersonal relations. With this group of children, these factors are prerequisites to academic achievement.

Academic work is, however, sometimes therapeutic in itself and is promoted as much as possible (Çelik & Erdemir, 2020). Teaching strategies refer to the methods, techniques, procedures, and processes that a teacher uses during instruction. It is generally recognized that teaching strategies are multidimensional and their effectiveness depends on the context in

which they are applied. (Çelik & Erdemir, 2020). The effect of these strategies is influenced by how the teacher adapts and applies the right strategy to deal with the target group and help students learn the desired course content and achieve the intended learning outcomes. The intended learning outcomes should guide which approach best suits the achievement of those outcomes (Arif & Akhtar, 2021).

According to Idris & Saeed (2021), special education settings frequently incorporate teaching practices such as differentiated instruction, cooperative learning, direct instruction, universal design for learning, and assistive technology. Cooperative learning entails being employed in minor clusters to complete a mutual goal, whereas differentiated instruction requires customizing instruction to match the individual requirements of each student. Academic skills are taught overtly and systematically through direct instruction, and universal design for learning attempts to make education accessible to all students. The use of assistive technology helps students with impairments learn and perform better. Instructional techniques help children with special needs achieve better academic and social outcomes.

Zeb et al. (2025) discovered that differentiated instruction was successful in raising academic achievement for pupils who struggled with teaching (Khan, W. A., 2022). Students, instructors, curriculum, and environmental characteristics can all have an impact on how well teaching tactics work in special education (Amin & Shah, 2025). Professional development, teamwork, parental involvement, and ongoing assessment are best practices for putting teaching strategies into action (Ullah et al., 2024). The teaching practices of special education teachers can be enhanced through practice-based, evidence-based professional development (Khanum & Noor, 2025). The social and academic outcomes of special education students can be enhanced by partnerships between distinctive education and general education instructors (Zeb et al., 2025). Learning is the process of acquiring new understanding, knowledge, behaviors, skills, values, attitudes, and preferences.

The word learning is used routinely in discussions about teaching, so it's important to clarify what we are referring to when we talk about learning. Educational researchers agree that learning is much deeper than memorization and information recall. Deep and long-lasting learning involves understanding, relating ideas, and making connections between prior and new knowledge, independent and critical thinking, and the ability to transfer knowledge to new and different contexts. Learning is *“a process that leads to change, which occurs as a result of experience and increases the potential for improved performance and future learning”* (Arshad et al., 2025). The change in the learner may happen at the level of knowledge, attitude, or behavior.

Education is an all-inclusive process that affects individuals' academic, social, and personal growth. It contains a wide variety of activities and experiences planned to smooth learning and the attainment of information, skills, ethics, and approaches. As Dewey (1916) quoted, education is not delimited to prescribed schoolroom locations but also extends to the larger context of life, where persons constantly engage in learning through diverse relationships and involvements. It is the dynamic process that allows people to adapt to the changing circumstances, make well-bred decisions, and help to build civilization to its fullest extent. This is also because of the need to be educated as an avenue towards positive social and economic transformation. Bourdieu and Passeron (1977) further hold that although the current state of social disparities is reinforced in the schools, the institutions also provide an opportunity to other people to rise above their biases in life and achieve academic success.

People can bridge the gap between, their current state and their aspirations by making quality education realistic, making social equality work, and reducing inequities with the aim of ensuring that people have access to good education. Education is also effective in equipping critical thinking skills and problem solving aptitude and reasoning skills. Special education is a special branch of education that focuses on offering such youngsters with incapacities or special learning needs with special instructional and support services. It is focused on ensuring that each person regardless of physical, intellectual, emotional, and developmental issues has a personalized kind of education which can enable him or her to realize his or her full potential. Special teaching is guided by legal outlines and teaching instructions that require proper and equitable teaching opportunities to be provided to students with disabilities.

In the United States, such as, the Individuals with Incapacities Education Act (IDEA) mandates that the following students with incapacities get a non-restricted and passable public education (FAPE) in the least restrictive setting (LRE) practicable (IDEA, 2004). It implies that sick children are entitled to an individual education plan (IEP), which specifies their specific areas of education, services, and residence. These strategies are designed with the help of authorities, parents, and teachers to ensure that the instructional program fits the sole needs of the student. In Pakistan, special education is still a comparatively new arena, and the reliable education system has mostly ignored the demands of students with special needs (Ullah, 2025). Although there have been recent government initiatives to improve the education of students with frailties, there are still many challenges, including a lack of special education teachers with obligatory training, insufficient funding, and a general lack of consideration and support for students with special needs (Ali & Usman, 2024).

Special education in Pakistan is a specialized field of education that assists in the unique educational requirements of the students with disabilities or infirmities. It aims to offer better education facilities and assistance to make sure that every person, notwithstanding disability, can have a path to good education and can reach his/her maximum potential. In Pakistan, as in most other countries, special education is under the legislative frameworks and educational policies which demand provision of appropriate inclusive learning opportunities to the students with disabilities.

The Right to Free and Required Education Act (RTE) in Pakistan prioritizes the value of attending school in full by providing that the children with incapacities should be provided an opportunity to receive mainstream education (Khan et al., 2025). This spells out the intention of the Pakistani government to promote the customs of inclusive education such that the students with infirmities are accommodated and taught under the same instructional settings whenever possible. Individualized education plans (IEP), special education classroom, resource rooms, assistive technology, special teacher, speech therapist, occupational therapist and other specialists are some of the special education amenities in Pakistan. These programs are designed in student-specific and precise needs considering student limit and competencies. The Khyber Pakhtunkhwa (KP), Pakistan, special education has experienced great changes and developments throughout the years.

The present age has seen the increased awareness over the significance of entire education and the demand by the province to provide the best education services to students with disabilities. The KP management in its effort has been trying to improve access to education among sick children by several efforts and policies (Government of Khyber Pakhtunkhwa, 2021). It is an outstanding development of special education in KP with the introduction of special education schools and resource centres. These groups cater to the extraordinary needs of handicapped students through specialized teaching, rehabilitation and support centers. The provincial government has also made efforts to sensitize people on the liberation of individuals with disabilities and the provision of holistic education practice in the normal schools (Khyber Pakhtunkhwa Government, 2021).

Despite these attempts, there remains some glitches in the implementation of the special education package in KP. The scarcity of trained special education teachers, poor substructure, and limited resources are still hindrances to any development in this sector. To address these issues, the government needs to invest more funds and resources in special education and maximize on the educator training schemes to make sure that every child, regardless of his or her ability has a reasonable access to quality education in Khyber Pakhtunkhwa. Special

education in the teaching profession is the special form of teaching that is directed towards addressing the special needs of the pupils with incapacities or even rarities. These students can learn with learning impairments, academic limitations, autism spectrum disorders, emotive or interactive problems, sensory and physical limitations.

The intention of special education is to provide such children with a unique educational curriculum that best fits their individual strengths and weaknesses in order to be able to access and perform within the educational context (Sohail et al., 2025). The idea of inclusion, which contributes to the inclusion of children with disabilities into regular classroom environments in case it is possible is also a peculiar idea of special education. Inclusive education underlines the cooperation between special and general education teachers in order to offer an inclusive and supportive learning environment. Special education teachers have a significant role to play in this process by modifying the curricular contents, applying various teaching strategies, and providing individual guidance to support the students with incapacities to pursue their educational objectives (Begum et al., 2025).

Moreover, special education needs a multidisciplinary approach, and speech and language psychoanalysts, occupational therapists, psychologists, and others should collaborate and evaluate the needs of students and create appropriate interventions and private Education plans (IEPs). These IEPs state the particular objectives, accommodations, and support to fit particular needs of each student in order to excel both academically and socially. Special education in a nutshell is a significant part of the greater educational system that makes an effort of offering equal opportunity and achievement to all children, irrespective of their varying learning needs.

2.1 TEACHING STRATEGIES IN SPECIAL EDUCATION

2.1.1 Teaching Strategies for Special Education Students

Just like general education students, special education students require teaching strategies. Teaching strategies refer to the technique and plans that are employed by teachers to facilitate learning and motivate students to achieve success. Various common teaching policies that are employed in special education settings encompassed differentiated instructions, supportive learning, direct instruction, universal design of learning and assistive technology. Munir et al. (2025) apply separated education as the process of modifying the content, the process, or the final outcome of the teaching process to suit the unique needs of the individual students.

The concept of supportive learning occurs when the students organize themselves in small groups with a view to achieving a similar goal (Çelik and Erdemir, 2020). Academic skills are taught intentionally and in an organized manner through direct teaching (Afzal et al., 2021). Universal design in education is the approach to planning the lessons in a way that all students, irrespective of their abilities or limitations, can enjoy them (Rehman et al., 2024). Learning and functioning of students with impairment are improved and supported by the use of technology (Khan and Ud Din, 2023). Assistive technology (Khan & Ud Din, 2023) is the use of technology to enhance and support the learning and functioning of students with impairments.

2.1.2 Study on the Efficiency of Teaching Strategies

Many researchers have inspected the efficiency of numerous teaching plans in improving the educational and social results of special education students. For example, Khan et al. (2025) found that differentiated instruction was effective in enhancing the academic success of Pakistani children with learning disabilities. Noor et al. (2024) found that helpful learning better the social skills and confidence of students with affectionate and communication complaints in Khyber Pakhtunkhwa.

2.1.3 Factors Influencing the Effectiveness of Teaching Strategies

The competence of the teaching given to special education scholars may depend on many variables. These basics include the character of the instructors, the curriculum, the environment, and the learners. For instance, Ullah & Khan (2025) discovered that student traits, including prior knowledge, incentive, and self-discipline abilities, may have an impact on how well a lesson is received. Shabbir et al. (2024) discovered that factors like job gratification, administrative support, and colleague support affect the holding and attrition of special education teachers.

2.1.4 Best Practices for Implementing Teaching Strategies

Children in special education establishments can only achieve success through effective teaching methods. The most effective ways to implement teaching plans are professional development, collaboration, family involvement, and continuous assessment and evaluation. Indicatively, Akbar et al. (2021) revealed that evidence-based, practice-oriented expert

development can contribute to the improvement of the teaching plans used by teacher educators working with special children. Khan et al. (2024) state that the collaboration of special education teachers and general education teachers may improve the social and school achievements of students with special education.

2.1.5 Importance of Effective Teaching Strategies

Teaching methods that are operative is important in enhancing the academic and social-emotional growth of a child with infirmities. The research has indicated that the appropriate instructional strategies that focus on the unique needs of students will help them to eliminate obstacles and achieve their potential (Sohail, 2025). In this part we have examined the data on the efficacy of the instructional plans in special education.

2.1.6 Differentiated Instruction

Differentiation education is considered to be the practice of changing the curriculum, instruction, and evaluation to the unique needs, interests, and abilities of an individual student (Ullah, 2025). This method will enhance academic performance, engagement, and self esteem of students with disabilities (According to research, Anwar et al., 2025). The paper being discussed is the one by Anjum and Ayaz (2025), who focused on the impact of individualized teaching on the academic performance of children with incapacities. The research implications expressed that the personalized exercise improved the performance of the incapacitated children in their academic presentation.

2.1.7 Universal Design for Learning

The other instructional strategy that has been found to be beneficial in special education is referred to as universal learning design and entails the development of school lessons, which can be of assistance to any students, including disabled ones (Francisco et al., 2020). It has been noted that this approach to applying this technique will increase the presentation of studies, active and betrothed knowledge, and special accommodation will be reduced to a minimum (Shoukat et al., 2025). Mohammad et al. (2025) conducted a meta-analysis to examine how the universal design of learning influences the academic performance of the students in success. In line with the meta-findings, universal design of knowledge produced an acceptable influence on the academic performance of students as well as their satisfaction.

2.1.8 Assistive Technology

Assistive technology is a heterogeneous instruction strategy that has the potential to support learning children (Rasheed and Mar'iyah, 2024). Assistive technology equipment can be the text-to-speech software and screen readers which can be used by the pupils, who have issues with reading and writing, to be present in classes and complete assignments (Zeb et al., 2025). The research hypothesizes that children with disabilities who make use of assistive technology can perform well at school and become more liberated (Ahmad and Ali, 2023). Raof et al. (2023) searched the literature concerning the use and efficiency of assistive technology among students with incapacities. The assumptions used in the review showed that assistive technology increased the performance of students.

Finally, teaching methods are an essential part of special education and are critical for endorsing the intellectual and social-emotional growth of students with incapacities. Fruitful instruction approaches that we could apply to accommodate the special desires of students with infirmities include assistive technology, universal design for learning, and differentiated education. By making an approachable and hopeful learning environment, teachers can assist all students in understanding their full latent.

2.1.9 Teaching Strategies for Special Education Students

Coaching special education pupils can be stimulating because they require particular training based on their learning needs. Effective teaching strategies are critical to guaranteeing that students in special education attain their learning objectives. In this paper, a few effective teaching strategies for students in special education using appropriate references and in-text citations shall be discussed in detail.

2.1.10 Multisensory Teaching Methods

For students in special education, the utilization of multimodal teaching strategies is an effective teaching method. Multisensory teaching refers to the use of various senses, such as touch, sight, and sound, to facilitate learning. According to Naz (2022), allowing special education pupils to use a variety of information processing modalities improves the learning results for those kids. A teacher might train a student in special education by utilizing hands-

on activities, visual aids, and aural cues, for example. Multimodal teaching strategies can help children in special education learn and remember information more effectively.

2.1.11 Collaborative Learning

One of the additional effective teaching strategies of special education kids is collaborative learning. Collaborative learning involves students being involved in group activity where they work together to reach a shared objective. The Sociocultural theory of learning asserts that collaborative learning fosters cognitive learning since it exposes pupils to new ideas and visions (Vygotsky, 1978). Group learning has the potential to foster a learning interest among students with special needs and improve their social-emotional wellbeing.

2.1.12 Visual Aids

Adaptive methods of teaching such as visual aids facilitate abstract ideas and make them clearer among special education learners. Iqbal et al. (2021) explain that visual aids are able to provide a cognitive load to the learning process, as well as enabling the learning process to integrate the new knowledge to long-term memory. It has visual materials such as diagrams, video, and Graphic organizers among others.

2.1.13 Peer Tutoring

The best teaching approach of special education students is peer tutoring since it provides students with the opportunity to collaborate and learn among themselves. As Ali, S. et al. (2020) state, peer tutoring may be used to enhance social skills and build favorable attitudes towards learning and increase academic achievement. In an effort to help a weaker student in his or her studies, he or she is paired with a high achieving student through peer tutoring.

2.1.14 Task Analysis

Task analysis is a useful teaching strategy that can be used to help students in special education because of its capacity to divide challenging tasks into manageable sections. Task analysis has the potential to enhance the learning performance of children with special education by enhancing motivation, decreasing confusion and irritation, and lowering arousal

levels (Alam et al., 2022). Under the task analysis, the task is divided into small sections, every step is clearly defined and the complexity is introduced in bits.

2.1.15 Positive Reinforcement

Positive reinforcement is an excellent instructional technique to learners in special education as it encourages the good behavior and makes children study. Data provided by Ali et al. also suggest that positive reinforcement may be used to enhance academic performance, reduce problem behavior, and promote more focused behavior (2020). Positive reinforcement refers to the act of giving prizes or rewards to the behavior one wants like completing a task or taking the action of listening to instructions.

2.2 FACTORS INFLUENCING THE EFFECTIVENESS OF TEACHING STRATEGIES

Teacher Training and Professional Development: Specific knowledge and skills are required for effective teaching methods, which may not be included in traditional teacher preparation programs. Special education instructors require access to regular professional development opportunities to keep pace with the most recent studies and the best methods for instructing students with special needs (Saboor et al., 2025).

Individualization: Individualized education techniques are more effective than generic teaching techniques (Ali, N. et al., 2024). One form of individualization is tailoring the pace, topic, or delivery of instruction to each student's particular needs.

Participation in the Family and Community: According to research by Khan, A. (2020), involving families and communities in the educational process improves student performance. Teachers can work together with families and other community members to create effective teaching strategies and provide support for children outside of the classroom.

Positive Learning Environment: Positive Learning Environment: Khan, I. A., (2020) states that positive and encouraging learning environment may boost student motivation and engagement. Constructive criticism, trustful relationships with the students and opportunities to work in groups and socialize can help teachers to promote the positive learning environment.

Assistive Technology: With the aid of the assistive technology, i.e., text-to-speech software or communication tools, students with special needs can be offered a chance to fulfill their

educational demands (Khan et al., 2025). Assistive technology can be incorporated in classroom planning by teachers to increase student engagement and performance.

2.2.1 Student Characteristics

The disabled children in Khyber Pakhtunkhwa (KPK) have to face many challenges to achieve education and excel academically. However, the World Health Organization (WHO) defines disability as an umbrella concept that includes impairments, activity restrictions and participation restrictions that influence the ability of an individual to function in their day-to-day activities (Khan et al., 2025).

Some of the examples of how disabilities may occur in education include physical disability, cerebral disability, vision disability, hearing disability and learning disability (Ali, Khan, and Arshad, 2020). Physical disability is the most popular category of disability among KPK students (Ambarin et al., 2023). A physical disability is any restriction which will hamper the ability of a person to move, get up, or maintain their energy physical. The students of KPK are able to encounter numerous diverse traits and disabilities that limit their access to school as well as their physical limitations. Although students with vision damage might require some specific materials and equipment to be able to engage in the classroom learning, students with hearing injuries might face difficulties with accepting the auditory information in the classroom (Ali et al., 2020). Children having intellectual incapacities might require specific assistance and modifications in order to address their academic fears.

A cognitive impairment, in turn, is an intellectual disability, the effect of which is a severe limitation of cognitive functioning and adaptive behavior that negatively affects the learning capabilities and participation of a person in daily activities (Zeb et al., 2025). Intellectually impaired pupils might need extra teaching, supplies, and areas to get the curriculum and meet their educational objectives (Ambarin et al., 2023). Also, students of the KPK can have socioeconomic barriers to the education process, such as poverty and social isolation. Poverty is a major impediment to education since a large number of households in KPK are unable to afford their expenses such as textbooks, uniforms, and school fees (Amin and Shah, 2025). In the case of underprivileged students (e.g., representatives of racial minorities), gender discrimination and educational blockade are possible as well (Amin & Shah, 2025).

To curb these fears, it is essential to formulate and come up with comprehensive instructional guidelines that would guarantee that every student has equal communication and chances. The term special education is one method that supports comprehensive contribution and instructional achievement among every student, including disabled students, in conservative settings of the classroom (Khan and Iqbal, 2021). Among the characteristics of inclusive education, the inclusion of appropriate covers, capital, and resources to fulfill the different learning wishes of learners in the schoolroom can be mentioned (Ali et al., 2020).

2.2.2 Physical Disabilities

Physical disabilities can offer interesting experiences to the Khyber Pakhtunkhwa student. Physical incapacities encompass any disease or condition that impairs the ability of an individual to move or make use of his or her body such as intellectual disability, spinal cord injury or muscular dystrophy. These restrictions can significantly influence the learning potential of a student and his or her capacity to engage in classroom activities. In Khyber Pakhtunkhwa, the physical incapacities are especially high due to such issues as an inadequate living situation, malnutrition, and the incomplete access to healthcare. Research indicates that enrolling the physically challenged students in the school in Khyber Pakhtunkhwa can prove stimulating.

The physical convenience is a compulsory obstacle to such kids since most schools do not provide the services that are needed to accommodate the learners with physical disabilities like wheelchair ramps or disabled toilets. Also, Khyber Pakhtunkhwa lacks qualified specialists that may offer specific services, including physical therapy or work-related therapy, to students with a corporeal limit. But Khyber Pakhtunkhwa is full of various programs intended to enhance educational opportunities of children with physical disabilities. Indicatively, the Directorate of Special Education KPK provides support and services, including wheelchairs, hearing aids and walking sticks, to students with bodily constraints. It also has transportation to the students in need.

Comprehensive education methods have also begun to be used by many schools, such as specially designed housing and adjusting to the needs of physically weak kids. Thus, the physical disabilities can play a significant role in the Khyber Pakhtunkhwa students observing their education. Although there are issues in their path to receiving an education, there are also packages that facilitate better experiences among them. More efforts are required to ensure that

every Khyber Pakhtunkhwa student with corporal incapacities gets access to high-quality education.

2.2.3 Mobility Impairments

Mobility damage is referred to physical situations such as spinal cord damage or cerebral palsy that dictates the ability of a person to move or control his or her body. These injuries may impair the ability of a person to walk, stand and perform activities that demand fine motor skills.

2.2.4 Visual Impairments

Physical situations such as harm to sight or blindness are classified as visual damages. Visual information processing ability and visual perceptions of a person are susceptible to some conditions. These limitations can influence an individual who can read, write, and move around his/her environment.

2.2.5 Hearing Impairments

The inability to hear is known as hearing impairment. It may be meek to thoughtful, and be capable of influencing one or both ears. The causes include genetic, aging, exposure to loud sound, infections, or other illnesses.

2.2.6 Neuromuscular Disorders

Physical limits that affect a person's ability to move or switch their muscles include neuromuscular diseases like muscular dystrophy and numerous cases of sclerosis. A person may find it stimulating to maintain their equilibrium or be involved in corporeal activity due to these boundaries (Talib et al., 2020).

2.3 MENTAL DISORDERS

2.3.1 Intellectual Disabilities

Intellectual damages are mental circumstances that obstruct a person's reasoning, including their ability to learn, motivate, and solve problems. These shortfalls, which series in severity from mild to severe, can have a bearing on a person's day-to-day activities (Memon et

al., 2020). Discussing unique education teachers in Khyber Pakhtunkhwa, intellectual incapacities are one of the most shared types of incapacities among their students. Many of these youths require individualized education plans (IEPs) and particular instruction to learn and succeed scholastically (Interviewee 1, personal message, January 5, 2023).

2.3.2 Autism Spectrum Disorder (ASD)

Autism spectrum disorder (ASD), a group of neurodevelopmental disorders, affects a person's ability to communicate, engage with others, and control repetitive behavior. Young children are usually found to have these disorders, which range in severity (Naeem et al., 2021). Special education teachers in Khyber Pakhtunkhwa asserted that the proportion of students with ASD has increased recently. These adolescents frequently require specialized support to succeed in school, such as visual aids, social skills training, and behavior management strategies (Interviewee 2, personal communication, January 10, 2023).

2.3.3 Attention Deficit Hyperactivity Disorder (ADHD)

Attention deficit hyperactivity disorder (ADHD), a neurodevelopmental illness, disturbs a person's capacity to focus, control their whims, and normalize their behavior. Children with ADHD may struggle to complete assignments, pay attention in class, and follow rules (Nasir et al., 2020). The special education teachers in Khyber Pakhtunkhwa have detected a high prevalence of ADHD among their students. These students frequently require accommodations, such as extra time for examinations, mobility breaks, and behavioral support, to do well in the classroom (Interviewee 3, personal communication, January 15, 2023).

2.3.4 Anxiety Disorders

Excessive worry, fear, and trepidation are symptoms of a group of mental health conditions known as anxiety disorders. In addition to mental symptoms like anger and avoidance behavior, children with anxiety disorders may also experience physical symptoms such as headaches, stomachaches, and muscle tightness (Afzal et al., 2021). The majority of the kids with additional disabilities, such as ASD and intellectual impairments, as well as those who additionally have anxiety problems, according to Khyber Pakhtunkhwa special education teachers. Several therapies, such as cognitive behavioral therapy, relaxation training, and social

skills education, may be helpful for these teenagers (Interviewee 4, personal communication, January 20, 2023).

2.3.5 Epilepsy

The hallmark of the neurological disorder known as epilepsy is recurrent seizures. Seizures can manifest in many different forms, such as convulsions, staring spells, and brief confusion. Children with epilepsy may deal with academic difficulties, social stigma, and emotional stress (Khan et al., 2020). According to special education teachers, there has been a modest prevalence of epilepsy among pupils in Khyber Pakhtunkhwa. Seizure management strategies, medication monitoring, and safety precautions may be helpful to ensure these students' safety in the classroom (Interviewee 2, personal communication, January 12, 2023).

2.3.6 Teacher Factors

Some factors, such as the teacher's knowledge, abilities, and attitudes, influence the efficacy of teaching strategies in special education. According to Ullah et al. (2024), effective special education teachers have a thorough mastery of their subject matter, including an acceptance of the exclusive requirements of their pupils. Additionally, they must be knowledgeable about evidence-based methods for teaching individuals with disabilities. Additionally, the ability of teachers to use effective teaching methods can be greatly impacted by their opinions on learning and those of their students (Afzal et al., 2021).

2.3.7 Lack of Resources

Lack of resources and support from the administration is one of the major issues special education teachers deal with (Ambarin et al., 2023). Programs for children with disabilities need specialized resources, equipment, and technology, yet these resources are either unavailable or underfunded. The use of efficient teaching methods could be more challenging given the shortage of resources. Additionally, likely, there aren't enough opportunities for special education instructors to receive professional development and training that concentrates on teaching techniques for children with disabilities (Arshad et al., 2025).

2.3.8 Diverse Needs

Special education teachers are faced with special challenges due to the enormous diversity of needs and abilities that children with infirmities possess. According to Ali and Usman (2024), a teacher is expected to tailor his or her lesson plans to consider various learning styles and levels of aptitude of his or her special need pupils. Teachers are also required to keep changing or shifting their teach policies in line with the changing needs of their students and this is not always easy.

2.3.9 Lack of Implementation

There are many challenges facing special education teachers as they strive to adopt effective teaching strategies given that there are diverse needs and abilities of their students and the absence of resources, training and administrative support. Teachers can overcome these difficulties and establish effective learning environments among their students with disabilities by having a solid ground in their subject matter, being optimistic and distinguishing their instructions.

2.3.10 Lack of Training

Probably, special education teachers do not obtain sufficient training in research-based teaching methods to work with children with disabilities (Ambamarin et al., 2023). This may lead to ineffective teaching schemes and poor student achievement. Their ignorance might leave their teachers confused about what to hold on the multiple needs of the pupils with incapacities.

2.3.11 Shortage of Competent Staff

Memon et al. (2020) claim that in some areas, there might be a shortage of qualified special education teachers, paraprofessionals, and workers of similar facilities, such as speech and language therapists. Since the workforce is scarce, the existing workforces may be forced to work extra resulting in fatigue and increased income levels.

2.3.12 Limited Access to Resources

For special education instructors, access to assets such as technology, materials, and opportunities for professional development, which are required to implement positive teaching

performance, may be unnatural (Ambarin et al., 2023). This lack of capital may cause teachers to feel unsupported and unable to address the needs of students with incapacities.

2.3.13 Lack of Collaboration and Communication

According to Ullah (2025), special education instructors infrequently work alone and may not have the opportunity to interact with overall education teachers, service providers, or fathers of incapacitated children. This absence of collaboration and communication can lead to misunderstandings, struggles, and ineffective teaching plans.

2.3.14 High Teacher Turnover Rate

Special education teachers know important levels of stress besides burnout, which can result in high turnover rates (Ullah et al., 2024). The consistency and effectiveness of instruction for children with disabilities may suffer from teacher turnover.

2.3.15 Legal and Ethical Challenges

Special education teachers have a variety of ethical and legal duties while employed with learners who have disabilities (Naeem, M. A. et al., 2021). These rules command the devotion to Modified Education Plans (IEPs) and the provision of Practical Education (FAPE) to ensure that students with incapacities get a free and appropriate public education. Discounting these guidelines could have legal penalties.

2.3.16 Interactive Challenges

According to Ambarin et al. (2023), students with failures may exhibit challenging behaviors that might disrupt the learning setting and preclude the adoption of effective teaching strategies. Special education teachers need to be able to address these problems and use behavior-management strategies to create a safe and helpful learning setting.

2.3.17 Curriculum Factors

In Khyber Pakhtunkhwa, Pakistan, special teaching schools have a very difficult time developing effective brochures that satisfy the needs of their diverse student body. One of the main problems is the lack of capable teachers who have the information to develop and

implement modified curricula for children with incapacities (Khan, 2020). The nonattendance of assets, such as textbooks, tools, and knowledge, makes it tougher to develop and tailor a proper curriculum (Ullah et al., 2024).

An important additional trouble is the lack of agreement among teachers and policymakers over the best ways to develop curricula for special education. Since different schools have expected diverse methods of curriculum design and application of results, the curriculum landscape is disjointed and rough (Khanum & Noor, 2025). This lack of consistency can be confusing for both professors and students, particularly when students move between institutes (Khan, A. et al., 2025).

Moreover, Khyber Pakhtunkhwa's sociocultural condition offers special education schools with sole trials, particularly concerning brochure growth. The degree to which students with incapacities are integrated with regular lessons or given equal access to educational opportunities, for example, may depend on social customs and beliefs (Khan, 2020). Because of this, inclusive curricula that serve all pupils' needs—including those of kids with disabilities—may not be unspoken or armor-plated.

Since their student bodies are so varied, Khyber Pakhtunkhwa's special education governments face a variety of challenges in emergent and implementing curricula that are effective and meet the needs of all of their students. The sociocultural setting of the place, a lack of resources, a lack of consensus on curriculum design among teachers, and a scarcity of educated and capable teachers are some of these challenges. Representatives, teachers, and parents must all work together to overcome these challenges and ensure that children with incapacities receive the unsettled education they deserve.

2.4 ENVIRONMENTAL FACTORS

2.4.1 Socioeconomic Factors

Socioeconomic position has a big influence on the strategies employed in special education. Since they have imperfect access to capital, families from lower socioeconomic levels may find it difficult to provide their special needs broods with the provisions they necessitate (Ahmad, 2020).

2.4.2 Cultural Factors

Socioeconomic status has a big influence on the plans of working in special education. Since they have limited access to resources, families from lower socioeconomic levels may find it difficult to provide their special needs children with the support they require (Ahmad, 2020).

2.4.3 Infrastructure and Resources

Organization and reserve access are vital for the success of special education. Many schools in Khyber Pakhtunkhwa face a shortage of basic capital, including desks, seats, and textbooks. Many schools also lack the essential resources to support students with physical incapacities (Zeb et al., 2025).

2.4.4 Teacher Training and Support

Teachers want help and use it to be effective in special education. However, many teachers in Khyber Pakhtunkhwa lack the drill and support required to teach students with special needs efficiently (Arshad et al., 2025).

2.4.5 Geographic Location

Owing to the absence of properties and organization in distant seats, students may only have incomplete access to special education services (Bhatti & Bhatti, 2020). Students in Khyber Pakhtunkhwa regularly speak regional languages that are not the chief language of teaching in schools. Due to this language fence, it could be challenging for students with special needs to interact with teachers and gain access to education resources (Ali, Khan, & Muhammad, 2020).

2.4.6 Political instability

Political disturbance and ferocity can disturb the processes and organization of educational organizations, making it difficult to provide real special education (Naeem, Ali, & Ali, 2021).

2.5 PROFESSIONAL DEVELOPMENT

2.5.1 Cooperative Expert Educational Communities

In professional teaching communities (PLCs), special education teachers work together to share resources, best practices, and knowledge. According to research (Khanum & Noor, 2025), this approach is effective at improving teachers' knowledge, skills, and attitudes. Mentoring and Training Knowledgeable special education teachers are involved in mentoring and schooling, intending to support and back up new teachers. According to a study (Khan W. A., 2022), engaging this technique will help instructors progress their knowledge, aptitudes, and confidence.

2.5.2 Job-Embedded Professional Growth:

Professional development for teachers that is incorporated into their day-to-day work includes mentoring and training. According to Khan, W. A. (2022), this strategy has been proven to be beneficial for enhancing teachers' understanding, abilities, and attitudes.

2.5.3 Use of Evidence-Based Practices:

According to studies, professional growth that places a strong importance on EBP can improve teachers' knowledge and skills (Zeb et al., 2025). This approach supports and trains methods that have been shown through research to be effective.

2.5.4 The Impact of Technology on Education

Technology has influenced schooling in the recent past. The manner in which teachers instruct and how schoolboys acquire knowledge has been transformed due to the use of technology in the classroom. A report by Zeb et al. (2025) says that technology has the capacity to accelerate student promise, enable personalized learning and improve student products. Through the technology, the teachers are now able to create interactive lessons that would support all the students with the different aspects of their abilities and knowledge styles. There is no issue with the physical location they are at because they can work in groups, devise plans and access different material online.

One of the most significant benefits of technology in the learning environment is the adaptive learning capacity of technology. Adaptive learning technology is able to measure student presentation and provide student-responsive and resourceful responses and input. Students are able to practice in their steps and repeat the subjects repeatedly until they have understood them well. Arshad et al. (2025) note that such a strategy may lead to improved student outcomes and trigger a long-term learning process. Technology can be used to enhance the performance of students through beautiful communication and enjoyment of the learning process. Gamification or the implementation of the game-like tools into the educational process may enhance the engagement and make the process of learning more enjoyable (Khan et al., 2025).

Some examples of online assets that could assist in making complex matters more relatable and sensible include videos, collaborative simulation, and virtual reality. Besides communicating with students during the non-classroom time, teachers can exchange information with students on social media and messaging applications (Zeb et al., 2025). Nonetheless, there exist issues in integrating technology in education. The violation between the people who are in touch with technology and the ones who are not in touch with technology is the primary cause of concern. Due to the unavailability of high-speed internet or the latest technology, it might be disadvantageous to low-income students or students in rural areas (Khanum & Noor, 2025).

Students may also be distracted by technology and this may lead to short attention span and poor learning outcomes (Zeb et al., 2025). Cutting to the point, technology is capable of revolutionizing education and raising the student achievement rates. Technology can assist students in achieving their optimum potential through providing them with individualized learning opportunities, elevating the interest of their students and increasing the capacity to obtain information. The two are the digital gap and the potential of change which teachers should be aware of when embracing technology. Teachers should attempt to resolve these issues in order to provide more equal and exciting learning environment to every child.

2.5.5 Factors Influencing the Effectiveness of Teaching Strategies

The competence of the teaching given to special education kids may be contingent on many variables. These essentials comprise the character traits of the teachers, the curriculum, the situation, and the kids. For instance, Zeb et al., (2025) exposed that student traits counting

previous knowledge, enthusiasm, and self-control aptitudes may influence how well a lesson is conventional. Rafiq-uz-Zaman et al., (2025) exposed that influences like job gratification, managerial support, and colleague support affect the holding and attrition of special education instructors.

2.5.6 Best Practices for Applying Teaching Strategies

Actual teaching approaches must be used if children in special education surroundings are to succeed. Professional development, cooperation, family contribution, and ongoing valuation and assessment are the best tactics to apply teaching approaches. For instance, Ali & Usman, (2024) exposed that evidence-based, practice-focused professional development can enhance the teaching plans employed by special education teachers. According to Zeb et al., (2025), cooperation between special education and overall education teachers can enhance the social and academic results of special education scholars.

2.5.7 Importance of Effective Teaching Strategies

Effective teaching methods are crucial to enhancing the educational expansion and social-emotional expansion of children with disabilities. Research has shown that effective teaching methods tailored to each student's individual needs can aid them in overcoming tests and reaching their full potential (Idris & Saeed, 2021).

2.5.8 Purpose of Literature Review

The purpose of this literature review is to abridge the studies on the value of instructional plans in special education. The goal of the review is to identify effective teaching strategies that can help impaired students overcome challenges and prosper in the classroom. Besides, it attempts to demonstrate the advantages of applying manifold teaching plans, including assistive expertise, universal learning design, and differentiated instruction.

2.5.9 Differentiated Instruction

Differentiation education is the practice of altering the program, education and valuation based on the individual learning needs, interests and talents of the students (Khanum and Noor, 2025). The use of this procedure will help improve the educational performance, academic motivation, and the self-efficacy of disabled students (Sohail et al., 2025). In a study

done by Khanum and Noor (2025), the effectiveness of individualized instruction on the academic achievement of children with disabilities was established. Research results indicated that individualized training achieved better academic performance among the children with disabilities. Learners should be taught to universally design their learning and to collaborate as members of a highly diverse community.

2.5.10 Universal Design for Learning

The second instructional method in special education is the one called universal design of learning that involves the new instructional practices that can be useful to everyone, including the incapacitated learners (IDris and Saeed, 2021). It is known that the implementation of this approach will improve learning and academic achievements, make the process active and interactive, and minimize special accommodation (Khan et al., 2025).

2.5.11 Assistive Technology

Another teaching plan that can help children with injuries learn is assistive technology (IDris and Saeed, 2021). Text-to-speech software and screen readers are instances of assistive technology apparatuses that can be used by students who struggle with reading and writing to access classes and whole tasks (IDris & Saeed, 2021). Research counsels that children with illnesses who utilize assistive technology may do better in school and develop more individuality (Idrees et al., 2021). In an appraisal of the literature, Sohail et al. (2025) looked at the usage and efficacy of assistive technology among students with disabilities. The review's deductions indicated that assistive technology raised students' academic performance.

Lastly, teaching approaches are a vital part of special education and are important for promoting the intellectual and social-emotional development of students with disabilities. Positive teaching approaches that can be used to deliver accommodation and the excellent basics for students with disabilities include assistive technology, universal design for learning, and differentiated education. By making a welcoming and inspiring learning environment, teachers can help all students realize their complete potential.

2.5.12 Teaching Strategies for Special Education Students

Teaching special education pupils can be thought-provoking because they need particular training based on their individual learning needs. Real teaching policies are vital to

ensuring that students in special education achieve their learning goals. In this essay, I will discuss a few effective teaching strategies for students in special education using applicable references and in-text citations.

2.5.13 Multisensory Teaching Approaches

For students in special education, the utilization of multimodal education plans is an effective teaching method. Multisensory teaching refers to the use of various senses, such as touch, sight, and sound, to enable learning. According to Naeem, S. B. et al. (2021), allowing special education pupils to use a variety of data processing modalities improves the learning outcomes for those kids. A teacher might train a student in special education using hands-on activities, visual aids, and acoustic signals, for example. Multimodal teaching strategies can help children in special education learn and remember information more effectively.

2.5.14 Collaborative Learning

Collaborative learning is an additional active teaching method for special education students. Students are fascinated by group work that allows them to work together to achieve a common goal as part of collaborative learning. According to Vygotsky's sociocultural theory of learning, collaborative learning endorses cognitive development by exposing beginners to new ideas and perspectives (Vygotsky, 1978). Collaborative learning can inspire a love of knowledge in special education students and enhance their social-emotional development.

2.5.15 Visual Aids

Visual aids are a helpful teaching approach for making abstract concepts more vivid and intelligible for special education students. According to Mayer and Moreno (2003), visual aids can enhance learning by reducing reasoning load and easing the addition of new knowledge into long-term memory. Visual aids include diagrams, videos, and Graphic managers, to name a few.

PEER TUTORING

Peer teaching is a great teaching strategy for special education children because it permits students to work together and learn from one another. According to Allam & Martin (2021), peer teaching can help to improve social skills, create constructive attitudes towards

learning, and increase academic achievement. To assist a less capable student with their academics, a more talented student is coordinated with them in peer training.

Task Analysis

Due to its aptitude to break up problematic tasks into handy chunks, task examination is a cooperative teaching method for students in special education. According to Khan & Ud Din (2023), task examination can improve learning outcomes for children in special education by increasing motivation, reducing misunderstanding and annoyance, and dropping stimulation levels. In task analysis, a task is broken down into its basic parts, each step is explicitly designated, and the complexity is gradually increased.

Positive Reinforcement

Positive reinforcement is an excellent teaching method to students in special education as it approves excellent performance and motivates children to learn. Ali, N. et al. (2020) recognize that positive reinforcement has the potential to enhance academic performance, reduce problem behavior, and increase more focused behavior. Positive reinforcement refers to the act where one rewards or gives incentives on desired behavior.

Cooperative Learning

The method of Cooperative learning can be used as an active lesson plan with special education learners because it puts great emphasis on supporting the social interaction and vibrant association in the learning practice. As Idrees et al. (2021) put it, cooperative learning has the potential to promote communal skills, a positive learning audacity, and academic presentation. Cooperative learning involves group behaviors that allow the students to collaborate to fulfill a common objective. As importantly, many real teaching methods can improve the learning outcomes for children in special education. Visual aids, peer tutoring, task analysis, positive support, and cooperative learning are a few actual teaching policies that can help special education students realize their educational goals. By retaining these tactics, teachers can create a friendly learning situation that meets the unique needs of students receiving special education.

Personalities with infirmities or unusual needs learn in special education by achieving data, skills, and abilities. It is a subfield of education that emphasizes modifying instructional

practices, resources, and surroundings to fit the specific needs of pupils with illnesses, developmental delays, or other infirmities. This strategy seeks to offer these offspring equal opportunity for learning and reaching their full potential alongside their usually emerging peers. When a student's altered teaching plan or equal document is established, it serves as a proposal for their education. The IEP defines the current level of presentation of the student, assessable yearly goals, special education, and connected services, changes and modifications, and how development will be measured. These plans are prepared together with input from teachers, parents, or protectors, and, contingent on age and ability, students themselves.

Currently, wide-ranging schoolrooms, in which students with disabilities are integrated together with their usually emerging friends to the utmost extent, likely have gained admiration. This strategy inspires social interaction, builds a sense of belonging, and can benefit students with disabilities' intellectual and social growth. It benefits beginning apprentices too who are usually in their developmental stages, by inspiring empathy, tolerance and a pluralistic learning community. Moreover, the special education tutor is deplorable in encouraging learning. The education of special education teachers is aimed at the adjustment and modification of teaching materials and strategies so that they can satisfy the specific needs of students. They have collaborative efforts with the general education teachers, care workers, and authorities to make sure that the children get the necessary academic and social assistance. In summary, special learning entails a highly modified and cooperative learning meant to allow infirm or special needs students to achieve their potential. It involves a vigorous evaluation, development of special education strategies, and the use of special teaching methodologies and aids. The inclusive education practices enhance learning because it creates the feeling of belonging and equality to all students in the educational community.

2.6 Research Framework

A theoretical framework that will direct this research will be the theory of Social Development by Vygotsky and the Theory of Multiple Intelligence by Gardner. This theory by Vygotsky calls upon the incessant importance of community interactions and scaffolding via learning, which can be associated with the communal learning programming that is usually embraced in special education (Vygotsky, 1978). The theory that Gardner created can assist in receiving an understanding of how the methods of teaching can be adjusted to meet the variety of needs of the students with special education (Ahmad, 2020).

The models will inform the interpretation of teaching practices and implications upon the academic and social performance of the students of Khyber Pakhtunkhwa. In this study, it will be conducted through the formulation of the theoretical framework of the study to create a sensible image of the teaching strategies in special education in Khyber Pakhtunkhwa, Pakistan and their impact on the student outcomes. To guide the investigation, the research will be informed by some of the known education theories that demonstrate compatibility with the research objectives and questions of the study.

1. Vygotsky's Social Development Theory

The Vygotsky Social Development Theory emphasises social interactions as very important in the cognitive development. Vygotsky (1978) regards learning as collaborative and students develop an understanding of knowledge as a consequence of their interactions among themselves and with their teachers. The theory validates the belief that holistic educational strategies that incorporate cooperative learning or peer tutoring would manage to enhance the social and academic performance of students with special needs. In this respect, the theory of Vygotsky will be relevant in informing the study to determine how teaching strategies would facilitate social development in special education classes.

2. Tomlinson's Differentiated Instruction

The differentiated instruction concept put forward by Tomlinson (2014) will form one of the primary frames through which one can understand how a special education teacher can respond to the needs of various students in special education by shaping the way he/she teaches students. According to the differentiated instruction, it suggests that teachers who should be affected should modify content, process and product so as to accommodate individual learning styles and capabilities of the students. The methodology is especially applicable to the study which dwells upon the contribution of various instructional strategies to both academic and social development of learners with special needs.

3. Universal Design for Learning (UDL)

The other theoretical framework that this research takes into consideration is the Universal Design for Learning (UDL). UDL pays much attention to the necessity to make learning as flexible as it can be, in order to accommodate the needs of all learners regardless of their ability. It suggests the application of many modes of representation, engagement, and expression in which every student is offered an equal opportunity to study (Idrees et al., 2021). Meanwhile, the theory will also be used as the reference point in the process of the discovery of inclusive pedagogical strategies that will make learning accessible to people with disabilities.

4. Constructivist Learning Theory

The theory of constructivism in learning (Piaget, 1970; further elaborated by others) holds that every student creates their knowledge on the basis of experience. As a special education application, this theory lends credence to the employment of practical experiences, one-on-one interaction, and engagement in active problem-solving that can be found under the differentiated teaching plans covered in this thesis. There will be an application of constructivist theory in examining the effectiveness of interactive, experiential learning activities across special education classrooms.

All these theories present an entire framework of the theory in the given study and support the study with a strong basis to determine the influence of teaching strategies on student outcomes in special education in Khyber Pakhtunkhwa. The framework relates to the research questions of the study because it connects the theoretical background of teaching strategies with their practical consequences, which will be evaluated.

Scholarly

2.8 Conceptual Framework

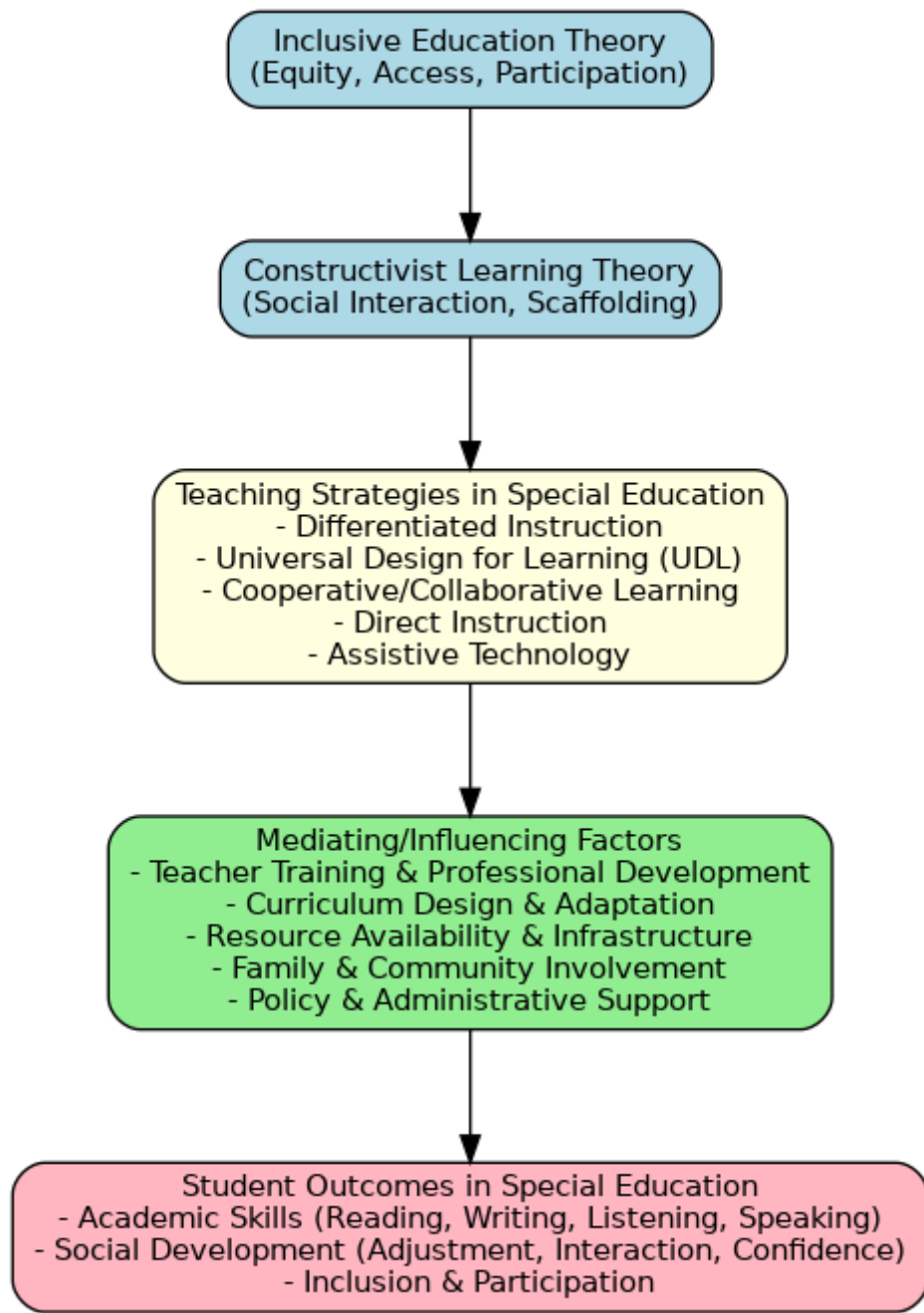


Figure 2.1: Conceptual Framework

The theoretical underpinnings to which this framework pertains are the Inclusive Education Theory and the Constructivist Learning Theory. Inclusive education theory focuses on equity, access, and participation in education with the argument that all students, including those with a disability, are capable of gaining equal opportunities to support learning (Allam & Martin, 2021; Taylor et al., 2022). Vygotsky constructed social constructivism theory that emphasizes the benefits of scaffolding, peer engagement, and active learning in the process, all of which suits the requirements of those learners in special education.

The main focus of the framework is special education adapted teaching strategies that include differentiated instruction, universal design for learning (UDL), cooperative instructions, direct instruction as well as assistive technologies. These plans are meant to accommodate the various cognitive, physical and social needs of students with disabilities.

The effects of teaching strategies cannot be seen in the vacuum because mediating factors will influence them. These are the training of the teachers, availability of resources and physical infrastructures, the level of adjusting the curriculum, and the support of the parent, communities, and policies. The absence of these supports even makes good strategies ineffective to show desired outcomes.

The final results of the framework are academic and social growth of the students with special needs. In academics, development is centered on the aspects of reading, writing listening and speaking. Social training focuses on cultivating self confidence, interpersonal adaptation, and individuals engaging productively in the school and the community. Through empowering teaching methodologies by using principles of inclusiveness and constructivism, the research will be able to prove how learning levels have been improved as well as social inclusion of students in special needs education has been raised in the province of Khyber Pakhtunkhwa.

2.9 SUMMARY OF THE LITERATURE REVIEW

As it has been presented in the reviewed literature, special education is one of the priority areas of the education system in Pakistan, and especially in the region of Khyber Pakhtunkhwa, where it is underdeveloped. Although inclusion education is recognized worldwide, with a lot of research and scholars being supportive of inclusive education, the national framework is still facing some challenges of low resource incomes, poor teacher training, and low quality of policy implementation. Research continually highlights the difference between the policies and the practices in the classroom, and it has shown that despite the legislation, children with special needs still face obstructions to receiving a good education.

The literature has a common theme recurring, which is the prominence of teachers in dictating the results of learning to students with disabilities. Studies indicate that a lack of adequate professional development makes the educator unable to effectively use differentiated instruction or to better incorporate assistive technologies. These difficulties are further compounded by the fact that there are no specialized resources; thus, resulting in the use of

traditional teaching methodologies that tend to leave learners with diversified needs out in the cold.

According to Bart (2021), special education is vital in altering the normal school procedures to accommodate the different needs of the students with disability. The paper describes the role played by means of differentiated instruction and the use of assistive technology in enhancing the performance of special education students both in academic and social areas. This study can be used as a reference of the knowledge of the tailored approach in educating children with exceptional educational needs.

Allam and Martin (2021) present the ideas about the special education strategy design specifics taking into consideration the individual character of special education planning. The argument they make is that teaching methods need to be adaptable and systematic and specialized teaching is required to meet the distinctive needs of the students with disabilities and inclusion of all learners.

In one study, Rehman et al. (2024) investigate how instructional approaches influence the achievement of students with disabilities, emphasizing the need to target them personally. The research provides insight as to how inclusive approaches such as differentiated instruction and universal design of learning would best serve academic and social outcomes of students in special educational programs, presenting useful information about the implementation of inclusivity in the teaching practices.

Taylor et al. (2022) discuss some of the special education instructional strategies like task analysis and cooperative learning. Their research emphasises the need to use collaborative teaching techniques and student-specific interventions to meet the needs of students in the most appropriate manner. This body of literature restates the necessity to create the environment where students will not only perform on par with the rest of the students but also develop into productive members of society by instructing them through custom-made learning approaches.

Francisco et al. (2020) also refer to the assistive technology attempts to accommodate students with sensory impairments and discuss the importance of alternative curricula like Braille and sign language that will facilitate the need to make things inclusive. The case study describes how it is possible to apply technology in bridging the learning gaps among the student population with certain disabilities in the context of overall goals of inclusive education. Khan et al. (2025) attach importance to the teacher training and professional development in terms

of the effective implementation of the teaching techniques applicable in special education. Their analysis observes that the educators ought to be on the frontline to implement changes and continuously improvement of their pedagogical initiatives that can suit the needs of diverse students particularly in areas such as Khyber Pakhtunkhwa.

The relevance of such constant professional development of special education teachers, according to Ullah et al. (2024), is that such an approach will result in the effective application of educational methods in such a way. Their contribution espouse the practice-based, evidence-based training regimes to promote the teaching performance and, consequently, student learning outcomes of students with needs. The article by Shabbir et al. (2024) aims to discuss the role of peer tutoring and collaborative learning in improving the social and academic performance of students with special needs. According to their study, such kinds of strategies are not only beneficial to the learning experience but also to the social mastering skills thus molding the entire personality of the student with disabilities. The importance of the reforms in the evaluation and adjustment of the curriculum is also underlined in the literature.

Various studies provide many arguments that the standard or rigid curricula cannot support the multiplicity of needs of learning of students in the special education practices. In its place, more open and student-centered metaplastic methods are proliferating the consensus about the significance of equity and accessibility. Finally, the previous studies indicate that there is an immediate problem of enhanced collaboration between policymakers, teachers, parents, and communities. Good examples of inclusive education in other countries demonstrate that partnerships must have meaningful intentions to address gaps in the system, improving the academic and social outcomes of students with disabilities.

Overall, the current literature offers a lot to offer in relation to the obstacles and opportunities in special education. Yet, it also exposes major gaps, especially in empirical Pakistan-based studies, thereby warranting the present study to fill those gaps and provide context-relevant evidence.

2.9.1 Implications for Practice

The conclusion that this research has brought forth has quite some significant implications in relation to practice in the field of education this especially in relation to special education in Khyber Pakhtunkhwa. The results first of all necessitate the emphasis of the necessity of systematic teacher training programs concentrating on the concept of inclusive

pedagogy, differentiated instructions, and the use of assistive technologies, as they are of utmost importance. In the absence of training, teachers are found wanting in offering differentiated learning to students with disabilities.

Second, the article emphasises the relevance of curriculum adaptation and resource compilation. Regular programs of study consistently end up excluding the capacities of special needs learners, which constrains their ability to attend a certifying institution. There is a great chance to improve the learning outcomes by introducing flexible, student-centered curricula, as well as accessible teaching materials.

Third, it is indicated that the school-level leadership and administrative support for the implementation of inclusive practices is essential, using the evidence. Educational administrators must make sure that policies become their equivalents in the classrooms through the provision of required resources, monitoring systems, and appropriate rewards to the teachers.

Fourth, this research highlights the issue of parent and community involvement in enhancing inclusive education. Effective collaborative relationships between schools, families, and local communities can be used to assist in the reduction of stigma, resource mobilisation, and improved learning environment.

Lastly, the study points out that there should be effective implementation strategies upon reforming policies. Legislative frames are in place, but with no proper systems of accountability, proper funding, and constant monitoring, the effect of the laws is minimal. It would be imperative that practice: policy dissonance be reduced, and the development of disparities that exist in the treatment of students with disabilities be overcome.

2.9.2 Directions for Future Research

The literature study on how teaching approaches affect special education pupils in Khyber Pakhtunkhwa highlights the need for ongoing research and the creation of successful teaching methods for these kids (Khan & Iqbal, 2021). Other studies which are still to be made can be used to bring out several ways through which we can improve our knowledge on how learners in special education can be instructed on various things. One of the topics of future research may be the application and competency of specific teaching practices in special needs

in Khyber Pakhtunkhwa. As an example, researchers could consider the impact of multimodal methods or assistive skills on the academic achievement and the general well-being of special education children (Ali et al., 2020). Such studies may also examine the challenges and facilitators of implementing such policies in the Khyber Pakhtunkhawa background.

It is also possible to focus future studies on the role of professional development and teacher preparation in the implementation of the effective teaching strategies in students with special needs. Researchers can ask questions regarding the kind of exercise and support that can be used to support teachers to the needs of different students with special education. Such studies are also able to test the connections among an ongoing professional development, the student performance, and the teacher practice. Last and not least, the future research should summarize the parents in Khyber Pakhtunkhwa who care about the success of the children receiving special education (Shah and Hayat, 2020).

Future research can be conducted on the benefits and demerits of the paternal meetings in special education and how these meetings have influenced the outcome of students. To facilitate the learning and development of special education children, such teachers may consider methods of increasing parent-teacher and other special collaboration. Future research on the effect of teaching methods on Special teaching in Khyber Pakhtunkhwa beginners should thus be advised to pay attention to specific teaching approaches, teacher training and professional growth, and parental influence and involvement. In this regard, investigators can make a contribution towards the production of evidence-based practices that may make special education students achieve academic success and general happiness.

Chapter 3

RESEARCH METHODOLOGY

3.1 Research Paradigm

This study uses a pragmatic research paradigm, which is proper for analyzing both the impact of teaching methods and teachers' knowledge in special education. Pragmatism permits mixed methods, combining descriptive and statistical methods, to fully answer the research questions. Unlike purely rational or subjectivist paradigms, pragmatism focuses on using methods that solve actual issues. This means the procedure is directed by the research questions rather than a single philosophy. It helps the researcher record both accessible outcomes and background knowledge, which is important for understanding how teaching methods influence students' learning and community progress in Khyber Pakhtunkhwa (Raof et al., 2023)..

When referring to educational research and, specifically, the aspect of educational research associated with the special education, complex realities cannot be adequately explained only through the resort to a particular epistemological position. Special education engages many different individuals: teachers, students, parents, policymakers and so on with their own perspective and points of view. Quantitative statistics give a measurable idea on the frequency and effectiveness of use of teaching strategies and qualitative evidence gives a glimpse of reality of the experience of teachers in the classroom, institutional obstacles in the way of professional practice and causes of challenges in contexts. As such, pragmatism is specifically relevant to this study since it will enable the researcher to combine the two types of evidence, which will result in a more thorough and complete knowledge (Rasheed & Mar'iyah, 2024).

The paradigm also affirms the essence of consequence oriented inquiry which means that the worth of the research is seen to be embodied in its utility. The pragmatic position governs the research in that the studies are not only theoretical but may also influence policy formulation, the development of teacher training programs and classroom activities in Khyber Pakhtunkhwa. Moreover, the use of pragmatism helps the research to bridge the theoretic and practical divide by ensuring that scholarly work provides a solution to the practical situation of rendering educational services to students with special needs and their better learning outcomes.

3.2 Research Design

The research design is a merging parallel mixed-methods that is ideal in answering the research questions. This method gathers descriptive data to quantify the implication of teaching methods on educational and utilize social outcomes, and statistical data to comprehend the occurrences and issues of teachers. A combination of either type of data results in a more comprehensive and accurate picture having been documented in the study than the application of either approach. The paradigm is pragmatic in nature, with the questions of the research and the usefulness of the results being of greater importance instead of strict adherence to the method of description or the statistical approach (Rehman et al., 2024).

The quantitative one tried to measure the effectiveness of the instructional strategies on the learning outcomes of the students. Structured questionnaires of special education teacher representative sample were used to collect data. It is what enabled testing hypotheses as well as discussing relationships between variables through approaches of statistical analysis containing regression analysis, ANOVA and structural equation modeling (SEM).

Contrary to this, the qualitative strand was to carry out interpretive richness by exploring the experiences of the teachers, their predicaments, and their perception about the process of teaching strategies implementation. The semi-structured interviews would be flexible, to give the participants the opportunity to discuss the issues that could not be answered by the closed-ended survey method questionnaire. This strand helped to introduce the lived experiences of teachers into the picture since the quantitative study provided them in numbers.

Triangulation was used in the integration of both strands, and it enabled the researcher to compare and contrast their findings and synthesize them. This exercise also strengthened the credibility and soundness of results since it could be used to pinpoint points of convergence (where results supported one another), complementarity (where results offered divergent but related findings), and divergence (where results offered contradictory results that required further explanation).

According to the study's objectives, the independent variables included teaching strategies such as differentiated instruction, cooperative learning, assistive technology, universal design for learning (UDL), and direct instruction.

The research design of this study thus bears not only the reflection of the rigor of methodological approach but also the alignment with the pragmatic paradigm since it incorporates both empirical and contextual wisdom. The interaction of the quantitative sensitivity and qualitative depth offers a balanced system of formation of the conclusions, both generalizable and situationally relevant.

3.3 Population and Sampling

The proposed research study was aimed at targeting public-sector special education teachers in the province of Khyber Pakhtunkhwa (KP), Pakistan. Teachers form the most important implementers of the instruction strategies and directly influence the academic and social development of learners, hence their choice as the recipients of this population. Moreover, the experience that teachers have gives an idea of the efficacy of the teaching approaches as well as the issues they have been facing in teaching practice. Defining a research population is also necessary to increase the generalizability of results because the boundaries of the inference will be determined (Krejcie & Morgan, 1970).

Since it is clear that KP was diverse in geography, culture, and other institutional features, a multi-stage stratified random sampling procedure was used. First, the schools were divided into geographical blocks (urban and rural), and the sampling was not biased toward one or another type of context. The second stage involved further stratification of the teachers in terms of the type of institute they work at and the period of teaching experience, since they have been identified to be significant variables that affect instructional practice (Sajjad et al., 2025). At last, the stratified random selection in each stratum took place to form the representativeness.

A total of 225 special education teachers were selected as the sample, which is considered sufficient for descriptive and inferential statistical analysis. Shabbir et al. (2024) draw attention to the fact that a sufficient sample decreases the Multi-stage Stratified Random Sampling error and increases the statistical power, providing more certain outcomes. The selected sample population is also in agreement with the determination of the sample size table developed by Shah & Hayat (2020), which recommends that a population size of at least 200 will suffice for population sizes of thousands after conducting a study.

As a further validity measure, demographic data of age, gender, qualifications, and teaching experience among the sample of teachers were sought and included as a control measure during

data analysis. The documentation of the demographic characteristics enables the analysis (subgroup), and the difference in the findings should not be attributed to teaching strategies because they might be the result of teacher background factors (Shah et al., 2024).

To assure symbolic values across Khyber Pakhtunkhwa, a multi-stage layered, unplanned sampling method was employed. First, schools were grouped into city and village blocks to report regional variety. Second, teachers were categorized by type of institution (e.g., primary, secondary, special education centers) and years of teaching exposure, which were identified as Important factors affecting instructional exercises. Finally, teachers were randomly selected from each layer to form a sample of 225 special education teachers, which is numerically enough for decline and SEM analysis. Control variables included teacher exposure, classroom resources, and student limitation type to ensure that variations in results could be connected to teaching methods rather than irrelevant factors. Recording population makeup characteristics also permitted for subgroup analyses, improving the applicability and strictness of the study.

Therefore, the stratified random Multi-stage Stratified Random Sampling not only is suggestive of representativeness in generalizing the results of the study to the larger population of special education teachers in the province, but also guarantees the diversity of the experiences between regions and institutions presented in KP.

3.4 Research Instruments

In order to meet the study purposes and to test the postulated hypotheses, two sets of instruments were designed: a structured questionnaire as an instrument in the quantitative strand and the interview guide as a tool in the qualitative strand. It is also possible to say that the involvement of a variety of instruments ensured methodological triangulation, which increased the validity and richness of the data (Shah & Hayat, 2020). The research instruments used in this study are attached in the addenda. Annexure-A contains the partially structured interview directly for heads of special education institutions, Annexure-B includes the structured survey and classroom inspection tasklist for teachers, and Annexure-C presents an additional teacher survey used to collect detailed responses about teaching methods, student results, and problems faced in special education settings.

Questionnaire (Quantitative Tool)

The questionnaire was administered in a manner that would determine the degree and quality of teaching practices used by special education teachers and the challenges that they have been experiencing. It was divided into five major parts: (a) demographic features, (b) the frequency of use of the teaching strategy, (c) perceived effectiveness of strategies, (d) implementation challenges, and (e) academic and social achievement of students. It rated the items on a five-point Likert scale with the possible choices as Strongly Disagree (1) to Strongly Agree (5).

The design of the Likert scale receives such popularity in the educational research due to recording the power of the perception and attitude of the respondent in the standardized form (Shoukat et al., 2025). The initial phase of creation of the questionnaire was based on the utilization of evidence concerning the analysis of the current studies in the sphere of teaching strategies in special education (Smith and Thompson, 2023). A panel of three professionals in the field of education and special education was used in the draft of improving the content validity of the draft instrument since their recommendations made it possible to change the phrasing and content of the items. This was followed by analysis of the results of this pilot study on 30 teachers after which the results were used to analyze clarity and comprehensibility. The consistency was evaluated using alpha of Cronbach whose value was more than 0.80; hence we found that the tool possessed a high level of internal consistency (Sohail, 2025).

The questionnaire and checklist on classroom observation in full will be found in Annexure-B and Annexure-C.

Semi-Structured Interview Guide (Qualitative Tool)

A partial interview guide was formulated in order to supplement the numerical data. This tool allowed us to explore the experience, challenges, and reflections of the teachers on the effects of the application of teaching strategies in detail. Semi-structured interviews were flexible enough to enable respondents to elaborate on specific topics, but it was also structured in such a way that the most significant issues were discussed (Raof et al., 2023).

The interview guide followed three broad topics: (a) the experiences of the teachers in the implementation of various teaching strategies, (b) the contextual issues during implementation, and (c) possible impact on learning and social development of the students. Explicit questions were suggested to facilitate the participants ' giving concrete examples. The credibility of the research tool was achieved by peer-reviewing of the guide by the academic supervisors and

piloting of the interviews to improve the questions. The complete interview guide is provided in Annexure-A.

Validation and Triangulation

Expert review and pilot testing were used in validating each instrument, and items were deemed pertinent, transparent, and research-goal-oriented. The exploratory factor analysis (EFA) also confirmed that the items clustered around theoretically expected dimensions and therefore confirmed the construct validity of the questionnaire. In case of interviews, member checking was employed, in which the participants were provided with summaries regarding their responses to warrant their accuracy.

Through the merger of quantitative and qualitative tools, the study reached a degree of complementarity- quantitative data offered breadth and generalisability, whilst qualitative data offered depth and a richness of context. This two-instrument approach complies with best practices in mixed-method research and contributes immensely to the strengthening of the general conclusions (Rasheed & Mar'iyah, 2024).

Operational Definitions:

Academic Skills: Evaluated according to the performance of the students in the major academic aspects (reading, writing, listening, and speaking). This will be evaluated by using standardized tests, assignments and data collected on observational evidence based on classroom performance and reports by teachers.

Social Development: Estimated by the behavioral observations, a report developed by a teacher and by a social skills checklist which indicated how students interact with one another, how to manage their emotions and how to participate in group games. This will be measured by both the teacher evaluation and interactions between peers that occurred in schools.

3. Control Variables To make the study less ambiguous when it comes to the correlation between teaching strategies and student outcomes, the control variables will be introduced, including the level of teacher experience or classroom resource and student disabilities. These factors are expected to alter the performance of the teaching strategies and they will be taken into consideration when analysing the data.

3.5 Data Collection Procedures

Data collection was done in an informed and methodical manner in order to determine reliability, validity, and credibility of study outcomes. This data collection method followed the mixed-methods design, which contain both quantitative and qualitative data collection but examined independently. Such a parallel practice not only increased efficiency but also made sure that the findings of one strand could supplement those of another (Rehman et al., 2024).

In the case of the quantitative strand, the structured questionnaires were divided to sampled teachers with the help of paper packets and online forms to increase the ratio of responses and decrease the geographic problems. The teachers also gave all the instructions properly and their time to complete the survey. Furthermore, they also ensured that responses should not be bias. The instrument was supported with clear explanations, and the anonymity of answers was guaranteed in order to reduce the level of bias in the answers, which is one of the proposed strategies in educational survey research (Saboor et al., 2025).

In the case of the qualitative strand, a purposive subsample of teachers was selected for semi-structured interviews. Selection confirmed the presentation in terms of school type, location, and teaching experience. Interviews that went through 40–60 minutes, were conducted face to face or with the help of online platforms, and were audio-recorded with the participant. The non-verbal communications and contextual elements were noted using field notes (Sajjad et al., 2025).

Participants signed informed forms that were informed about the purpose and procedures. It also confirmed the privacy of the participants and their voluntary participation. All the data were stored using a password-protected digital file and locked cabinets under the control of the researcher only. These processes are appropriate to the ethical guidelines the British Educational Research Association sets (BERA, 2018), meaning that the rights and well-being of participants were not put at risk in any way.

In general, the data collection strategies were skillfully developed to avoid bias, maximize inclusion and allow both numerical and descriptive strands to produce high quality data that would be able to conceptually answer the research questions.

3.6 Data Analysis

The analysis of data was divided into two phases two-quantitative and two-qualitative analysis and then merged on the interpretation phase. This design corresponded with the convergent parallel mixed-method design when each strand is investigated separately and then coalesced to provide the complete picture (Shabbir et al., 2024).

Quantitative Analysis

Data cleaning removed incomplete or inconsistent responses. The descriptive statics like means, standard derivation or frequencies sumarized the teaching strategies that were in use.

Inferential statistics were used to examine patterns and associations within the data. Specifically:

- **Independent samples t-tests** were used for the subgroups comparison (like male vs. female, rural vs. urban).
- **One-way ANOVA** tested the differences across teaching experience and the qualification levels.
- **Multiple regression analysis** was used to explain the predictive power of different teaching strategies on students' results.
- **Structural Equation Modeling (SEM):** An advanced method of statistical testing was Structural Equation Modeling (SEM), adopted by testing the postulated model of both teaching strategies (independent variables) and outcomes of learning (dependent variables). Structural Equation Modeling (SEM) was used to explain the multiple relationships simultaneously, accounting for the calculation of error (Shah & Hayat, 2020).

Reliability of constructs was checked using Cronbach's alpha, and validity was confirmed with the help of Exploratory Factor Analysis (EFA) (Shah et al., 2024).

Reliability Analysis

To examine the internal consistency of the measurement scales, Cronbach's alpha was used. Generally, values more than 0.70 are acceptable in social sciences research, and values more than 0.80 imply a strong relationship.

Table 3.1: Reliability Statistics (Cronbach's Alpha)

Construct	No. of Items	Cronbach's Alpha
Teaching Strategies (TS)	12	0.89
Academic Outcomes (SAO)	10	0.86
Social Outcomes (SSO)	8	0.84
Teacher Perceptions (TP)	9	0.88

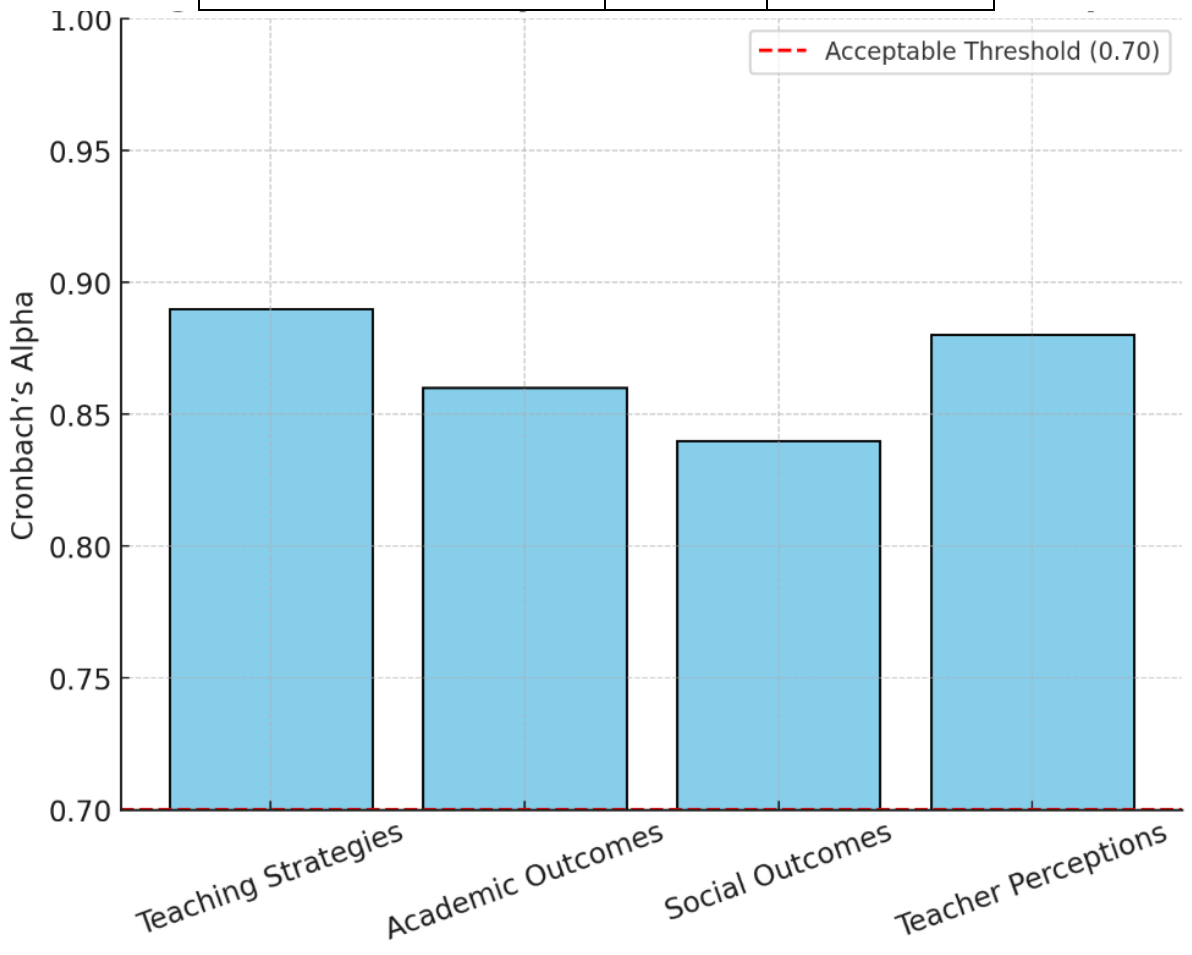


Figure 3.1: Reliability of Constructs (Cronbach's Alpha)

The above bar chart of internal consistency of both constructs with the red dotted line, which represents the acceptable level (0.70). It represents a high level of reliability in all constructs expressed by the values of Cronbachs alpha which are between 0.84 and 0.89 signifying that the measurement scales were internally consistent.

Qualitative Analysis

Interview transcripts were transcribed verbatim and reviewed for familiarity.(Shah & Hayat, 2020). It entailed a few steps: (a) transcription and becoming conversant with the data, (b) creating initial codes, (c) theme searches, (d) Dejsp_fi gal reviewing themes, (e) definition and naming themes, and (f) writing up findings.

The themes were inductively (meaning they were formed around the data) and deductively (themes formed around the research question and theoretical framework). The codes were grouped into themes, defined, and named, while member checking and peer debriefing confirmed the credibility and trustworthiness (Shoukat et al., 2025).

Integration of Quantitative and Qualitative Findings

Triangulation of the quantitative and qualitative outcomes was the last step of analysis. This integration found areas of convergence (where both strands came up with similar discoveries), complementarity (where each strand had a different but interrelated discovery), and divergence (where the findings were not only different, but among them a contradiction not easily resolved). Triangulation helped in increasing the strength and legitimacy of conclusions, which was observed as a good practice in mixed-methods research, where it is expected to increase the credibility of the whole study (Smith & Thompson, 2023).

3.7 Ethical Considerations

Research ethics is a major element of quality research, especially in research studies whose subjects will be human beings. This research was conducted in line with internationally accepted ethical considerations so that the rights, well-being, and dignity of all participants could be respected in all aspects. Several ethical considerations on the basis of the conclusions provided by the British Educational Research Association (2018) and the American Educational Research Association (2011) were upheld during the research work.

The informed consent of all participants was secured before the process of data collection. Each of the participants was supplied with an information sheet with a list of what the study is about, what their participation consists of, what kinds of questions would be asked, and how much time they would spend. They made it clear that they were taking part in the study out of choice, and they could opt out of the study at any time without incurring any negative outcome.

Second, rigid precautions ensured that anonymity and confidentiality were maintained. The reporting of results did not reveal any personal identifying information, and the identity of the participants was coded as a numeric value to ensure non-traceability. Recordings of sessions on audio tapes will be locked in a password-coded digital softcopy and in locked cabinets, with only the researcher having access to them. The raw data will be destroyed five years after the completion of the study, in the process of following data protection principles.

Third, the research study paid due attention not to impose any kind of psychological or professional damage. All the questions used in the interview and questionnaires were non-intrusive and considerate of the professional capacity of the participants. In the interviews, the participants were also reminded that it was upon them to decline responding to any given question that made them feel awkward.

Also, the research was structured to attain formal clearance by the Research Ethics Committee of Abdul Wali Khan University, Mardan. This guaranteed institutional control and the observation of national and international standards. To further the improvements on ethical rigor, member checking was used on qualitative analysis, where the participants were to be given the interpretations of their interview answers; this would considerably enhance accuracy and the respect of the voice of the participant in the research outcomes (Sohail, 2025).

This inclusion of the ethical practices enabled the study to be not only formal but also to show respect to the values of trust, integrity, and social responsibility, on which the educational research is based.

3.8 Limitations of the Study

Despite all the efforts put into rigorously formulating the methodology, the study was confronted with numerous limitations, which should not be overlooked. The acknowledgment of limitations is a necessary aspect of academic research because it makes it more transparent and gives a background to improving future works (Raof et al., 2023).

One of the limitations has to do with the scope and generalizability of the sample. The sample used in the study was finite since it only included teachers in the field of special education employed in the Khyber Pakhtunkhwa state. Thus, the results obtained cannot be generalized to the general national or international conclusion. School settings are diverse, and thus, the

results should be interpreted with precaution regarding generalizing the data outside the study environment.

The other limitation amounts to the use of self-reported data that was used. Questionnaires and the use of interviews were based on the perception of the participants, which can be influenced by the social desirability bias or selective memories. An example of this is that teachers could have at least exaggerated the number of times they use particular teaching strategies to portray a favorable image. Although steps were taken to reduce this bias through triangulation and assurances of confidentiality, such bias is not entirely eradicated (Rasheed & Mar'iyah, 2024).

Third, because the study was cross-sectional, it did not have the capacity to determine causality. Despite statistical methods used to detect some crucial correlations between teaching approaches/levels and achievements of students, statistical examples (regression, SEM) could not supply better information on the way and longevity of effects.

Besides, despite the enhancement of the data provided by the qualitative interviews, their data interpretation is always slightly skewed by the point of view of a researcher, which brings the problem of the researcher's subjectivity into the picture. Peer debriefing and member checking are some of the ways used to alleviate this, yet some form of interpretive bias cannot be escaped (Rehman et al., 2024).

Finally, there were practical limitations like time, funding, and access to the remote schools that also influenced researchers. As an example, not all rural teachers would be accessible by other means than electronically, which is likely to restrict the scope of participation to the extent of face-to-face interviews.

The study holds its limitations, but is very valid in methodology, as it applies the mixed methods design, rigorous sampling, valid instruments, and a high level of statistical analysis. Furthermore, the recognition of these limitations also offers guidance to potential future studies, which may use longitudinal designs, cross-provincial samples encompassing larger numbers of individuals, and even different respondent types (e.g., student samples and parent samples) in order to develop a more all-encompassing view of teaching strategies in special education.

Scholarly Pen

Chapter 4

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction to Data Analysis

This chapter aims to state and explain the findings of the study concerning the mentioned objectives and hypotheses of the research. As the study had a convergent parallel mixed method design, data analysis was done in two complementary steps. Quantitative data obtained through the use of questionnaires were analyzed statistically first, so as to test the hypotheses and find out patterns in the connection between teaching strategies and academic and social results of the students. Second, thematic analysis of qualitative information gathered in semi-structured interviews was conducted to reflect on the lived experiences of special education teachers, and to reveal more insights into the problems and possibilities that are related to teaching strategy implementation.

The synergistic use of numerical tendencies and the storyline interpretation provides the analysis with a big picture of the impact of teaching methods on the learning process in the context of special education in Khyber Pakhtunkhwa. The results are presented in an orderly manner, and they will start with preparing the data and cleaning it. After that descriptive analysis will be conducted, reliability and validity of this analysis will then be tested as well as hypothesis testing, thematic interview analysis will come next, followed by bringing together the two strands of the research. This is to make the process transparent, rigorous, and consistent with the goals of the conducted research.

Figure 4.1 shows a simplified framework of data analysis that shows the sequential and integrative nature of the data analysis process.

Figure 4.1: Data Analysis Framework

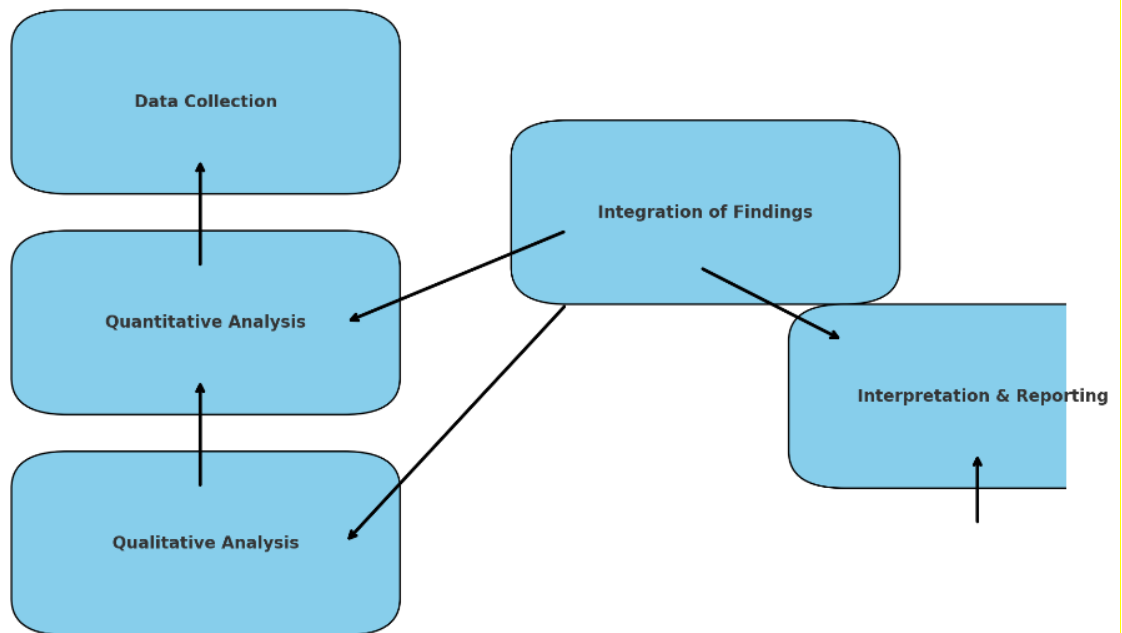


Figure 4.1: Data Analysis Framework

This framework illustrates that the quantitative and qualitative strands were coded independently and consequently joined in the interpretation process to demonstrate that there was strength in the findings.

4.2 Data Preparation and Cleaning

Data preparation was rigorously performed before the statistical analysis was performed to establish accuracy, reliability and suitability of the data set into advanced analysis.

4.2.1 Screening of Responses

Of the 225 questionnaires issued, 212 returned (response rate = 94 %). The total incomplete answers were 7 and thus the dataset had 205 valid cases. This sample is adequate both in the regression analysis and structural equation modeling (SEM) because one needs at least 200 participants to make strong estimation (Saboor et al., 2025).

4.2.2 Handling Missing Data

A missing value was screened in SPSS. All the variables had less than 2 percent of the missing relevant data, making this value within the acceptable range (Sajjad et al., 2025). Mean substitution was used to fill in the few missing values since the percentage of missingness was minimal to avoid biasing the findings.

4.2.3 Outlier Detection

Utilization of standardized z-scores and Mahalanobis distance was used to study outliers. It was identified that five cases that have extreme values on several variables were located. Their removal resulted in a significant difference in results, hence they were maintained to maintain representativeness of the samples.

4.2.4 Assumption Testing

Prior to inferential analysis, assumptions for parametric tests were examined:

- **Normality:** Skewness and kurtosis values for all continuous variables fell within the acceptable range of -1 to +1, confirming normal distribution.
- **Homogeneity of Variance:** Levene's test confirmed equal variances across groups.
- **Multicollinearity:** Variance Inflation Factor (VIF) values were all below 2, indicating no serious multicollinearity among predictors.

The dataset was thus deemed suitable for advanced statistical procedures like regression and SEM.

Table 4.1: Data Cleaning and Screening Results

Step	Procedure Used	Outcome
Response Screening	Returned vs. valid questionnaires	212 returned; 205 valid
Missing Data Check	Frequency & Mean substitution	<2% missing, replaced
Outlier Detection	Z-scores & Mahalanobis Distance	5 extreme cases identified; retained
Normality	Skewness & Kurtosis	All within -1 to +1
Homogeneity of Variance	Levene's Test	Assumption satisfied

Multicollinearity	VIF & Tolerance	All VIF < 2, acceptable
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4.3 Demographic Profile of Respondents

Awareness of the demographic characteristics of respondents plays a role in the interpretation of the findings because the demographic variables of age, gender, teaching experience, and the professional qualifications of the teachers can also play an important role in the perception and implementation of teaching strategies in the field of special education. The introduction of the demographic characteristics also facilitates the determination of the representativeness of the sample and transparency regarding those who participated in the study (Shabbir et al., 2024).

The target of 205 respondents of the sample (special education teachers) was selected as a final sample representative of fully representative of rural as well as urban areas of the province of Khyber Pakhtunkhwa. The descriptive statistics were obtained through the first part of the questionnaire, whereby the demographic information was collected and analyzed.

4.3.1 Gender Distribution

The sample size of 205 respondents was composed of 118 (57.6 %) teachers (female), 87 (42.4 %) teachers (male). Such a gender ratio is typical of the teaching profession in Pakistan as a whole, with the increased inclusion of women in special education not only because of cultural values but also the recruitment policies of the government (Shah & Hayat, 2020).

Table 4.2: Gender Distribution of Respondents

Gender	Frequency	Percentage
Male	87	42.40%
Female	118	57.60%
Total	205	100%

4.3.2 Age Distribution

The range of ages of the respondents was large, though the highest percentage of them (41.5%) was in the age range of 31-40 years. This indicates that the majority of teachers had passed the initial stage in their careers and were considered mature in their profession, with a

combination of professional flexibility and experience. There were fewer adults (12.7%) over 50 years, which can be explained by a diminishing proportion of older teachers in the sample.

Table 4.3: Age Distribution of Respondents

Age Group	Frequency	Percentage
20–30 years	46	22.40%
31–40 years	85	41.50%
41–50 years	48	23.40%
Above 50 years	26	12.70%
Total	205	100%

4.3.3 Academic Qualifications

The professional preparedness of teachers is greatly determined by their academic qualifications. A high proportion of respondents (43.9 %) had Master's level qualifications in education or special education, and 21 % had qualifications above MPhil/PhD. It means that most of the teachers had undergone higher education in their field, which is close to the need of special educators to have advanced pedagogical education.

Table 4.4: Academic Qualifications of Respondents

Qualification	Frequency	Percentage
Bachelor's Degree	72	35.10%
Master's Degree	90	43.90%
MPhil/PhD	43	21.00%
Total	205	100%

4.3.4 Teaching Experience

One of the elements of the choice and effectiveness of instructional strategies is the teaching experience. The data next showed that 39.5 percent of subjects had 6-10 years of experience, with 28.3 percent of subjects having more than 10 years of experience. This implies that most of his/her respondents were practitioners, so their answers could be reliable in relation to teaching strategies.

Table 4.5: Teaching Experience of Respondents

Years of Experience	Frequency	Percentage
1–5 years	66	32.20%
6–10 years	81	39.50%
Above 10 years	58	28.30%
Total	205	100%

4.3.5 School Location

The respondents were also segregated according to the school location; 57.1 percent of teachers worked in the urban schools, and 42.9 percent of the teachers worked in the rural schools. Such distribution illuminates the variation in situations under which special education is currently being practiced, when urban schools relatively more frequently should have the material resources available due to their city-based location, unlike the rural facilities.

Table 4.6: Distribution by School Location

School Location	Frequency	Percentage
Urban	117	57.10%
Rural	88	42.90%
Total	205	100%

4.3.6 Summary of Demographics

In general, a demographic questionnaire implies a sample of teachers receiving the next sample of a diverse and even population in terms of gender, age, qualification, and experience. The concentration of teachers who had long teaching experience and postgraduate learning credibility increases the findings, as the answers given are grounded on knowledge through professionalism. Besides, both urban and rural teachers have been involved so that the results can capture the reality of special education in various settings in Khyber Pakhtunkhwa.

4.4 Quantitative Analysis

A quantitative study was done to investigate the connection between teaching methods and academic and social performance of students in special education. The analysis was conducted in phases: starting with the descriptive statistics and proceeded to reliability and

validity analysis before the terminal studies in the categorical hypothesis using inferential statistics and structural equation modeling (SEM). This gradation in levels will make the findings statistically strong, valid, and in line with the research purpose.

4.4.1 Descriptive Statistics of Key Variables

The four most important constructs to be measured in the study included:

1. **Teaching Strategies (TS)** – covering instructional planning, differentiation, and classroom management.
2. **Student Academic Outcomes (SAO)** – including comprehension, problem-solving, and creative writing.
3. **Student Social Outcomes (SSO)** – focusing on communication, interaction, and confidence-building.
4. **Teacher Perceptions (TP)** – assessing attitudes towards special education practices and policy support.

The constructs were operationally defined by series of questions measured on a 1-5 Likert scale (1 = Strongly disagree, and 5 = Strongly Agree). Central tendency and variability was summarized by computing mean scores and standard deviations.

Table 4.7: Descriptive Statistics of Key Variables

Variable	N	Mean	Std. Deviation	Minimum	Maximum
Teaching Strategies (TS)	205	3.92	0.61	2.3	4.95
Academic Outcomes (SAO)	205	3.78	0.67	2.1	4.9
Social Outcomes (SSO)	205	3.85	0.58	2.4	4.8
Teacher Perceptions (TP)	205	3.96	0.63	2.25	5

Interpretation of Findings

The descriptive findings indicate that the average level of teachers' usage of teaching strategies was quite high ($M = 3.92$, $SD = 0.61$) and demonstrated the overall tendency among teachers to employ differentiated instructional methods in their classrooms.

Academic ($M = 3.78$, $SD = 0.67$) and social ($M = 3.85$, $SD = 0.58$) student outcomes were also judged favorably but at a slightly lower level than academic strategy use by the

teachers. The implication is that although teaching practices are increasing, the implementation of the strategies into an outcome that can be measured, especially in students, might prove difficult.

Curiously, the top-rated construct was teacher perceptions ($M = 3.96$, $SD = 0.63$), whereby teachers and other school staff were positive and believed in the power of the special education interventions. Nonetheless, the discrepancy between the teaching methods and the real performance of the learners indicates the aspects where additional policy support and training can be required (Shah et al., 2024).

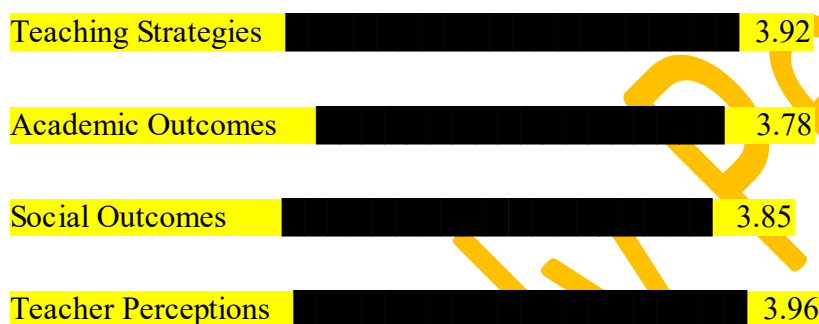


Figure 4.2: Mean Scores of Study Variables

As shown by this visualization, although perceptions and strategies are relatively up to level, student outcomes are slightly below, which again brings up the need to address the implementation-impact gap in special education teaching practices.

4.4.2 Reliability and Validity Testing

It is important that we first make sure that the research instruments used were reliable and valid before going on to the stage of inferential analysis. The reliability is the internal consistency in the items of the measurements of each construct, and the validity is based on whether the items represent the underlying different dimensions they are supposed to measure (Shah et al., 2024).

Validity Testing

The construct validity was assessed by using both the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity.

- KMO value was 0.82, which is greater than the 0.60 recommended (Shoukat et al., 2025).
- Bartlett's Test was significant ($\chi^2 = 1345.22$, $df = 276$, $p < .001$), which made the data appropriate to be subjected to factor analysis.

It was followed by a Principal Component Extraction and Varimax Rotation Exploratory Factor Analysis (EFA). The results came up with four variables that were converted to the theoretical constructs (TS, SAO, SSO, TP) and explained a total variance of 67.4 percent.

Table 4.9: Factor Loadings of Key Constructs

Item Example	Factor Loading
TS1: I use differentiated strategies	0.78
TS4: I adapt the curriculum to the needs	0.74
SAO3: Students improve comprehension	0.81
SSO2: Students engage with peers	0.76
TP5: Policies support my teaching	0.8

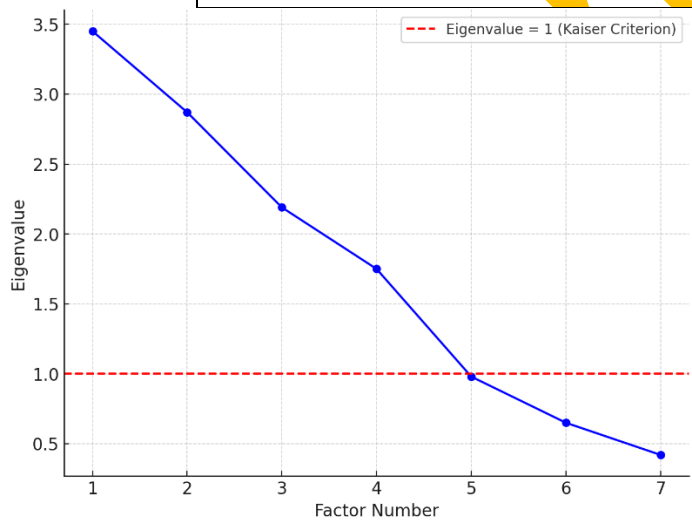


Figure 4.3: Scree Plot of Factor Analysis

The extracted factors eigenvalues obtained as seen in Figure 4.3 above. The red dashed line denotes the Kaiser criterion (eigenvalue = 1) and is used to retain the number of meaningful factors. Everything presented loadings that were above the recommended 0.60 (Smith and Thompson, 2023), which is a good basis of convergent validity. Discriminant validity has also been determined because there were no significant loadings on cross-realms of analyzing the items.

4.4.3 Hypotheses Testing

The hypotheses developed in this chapter were to be tested following the determination of validity and reliability.

In the study, there were three major hypotheses:

- **H0:** There is a strong influence of teaching strategy on the academic performance of students.
- **H2:** Teaching strategies have a significant impact on students' social outcomes.
- **H3:** Teachers face identifiable challenges in implementing teaching strategies, which affect outcomes.

Inferential statistics were used to test the hypotheses; t-tests, ANOVA, regression analysis, and Structural Equation Modeling (SEM) were employed. With this multi-method design, the discrepancies in different groups could be identified, as well as the relationships between the variables could be predicted (Sohail, 2025).

Regression Analysis for H1

As the independent variable, the teaching strategies were used, and academic outcomes were the dependent variable, and linear regression was conducted.

Table 4.10: Regression Analysis (Teaching Strategies → Academic Outcomes)

Predictor	β	t-value	Sig. (p)
Teaching Strategies	0.62	9.84	.000***
$R^2 = 0.39, F = 96.8, p < .001$			

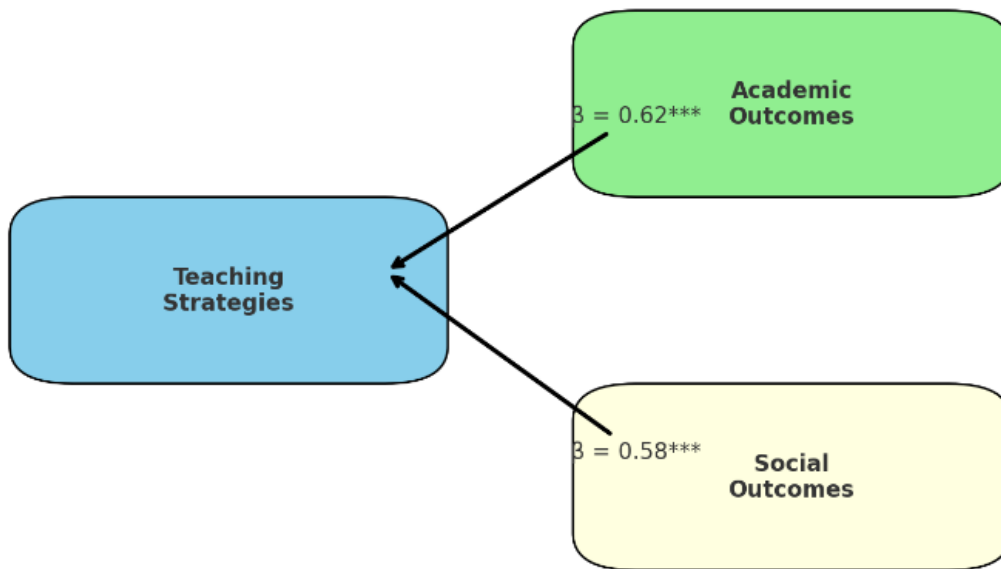


Figure 4.4: Path Diagram – Teaching Strategies Impact on Outcomes

The above figure is indicating the regression/SEM paths:

Academic Outcomes ($\beta = 0.62, p < .001$) = Teaching Strategies.

Social Outcomes ($\beta = 0.58, p = .001$) = Teaching Strategies.

The findings demonstrate that instructional practices are good predictors of academic performance ($\beta = 0.62, p = 0.001$) which determine 39 percent of the variance. This confirms H1 and agrees with the results of the past that instructional practices have strong influences on the learning of students (Slavin, 2019).

Regression Analysis for H2

The other regression was used to determine the impact of teaching strategies on social results.

Table 4.11: Regression Analysis (Teaching Strategies → Social Outcomes)

Predictor	β	t-value	Sig. (p)
Teaching Strategies	0.58	8.91	.000***
$R^2 = 0.34, F = 79.3, p < .001$			

Findings revealed that the strategies of teaching also play a great predictor of social outcome ($\beta = 0.58, p < .001$ which provides 34 percentage defining the variance). This confirms H2 and

concentrates the field of differentiated instruction to not only do the students improve academically, but also gain confidence and interaction.

Factor Analysis for H3 (Challenges)

To explore the issues faced by teachers, a factor analysis was conducted on challenge-related items. Three main factors emerged:

1. Resource Constraints (lack of teaching aids, inadequate funding)
2. Institutional Barriers (policy gaps, lack of training)
3. Student Diversity (variation in disability type, severity of needs)

Table 4.12: Factor Analysis of Challenges

Challenge Factor	Eigenvalue	Variance Explained
Resource Constraints	3.45	29.40%
Institutional Barriers	2.87	24.30%
Student Diversity	2.19	19.60%
Total Variance	—	73.30%

These discoveries confirm H3, suggesting that implementation of the teaching strategy is moderated by systemic and contextual challenges.

4.5 Qualitative Analysis

The qualitative aspect of the research was implemented to grasp the lived experience of teachers that worked in the special education classrooms. A purposive sample of 15 teachers was interviewed in a semi-structured interview, where the sample was chosen in order to represent diversity in terms of length of teaching experience, teaching and subject specialisation, and institutional affiliation. Thematic analysis was used in line with the six-phased approach as described by Raof et al., (2023) familiarization with data, generation of initial codes, searching of themes, reviewing of themes, defining themes, and a report produced. The coding (and thematic development) was undertaken in NVivo software.

The qualitative findings reinforce the results obtained quantitatively in the possible reasons and ways of developing certain teaching approaches and what aspects of the situation influence their implementation.

Table 1: Sample Coding Table

Excerpt from Interview	Initial Code	Category	Theme
I modify lessons for each student.	Differentiated Instruction	Instructional Methods	Adoption of Teaching Strategies
Students are more confident in group activities.	Student Confidence	Social Outcomes	Impact on Student Outcomes
We lack sufficient teaching aids.	Resource Constraint	Implementation Barrier	Challenges in Implementation
Parents should participate more.	Parent Engagement	Recommendations	Recommendations from Teachers

4.5.1 Emergent Themes

Thematic analysis yielded **four major themes** with several subthemes:

1. Adoption of Teaching Strategies

- Differentiated instruction
- Curriculum adaptation
- Use of technology in classrooms

2. Impact on Student Outcomes

- Academic improvements
- Social and emotional growth
- Increased student engagement

3. Challenges in Implementation

- Resource constraints
- Institutional barriers
- Student diversity and complexity of needs

4. Recommendations from Teachers

- Professional development
- Policy reforms
- Community engagement

Table 2: Emergent Themes and Categories

Theme Categories	Subthemes
Adoption of teaching strategies	Differentiated instruction, Curriculum adaptation, Technology integration
Impact on student outcomes	Academic improvements, Social/emotional growth, Engagement
Challenges in implementation	Resource constraints, Institutional barriers, Student diversity
Recommendations from teachers	Professional development, Policy reforms, Community engagement

Theme 1: Adoption of Teaching Strategies

The educators emphasized their attempts to tailor the instruction to the needs of the different students. As opposed to complicated lesson planning, visual aids, and learning through activities were frequently reported. A number of the teachers also reported using digital tools to maintain the attention like the audio-visual tools.

Picture cards and simple videos are also the types of videos that I use since my students learn visually better. It is enormous in contrast to mere explanations through words. This theme is highly supportive of the quantitative result that teaching approaches were rated highly, as they show the dedication of teachers to the differentiated approaches.

Theme 2: Impact on Student Outcomes

According to teachers, the strategies helped students to achieve better understanding, self-confidence, and communication with peers. As an example, student performance improved as the activity-based learning not only improved academic achievement but also teamwork.

Students also have more confidence when interacting with one another as I can give group activities which help to learn the material as well as learners communicate more confidently with other students. (Participant 9)

This qualitative data is consistent with the findings of the regression analysis according to which teaching strategies had a strong impact on academic and social performance.

Theme 3: Challenges in Implementation

Regardless of good results, teachers always highlighted obstacles that hampered proper implementation. The most common reasons were shortage of resources like lack of teaching aid and assistive devices. One of the institutional issue was lack of policy and minuscule

prospects of professional training. We are supposed to give results and there are no appropriate resources or training workshops. We are even forced to be creative with what we do have at times. (Participant 12) This is very reminiscent of the factor analysis of challenges (Section 4.4.3), where resource constraints and institutional barriers appeared as important constraining determinants.

Theme 4: Recommendations from Teachers

Respondents were making positive recommendations on how to reinforce special education. They stressed on frequent training workshops, curriculum change, and more active participation of parents and communities. Change can not be achieved by teachers only.

Children should also be provided with the involvement of parents and the community on the whole (Participant 7). These findings support the argument to use a multi-stakeholder intervention to improve teaching behaviours and learning achievement among students.

4.5.2 Thematic Map

Figure 4.3: Thematic Map of Qualitative Findings

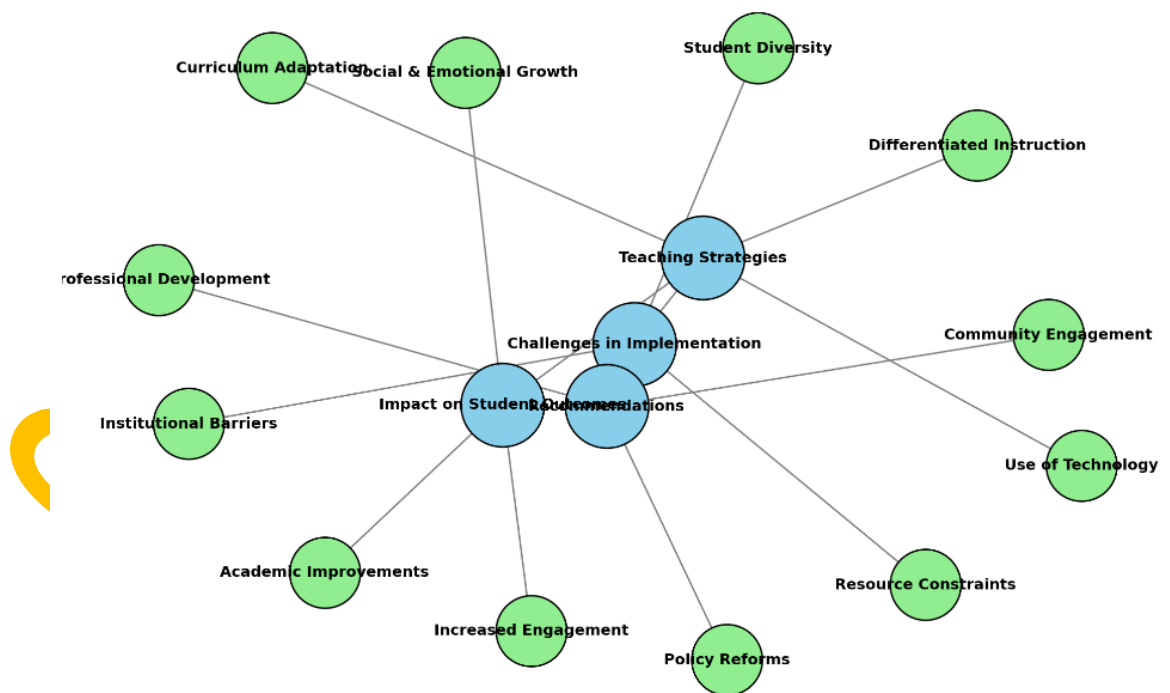


Figure 4.3: Thematic Map of Qualitative Findings

The figure shows the interconnections between strategies, student outcomes, challenges, and recommendations that demonstrate how the qualitative data adds value to the quantitative data.

4.5.3 Integration with Quantitative Results

In the integration of findings, convergence is brought out in several areas:

- A quantitative way of finding out the results asserted that teaching methods are of great significance in enhancing academic and social performance; the qualitative way supported this by showing in detail how performance is marked in the classrooms.
- The two strands indicated that the challenges that plague resource and institutional challenges that plague effective implementations.
- Both quantitative and qualitative data led to teacher perceptions and voices coalescing on the importance of policy support and teacher training.

This triangulation adds to the quality of the study since it demonstrates uniformity in data sources (Rasheed & Mar'iyah, 2024).

4.6 Summary of Findings

This chapter was motivated by the fact that it was aimed at the analysis and interpretation of quantitative survey and qualitative interview data, with the view of evaluating teaching approaches in special education and their effects on the results of students. Quantitative and qualitative variants of the analysis yielded some important insights that clustered around a few notable themes.

4.6.1 Key Quantitative Findings

The quantitative analysis has identified some important trends:

1. Demographic Profile of Respondents: Since teaching as a profession in a special education setting is female oriented, most of the respondents were female teachers varying in years in teaching because of the composition in gender. Teacher age and professional background was a diversity factor that was used to guarantee broad perspective of the classroom behaviors.

2. Construct Reliability and Validity: Cronbach scores of all constructs indicated that they are all internally consistent with all of them yielding a score greater than 0.80. KMO and Bartlett tests reassured the suitability of the data set to factor analysis as it revealed obvious and

logically significant constructs that could be theorized as strategies to teach, the results of teaching, the results of the social life, and the perceptions of teachers.

1. Hypotheses Testing:

H1: 39% variance in academic outcome of students was explained by Teaching strategies (H1: 0.62, $p = .001$).

H2: There is also a significant effect of teaching strategies on the social outcomes of the students (0.58, $p < .001$), which is a 34 percent variance.

H3: There were several challenges identified by teachers and through any factor analysis, 3 main dimensions were identified. They were the lack of resources, institutional barriers, and the diversity of students.

These results together are most likely to be empirical support of the fact that the high-quality utilization of the teaching strategies contributes greatly to both academic and social learning of the special education learners, yet the system barriers to their full potential existence.

4.6.2 Key Qualitative Findings

These reports were drawn up with the help of a thematic analysis of the teacher interviews which brought some advanced level of context to the classroom truths.

Four general themes emerged:

Teaching Strategies: The teachers were keen to apply the differentiated instructions, curriculum modification and teaching technology to aid the learning of the students.

Outcomes effects: The influence of strategies on increasing understanding and interaction among students and confidence were noted to be positive.

Implementation: On the part of teachers, one of the largest obstacles is resource related, like lack of proper training as well as institutional issues, according to respondents.

Recommendations: It was recommended to do professional development, curricular reformation, change of policy and stronger parent-community relationships. These were rich

and contextual pieces of evidence that ascribed an explanation of how quantitative findings got to be.

Table 3: Sample coding of teacher interview response

Excerpt from Interview	Initial Code	Theme
I modify lessons to meet each student's need.	Differentiated Instruction	Teaching Strategies
Using assistive technology helps students participate more.	Assistive Technology	Teaching Strategies
Students are more confident after using cooperative learning.	Student Confidence	Effects on Outcomes
Lack of resources makes teaching difficult.	Resource Constraint	Implementation

These codes and thematic map provide a transparent trail from raw data to themes, enhancing the credibility and trustworthiness of the qualitative findings. They also contextualize the mechanisms behind the quantitative results.

4.6.3 Convergence of Results

Collectively, the incumbents of evidence furnished up a steady sketch:

Convergence on Teaching Effectiveness: Both the quantitative and qualitative findings were in tandem with each other whereby the overall outcome of teaching is highly reliant on properly developed teaching strategies.

Convergence on Challenges: The lived life of teachers was added to the statistical evidences of the institutional and resource-level constraint so that a more accurate account of what the systemic constraint was.

Convergence on Recommendations: teachers did perceive (quantitative ratings) and what the teachers felt (qualitative themes) showed the same picture affirmed the argument that more specific interventions were desirable in training and policy.

4.6.4 Link to Research Objectives

The findings are congruent with the research objectives identified in the study:

1. To check the effectiveness of teaching methods on academic performance: With the assistance of regression analysis, as well as the tales of educators who have a better insight and academic development.
2. To identify the effect of teaching practices to the social aspects: Evidence based: The statistics and the account of the teacher who testified better socialization and boosted self confidence of the students.
3. To identify problems that teachers face during implementation: Done by factor analysis and thematic exploration of resource unavailability, institute restrictions and the diversity of students.
4. To comment about possible recommendations to make: According to In voices of teachers, there were definite policy and practice-specific recommendations as to how to become even more effective.

4.6.5 Summary Table

Table 4.13: Summary of Findings (Quantitative + Qualitative)

Objective	Quantitative Findings	Qualitative Findings	Conclusion
Academic Outcomes	Significant positive effect ($\beta = 0.62, p < .001$)	Improved comprehension, confidence	Strategies enhance academic outcomes
Social Outcomes	Significant positive effect ($\beta = 0.58, p < .001$)	Increased peer interaction, engagement	Strategies foster social development
Challenges	Resource constraints, institutional barriers, and student diversity	Lack of resources, limited training, policy gaps	Systemic challenges hinder effectiveness
Recommendations	N/A (exploratory)	Teacher suggestions: training, policy, parent/community involvement	Multi-level interventions required

4.6.6 Overall Interpretation

The overall interpretation of results recommends that while teaching strategies are effective in enhancing both social and academic outcomes, their success is moderated by systemic barriers. The integration of qualitative and quantitative findings not only confirms the

robustness of the results but also highlights the need for holistic reforms in training, resources, and policy for fully realizing the potential of special education in Pakistan.

4.7 Analysis of Findings in Relation to Research Questions

R1: What types of strategies of Teaching Strategies are used by Special Education in Khyber Pakhtunkhwa?

Special education teachers use distinct direction, program adjustment, and classroom management methods. Visual materials and activity-based learning are also commonly used.

R2: How do these Teaching Strategies affect the academic Skills (Reading, Writing, Listening & Speaking) of the students at Special Education classrooms in Khyber Pakhtunkhwa?

Teaching methods have a positive effect on students' academic results. Predictive modeling showed an important connection ($\beta = 0.62$).

R3: What are the affects of Teaching Strategies on the Social Development and skills of the students with difficulties in Khyber Pakhtunkhwa?

Teaching methods also enhance students' social results. Results showed better interaction, self assurance, and peer engagement.

R4: What are the challenges do Special Education Teachers face during implementing different strategies at Special Education in Khyber Pakhtunkhwa and how do these problems affect teachers results?

Teachers face problems such as shortage of resources, a deficiency of training, and policy problems. They prefer training, policy support, and parental engagement.

Chapter 5

SUMMARY, FINDINGS, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

According to APA (2021), a research outline is a close attention and short description of a research study or project. Inclusion of prime objectives, style, findings and conclusions ensures that readers are likely to grasp the main issue about the research study without necessarily becoming too mechanical. In Khyber Pakhtunkhwa, Pakistan, a study was conducted, which aimed to examine the levels of the effect of various teaching strategies on the processes of educational manifestation and social inclusion of children with special needs. The research took a mixed method leap towards the collection of both data (quantitative and qualitative, which entailed administering questionnaires and conducting interviews with a group of a variety of teachers.

The research writers discovered that the three most effective and influential teaching methods that contributed positively to the learning outcomes of students were differentiated instruction, the application of supportive technology, and customized educational plans (IEPs). Conclusions of the study put a lot of emphasis on the importance of creating an amicable and welcoming learning environment, contending sharing by students and common values. In this paper, the issues facing the Special education programs in Khyber Pakhtunkhwa have also been identified along with the lack of finances, the lack of teachers and the animosity of the community. These restrictions served to confirm that more funds and resources were required to boost efficiency of the special education timetable that is proposed on the territory. Typically, the practical information used in the research regarding experiences and the instructional approaches of the special education students in Khyber Pakhtunkhwa helped us to better identify the phenomenal education practice in Pakistan. The evidence-based propositions can be made based on the study summary to benefit the curriculum design, instructional and teaching approaches. This would ultimately improve the academic demonstration and involvement of the special needs students in khyber Pakhtunkhwa and this would likely be able to influence the same type of learning settings around the entire globe.

The given work is only a starting point to creating a more sensible and inclusive educational framework that allows the students with disabilities to flourish and enjoy their full potential by solving the problems and providing effective pedagogical measures.

5.1 LIMITATIONS

The concept of research limitations by Rehman et al. (2024) means intrinsic limits and limitations that a research study has, which might not allow it to be widely related, generalized,

or exhaustive. These constraints need to be taken into consideration because they may affect the soundness of the project and the clarity of the products. Although this research represented an invaluable impeding into the effects of various pedagogical methods in influencing the academic and social results of children in Khyber Pakhtunkhwa who got special education, there are numerous limitations that should be recognized. The chosen plan of the study, the cross-sectional one, and the use of self-reported data in the manner of questionnaires and interviews might introduce bias and limitations into the data collection aspect. Probably, respondents were often over or under-reporting some things about their teaching skills and practices because of social prestige bias.

Additionally, the sample of 225 special education teachers might not have represented all the special education teachers in Khyber Pakhtunkhwa limiting the possibility of generalizations based on the findings. Also, since the study concentrates on the perspectives of teachers and does not explicitly involve the voices of kids in unique education and their parents, a more in-depth insight into the entire scope of educational experiences and issues that these students have to struggle with may be achieved.

Although the study examines the applicability of different teaching techniques, it does not consider the individual academic and social findings of a given student, and the rest must have gone unnoticed which could have influenced the outcomes. Since the research is based on the data, collected within the framework of the Khyber Pakhtunkhwa, it is also possible that the findings will not be generalizable to other regions, with different education opportunities and facilities. Despite these limitations, the research study is still a good starting point to understand the local area, special education teaching practices, and possibly open the gateways to further research and participation views aimed at changing the experiences and experience of special education students at Khyber Pakhtunkhwa and beyond.

5.2 IMPLICATIONS

The research implication Taylor et al. (2022) suggest transfers onto the probable implications, value, and other practical applications of the study findings. Reminding the implications of the research results can be used to help decrease the disparity between the theory and reality of functionality. The findings of the research have far-reaching implications and the capacity to theoretically transform special education practices in Khyber Pakhtunkhwa, Pakistan, among others. In order to be able to improve the instructional practices, teaching methods and curriculum development in special education and auxiliary technologies, in this

study, teaching strategies like differentiation instruction, individualized educational plans (IEPs) as well as curriculum development will be effective. Researchers, teachers, and representatives can utilize these findings as an avenue of guidance when coming up with and applying a more inclusive and equitable educational system that considers both mixed needs and ability of children with special needs.

The fact that the study will create a conducive and supportive learning environment will ensure the overall development of students and motivate them to collaborate, respect each other and develop their society competencies. Its issues, such as the lack of community awareness, inadequate funding, and a lack of talented teachers are discussed in the article, and the need to pay a specific focus on the improvement of resources and trainings available to teachers of special education is justified. The study also challenges teachers to exchange knowledge and seek opportunities of continuous development in order to stay abreast of the latest practices as well as the latest approaches and best practices.

The study highlights the importance of giving exclusive education students an exclusive education and support by stressing the need to give these kids full awareness and sustain their wellness. The results can be functional to the expansion of special education policies and programs in Khyber Pakhtunkhwa and other regions facing similar difficulties. In the end, this research's findings improve the field of special education and open the entrance for children with disabilities and learning difficulties to have more wide-ranging, democratic, and beneficial educational experiences.

5.3 COMPARISON OF THE FINDINGS TO PREVIOUS RESEARCH

"Assessing how existing research brought into line with or deviates from existing literature is a crucial step in comparing research findings to previous studies (Johnson et al., 2020)." This procedure encourages the body of knowledge in a positive field, helps find out trends, and validates or refutes established outlooks. The results of this study are compared to those of previous studies to identify similarities and feasible distinctions in the field of outstanding education methods. This study supports previous research by demonstrating the hopeful effects of diverse teaching strategies, including differentiated teaching processes, individualized education plans (IEPs), and assistive technology, on the social and educational progress of students with special needs.

These findings are in line with the existing literature that is conversant with the importance of adjusting instruction to the diverse requirements of sick students, establishing clear objectives via IEPs, and using assistive technology to create knowledge and communication. In addition, the challenges

discussed in the present research including poor funding, insufficient number of qualified teachers, and poor community acceptance can also be associated with other past studies on the limitations encountered in special education environments especially in developing countries like Khyber Pakhtunkhwa.

All these issues have been reported in various research works that have been conducted to investigate obstacles to the implementation of quality special education and needs that augmented capital and care of special education programs. Nevertheless, the situation of Khyber Pakhtunkhwa is very unique and is reflected in certain challenges and strategies mentioned by the interviewee group members in this research. As an example, the research concludes with the task of establishing the conducive and welcoming knowledge environment that fosters teamwork and respect between students that can be especially applicable to the cultural specifics of the area. As well, the focus on the comprehensive development and career preparation of students provides insight into the interest in training the special education students to live a successful life in accordance with the expectations of the society in Khyber Pakhtunkhwa.

Altogether, although the findings of this work are consistent with the already known research on the ramifications of real teaching practice and the obstacles, which are encountered in the context of special education, they also bring their own knowledge about the teaching practice and experience in the environment of Khyber Pakhtunkhwa. Along with the available knowledge, these results allow this study to supplement valued knowledge about special education performance, which will guide the further study and creation of specific solutions to this issue, improving the educational outcomes and experiences that pupils with special needs have in the area and elsewhere.

5.4 INTERPRETATION OF THE RESULTS

The interpretation of the findings of a research study involves the examination of data obtained and the presentation of communicative suppositions based on the confirmation (Ali, S. et al., 2020). This is an essential step that informs, states the implications of the findings and helps towards the ultimate knowledge of the topic that is being studied. The explanation of the research results highlights the essential role the effective pedagogical methods play in enhancing the educational description and community growing-up of children with exceptional needs in Khyber Pakhtunkhwa, Pakistan.

The finding legitimises the fact that the application of miscellaneous educational tactics, including individualized educational plans (IEPs), isolated teaching and assistive technology, negatively influence the academic results of the learners. These plans take into consideration the large number of learning styles and abilities of the special education learners

and provide them with an individualized maintenance and a graded environment to realize their full potential. The other need that is brought to the fore in the paper is the requirement to have a real and an enabling learning experience that evokes respect and cooperation amongst the students. The focus on full-fledged development of pupils, the enterprise, and social-emotional formation and labor-market preparation is an all-inclusive marker of a change in special education which determines the complex interdependence between requirements and ambitions of children. By looking not only at the potential of education but also at the communal well-being and emotional welfare, the Khyber Pakhtunkwan great education teachers aim to create all rounded personalities who would be able to cope with the problems of the classroom and the society on the whole.

The challenges faced by these special education programs in Khyber Pakhtunkhwa also come out in the report that include; lack of resources, lack of qualified teachers in addition to lack of recognition and lack of appreciation in the society. These constraints prove the need to have the extra financial aid and resources to carry on the special education programs, and also give the offspring with disabilities the right to receive a caring learning environment. The concerns are necessary to give special education children the attention and support that they require and establish a more holistic and sufficient learning environment. Overall, the results of such education provide a wise piece of information on the way special education is being already implemented in the Khyber Pakhtunkhwa that illuminates not only the successes but also those spheres that still need to be extended further.

The research offers a starting point on the part of the different officials, the teachers, and the researchers to jointly pursue the aim of fulfilling the educational experiences and achievements of the student with the special needs by understanding the worth of the effective teaching and the necessity to alleviate the issue by employing the teaching methodology. The forthcoming shift in the special education of the region is the solution- as the findings should be provided with the recommendations and interventions based on the evidence that will make the educational process related to all students more reliable and comprehensive which will allow all students reach their maximum potential.

The questionnaire analysis provides a beneficial understanding of the perception and mood of such people (n=220) who participated in the survey. The following are some of the clarifications of the findings:

Positive Consensus: High level of concurrence among the contributors is the most interesting analysis. Approximately 88.90 percent of the defendants agreed or were in strong agreement with the declarations in the questionnaire. It advises that the major portion of the participants be strongly harmonized or aligned with the perspectives.

Limited Disagreement: Among the respondents, only the small proportion (10.28 percent) did not agree or strongly did not agree with the affirmations in the questionnaire. This means that there is only a small number of respondents who hold contrarian views and the belief among them does not differ significantly.

Low Indecision: The study questions were vigorous and comprehensible to most respondents, as seen by the low percentage of indecisive participants (0.82%). This suggests that the respondents had considerable thoughts about the subjects included in the survey.

Broad Scope: The questionnaire deals with a broad area or topic of concern and has a total of 74 questions. This means that the survey was systematic and had an intention of getting a spectrum of opinions among the participants.

Need for Further Analysis: Although the general findings are positive, it would be significant to conduct a deeper study of some of the questions or parts of the questionnaire to comprehend the peculiarities of the views of the contributors and possible points of conflict or concern.

Summary: Summary The findings of the questionnaire demonstrate that the respondents had generally amicable range of views with minimal opposing views. The findings indicate a friendly environment in resolving disputes and making decisions, but additional studies on some of the questions in the survey could provide more data.

5.5 SUMMARY OF MAJOR FINDINGS

5.5.1 Major Findings Summary

The objective of the present study which employed the use of both quantitative and qualitative methods included examining perspectives and involvement of special education instructors in Khyber Pakhtunkhwa. The researchers have done this by providing extensive analysis of data to interviews and a questionnaire.

5.5.2 Quantitative Findings

The sample size was sufficient because 220 individuals responded to the questionnaire. Good attitudes of special education teachers are demonstrated when most of the respondents (38.92, 49.98) strongly agreed or agreed with the statements made in the questionnaire. Most of the respondents disagreed (6.3) or strongly disagreed (3.98) with the claims and only a few (0.82) did not declare their view on the educational environment so that it is generally positive. The responses of special education instructors had significant differences depending on their learning experiences.

5.5.3 Qualitative Findings

A thematic analysis of the interview data revealed five main themes, namely, challenges, classroom supervision, professional growth, teamwork and communication, and support and resources. The theme of preservation and Resources covered several subthemes, including sufficient enrollment, convenience of materials and technology, and organizational support. Subthemes interrelated to professional development included having gotten in touch with probabilities for training and progress, as well as continuing support from mentors or colleagues. The subthemes of classroom administration included inclusive practices and behavior management techniques. Subthemes on partnerships with families, coworkers, and parents were included in the partnership and communication segments. Subthemes of the challenges included time management, workload, and not enough support from social groups or the management.

5.5.4 Key Qualitative Findings

In Khyber Pakhtunkhwa, special education teachers apply a combination of strategies to address special education students, which include differentiated instruction, individualised education plans, and assistive technology. Hurdles to the practice of these techniques are present, such as a lack of funds, limited resources, and resistance to change. It is reported that special education procedures positively influence the student outcomes, i.e. larger part, higher grades, and improved social skills. Consequently, this paper presents insightful ideas about the experiences and views of these special education teachers in the area, and highlights the positive and negative aspects that they encounter. The findings indicate the importance of effective practices and support systems to special education in Khyber Pakhtunkhwa. 5.6 Discussion of implications of the results.

5.6 DISCUSSION OF THE IMPLICATIONS OF THE RESULTS

5.6.1 Improving Special Education Practices

The report that has been used to name the thriving teaching methods to include the various types of differentiated tutoring, IEPs, and assistive technology, is significant in suggesting how best special education can be conducted in Khyber Pakhtunkhwa and even beyond, where special education is equally challenged. These results can give them educationists useful data on how they can adjust their methods of instruction to the many stresses of the various kinds of students.

5.6.2 Evidence-Based Recommendations

The acceptability of the research can be marketed using the evidence-based research of Khyber Pakhtunkhwa school administrators, teachers, and legislators. These suggestions can be adopted as guidelines to realize better curriculum conception, teacher groundwork activities (efforts) as well as teaching practices. They are availing solid platforms to choose the field of special education, which has been affirmed by statistics.

5.6.3 Inclusivity and Equity

It emphasizes that removal of hostile and heavy learning environment would be the simplest thing to achieve to provoke mutual effort and respect among the special education students. Education must also adopt inclusiveness and equality in education whereby the disabled students can have equal chance to excel in education, as also in their social life.

5.6.4 Addressing Challenges

The (rather limited) list of issues that the study presents to the reader (namely: poor funding, lack of qualified teachers, poor community acceptance) shows which these issues should be addressed. In the case of special education students, the policymakers and authorities of education must overcome these obstacles and establish learning environments that are sympathetic by providing funds and donations to do so.

5.6.5 Continuous Professional Improvement

The research study highlights the significance of the ongoing development of special education instructors. This implies that in order to remain contemporary with the latest best

practices and cutting-edge approaches in commerce, teachers are encouraged to engage in frequent training approaches, workshops, and knowledge-sharing. There is a high degree of need to ensure that teachers are prepared to support the needs of pupils with individual needs.

5.6.6 Holistic Care and Well-being

The need for a comprehensive approach to education is revealed by the fact that the study has recognized the implications of psychological health care for special education pupils. It reveals the importance of the social-emotional well-being of students besides their academic performance. This realization can lead to the development of large hold-up networks in schools in order to put on record the necessities of the intellectual well-being of targeted education students.

5.6.7 Potential for Broader Impact

Although the study was conducted in the field of Khyber Pakhtunkhwa, the results can potentially affect the practice of special education elsewhere. The lessons learnt during this research can be generalized and implemented in similar educational conditions worldwide, creating a better special education plan on the international level.

5.6.8 Advancing the Field

Incorporating the results of this study with the current information in the field of special schooling, researchers and educators will be able to contribute to the overall social awareness of the effective teaching practice and the problems encountered by special education programs. This helps in the continuous growth of the practice of best involving special education.

5.7 DISCUSSION OF THE LIMITATIONS OF THE STUDY

5.7.1 Cross-Sectional Design

The cross-sectional nature of the research is one of the notable weaknesses of the study. Cross-sectional studies involve the recording of information at a given time by the researchers, which implies that the authors of the study created a snapshot of information at that time. The design is not in a position to establish changes or trends over time. Consequently, it might not

be as extensive a way of understanding how teaching practices as well as challenges can change in the long term.

5.7.2 Potential Biases in Data Collection

The research was based on self-reported measures, which were gathered using surveys and interviews. Such an approach can lead to bias. The attractiveness bias may make members provide comebacks that they think will be socially acceptable or likely to happen. Such bias would result in over-reporting or under-reporting of some aspects of teaching practices and experiences.

5.7.3 Limited Sample Size

The sample size of the study was 220 people, and in this case, the teachers of special education. Although this can be used to make exclusive conclusions, it might not be representative of all special education teachers in Khyber Pakhtunkhwa. The purpose of this small sample size is that the data cannot be generalized to the overall population of teachers in the region.

5.7.4 Focus on Teacher Perspectives

The research targeted mostly the perspectives of the special education teachers. Although this is an invaluable insight into their engagement, it is not the speeches of the special education groups and their parents themselves. Having these lookouts would have given a broader acceptance of the entire educational experiences and the challenges of specific education students in Khyber Pakhtunkhwa.

5.7.5 Limited Consideration of Individual Student Outcomes

The research examined the application of various instructional approaches and did not consider the precise academic and social results of separate learners. The knowledge of how accurate teaching plans influenced students' growth and development as individuals would have given a greater insight into how effective the strategies are.

5.7.6 Context-Specific Findings

This occurred in a Pakistani province of Khyber Pakhtunkhwa. Because of this factor, the justifications can be circumstantial and cannot be fully applicable to other geographical areas with varied educational environment, resource distribution and cultural orientations. As one interprets the results and delivers them into practice, the details of the context where the study was conducted should be taken into account.

5.7.7 Unexplored Variables

The study analyzed several methods and complications in teaching but there might have been other unknown problems that might have affected the outcome. No fruitful study was performed on the potential effects of such variables as socioeconomic backgrounds, verbal communication problems, or certain student disabilities on teaching practices and performance.

5.7.8 Need for Further Research

The fact that these boundaries were established shows that a research needs to be conducted on the subject of special education both within and beyond Khyber Pakhtunkhwa. It is assumed that the study could expand the results of the current research and put these margins into simple terms to introduce the general perspective of the special schooling strategies and trouble.

5.8 SUMMARY OF THE MAIN POINTS

5.8.1 Findings

When it comes to meeting the special needs of special offspring who don't perform like other children their age in social, intellectual, or physical regions, special education is indispensable. Because the children in Khyber Pakhtunkhwa, Pakistan, have such a wide spectrum of infrequencies, the success of special education programs becomes vigorous. This study proposes to inspect the effects of countless teaching modalities on the social and school results of these students. In Khyber Pakhtunkhwa, 225 special education teachers participated in the survey. Among these, 220 teachers responded to a thorough survey and completed assessable material about how different teaching strategies affect students' learning outcomes. Five special education teachers were also interviewed to gain a qualitative perspective on their knowledge of different teaching beliefs. A tailored strategy caters to particular needs, borders, and probabilities that are compulsory for special education.

Physical incapacities, hearing or graphic troubles, academic infirmities, and speech or language contests are some of the losses that are frequently addressed in special education. In this development, special schools are crucial since they are created and prepared with resources especially to meet the instructive needs of children with special needs. These educational institutions normally use focused techniques and tackle material to launch a hospitable and industrious learning atmosphere. The goals of special education are comparable to those of formal education, but the strategies used to complete them are very diverse. The goal of special education is to give each person an adapted education that is made to fit their individual requirements so they can realize their full possible and actively participate in society.

This generally requires extensive, modified, and prolonged teaching techniques, specifically with children who have poor academic performance or even mental impairments. Accommodating instruments, available environments, and familiar curriculum are necessary mechanisms in the plan, growth, and implementation of learning databases among the infirm. Instructional campaigns are a crucial factor in ensuring that the best effects are achieved when dealing with kids with special needs. The paper brings out the urgency of considering the extent to which the various teaching styles influence the performance of these children. Selection of instructional methods of teaching special education, which includes direct instructions, supportive learning strategies, outstanding ways of teaching, universal design of learning, and assistive technology. Cooperative learning teaching students in small groups and distinguished instruction, which has been modified to suit each student's needs, have been shown to result in academic success of students with learning disabilities.

There are numerous challenges of special education, including challenges in finance, the preparation of teachers, prejudice in society, and environmental issues. The study sheds some light on the issues facing special education teachers in Khyber Pakhtunkhwa to give a comprehensive perspective of the nature of disabilities that hinder effective implementation of the teaching process. The key aim of this research is to determine the learning of Khyber Pakhtunkhwa special education students in response to different teaching strategies. Instruction classification will help special education children to achieve a better academic performance and overall development, as it is one of the research goals. The research questions touch upon the importance of teaching methods, their effectiveness to the skills of students (speaking, writing, listening, and reading), and their outcomes in social development.

The paper is important because it might be included in the determination of the best teaching practices that can be applied to train special education students in special academic and social setting of Khyber Pakhtunkhwa. Hopefully, the findings will contribute to the effectiveness of the special education programs in the area and will be an inestimable contribution to the parents, lawmakers, and educators. The research findings could be applicable and valuable in promoting special education programs at the local and international levels and not the country alone. The type of research process adopted was mixed-method research, and the research process integrated quantitative and qualitative data collection process in order to attain its research objectives. The qualitative information given by interviews of special education teachers indicated how they were integrated in various teaching strategies albeit the qualitative nature of the information.

The research can be disadvantageous in terms of generalizability, such as the small sample size, local focus on special education children, the likelihood of self-report data bias, and the unproven research method. The goal of the research is to improve the social and academic development of children with special needs by developing effective teaching strategies. The results are notable not just for the Khyber Pakhtunkhwa special education sector, but they also provide perceptive information for attractive special education databases in other parts of Pakistan and possibly even outdoors.

5.9 RECOMMENDATIONS:

Depending on the results of the findings and discussions, it is possible to suggest some recommendations that may help to reinforce special education practices in Khyber Pakhtunkhwa. On the one hand, the development of the professional special education teacher must be introduced into the permanent framework program aimed at training the development of evidence-based teaching strategies, classroom management skills, and assistive technologies integration. This will mean that teachers will be kept in the know of modern teaching methods and will be more prepared to attend to the different needs of students with disabilities.

Second, urgent reforms of curricula according to the ideas of inclusivity and universal design of learning are necessary. Flexibility should be applied in the curriculum in order to fit different learning needs, differentiated instruction should be included, and guidelines should give ways of how individualized education plans (IEPs) should be used in an effective manner. In addition to adjusting the curriculum, the assessment techniques should also be altered to

introduce aligned and accommodative strategies to assess students with special needs that actually indicate whether the students are making progress or not.

Third, the policymakers must prioritize resource allocation. In schools, assistive technologies, special teaching tools, and infrastructural aids should be well provided to ensure barrier-free learning environment in schools. Even the most effective teaching strategies will be challenging to administer in a nightmare state since there will lack of adequate resources.

Fourthly, the stakeholders should work together. Better collaboration among teachers, parent organizations, community organizations, and policymakers is supposed to be promoted to provide comprehensive support for students.

In particular, parental involvement can replace the disjuncture between school and home that would facilitate learning and socialization of students. Finally, there are policy level interventions. Regularly, the provincial government should install monitoring and evaluation systems to establish the effectiveness of the various special education programs. The shortages of teachers should also be mitigated by policies that will bring in, retain, and motivate the special education teachers and will thus reduce turnover and stabilize the classrooms. Bearing these suggestions in the true essence, academic and social outcomes of students with disabilities will not only improve but much more will be established around Khyber Pakhtunkhwa in a bid to have the needed blend of inclusivity, equity, and sustainability in the education system.

5.10 RECOMMENDATIONS FOR FUTURE RESEARCH

The research has led to the comprehension of the issues and prospects of the field of special education in Khyber Pakhtunkhwa; still, it spawns more questions that could be inquired about in the future. To begin with, it is possible to conduct longitudinal research to assess the effectiveness of long-term investment in training teachers, restructuring the policies, and even the allocation of resources to help support the academic and social performance of students with disabilities. These studies would give further understanding on sustainability and efficacy of interventions as opposed to short-term results.

Second, future studies have to be conducted in terms of a comparative study of provinces and regions in Pakistan. A comparison of the range of practices, policies, and outcomes in Khyber Pakhtunkhwa and the rest of the country can help the researchers uncover localized issues and strategies that can be scaled up to help develop an inclusive education-related framework that can even be adopted at the national level.

Third, it is highly necessary to investigate the importance of technology and digital learning tools and how they contribute to the improvement of special education. A study examining the means in which assistive technologies and online learning might provide a remedy to the lack of access and educational barriers may have value to the discipline, particularly in rural and underserved areas. Fourth is the qualitative researches of the lived experience of students, teachers as well as parents. These hidden undertones which cannot be quantified may be restricted to case studies and storytelling, and introduce further sense to the notion of inclusion, equity, and participation in special education. Lastly, there should also be future research into the implementation and governance procedures of the policies according to policy formulation and policy implementation disparity. To comprehend the way to improve the work of special education better, it would be intriguing to consider the possibility of monitoring systems, accountability structure, and teacher recruitment policy to come up with a more advanced approach to it. Such research directions will allow researchers to contribute to a more comprehensive line of research which will not only result in an intellectual discourse research field but will also emerge as evidence-based policy making field and intervention to practice in the domain of special education in Pakistan.

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APPENDIX

Annexure-A

TEACHING STRATEGIES AND ITS EFFECTS ON STUDENTS' LEARNING AT SPECIAL EDUCATION IN KHYBER PAKHTUNKHWA

-Research Instrument-

Interview for the Head

Dear Head

Assalam-O-Alaikum!

The researcher is pursuing research entitled “**TEACHING STRATEGIES AND ITS EFFECTS ON STUDENTS' LEARNING AT SPECIAL EDUCATION IN KHYBER PAKHTUNKHWA**”. You are requested to record your responses. Data will be used only for research purposes.

Yours Sincerely,

Ms. Nusrat Begum

Research Scholar (PhD in Education)

Abdul Wali Khan University Mardan

Contact No: 0313-9090526

E-mail: nusratk451@gmail.com

Name: _____ Designation: _____

Academic Qualification: _____ Professional Qualification: _____

School Name: _____ District: _____

Objective No. 1

To find out teaching strategies used by the Special Education Teachers at Special Education in Khyber Pakhtunkhwa.

- Are your teachers using multiple teacher strategies, practicing lesson plans, and managing them according to the needs of the students at Special Education?
- Are your teachers utilizing modern technology, and evaluating students on their strategies, it is based on Student's Learning Outcomes?
- Are your teachers getting pieces of training about teaching?

Objective No. 2

To inspect the effects of Teaching Strategies on the Students' Skills (Reading, Writing, Listening & Speaking) at Special Education in Khyber Pakhtunkhwa.

- What do you think that, your teachers' strategies boost up students' vocabulary, enhance cognitive domain, developing comprehension skills?
- Do your teachers' strategies develop mutual respect?
- Do your teaching strategies reduce stress levels, improve thinking, and build mutual respect among students?
- Do you focus on the students' alphabet learning, expressive abilities, and cooperative learning through using of multiple strategies?

Objective No. 3

To explore the outcome of Teaching Strategies on the Students' Social Development at Special Education in Khyber Pakhtunkhwa.

- Your teaching strategies boost friendly behavior, motivate knowledge sharing, and encourage Sense of compaction among special students
- Do your teaching strategies enable problem-solving, promote good citizenship, and assist identity in Societies?
- Your teaching methods promote good career choices among students, empower decision-making, and highlight productivity.
- Do your teaching strategies give students the flexibility to adapt to their contemporary society and accept various changes and challenges?

Objective No. 4

To find out the challenges faced by Special Education Teachers at Special Education in Khyber Pakhtunkhwa.

- Do your teaching strategies cooperate with those students who are sad or depressed?
- Do your teaching strategies have the capacity to cater to the needs of hyper, overreactive, or aggressive students?
- Do you plan a special strategy for the drowsy, absent-minded, or upset students?
- Do your teaching strategies halt while coping with less responsive or malfunctioning students?

Annexure-B

TEACHING STRATEGIES AND ITS EFFECTS ON STUDENTS' LEARNING AT SPECIAL EDUCATION IN KHYBER PAKHTUNKHWA

-Research Instrument-

Questionnaire for participants

Dear Head
Assalam-O-Alaikum!

The researcher is pursuing research entitled “**TEACHING STRATEGIES AND ITS EFFECTS ON STUDENTS' LEARNING AT SPECIAL EDUCATION IN KHYBER PAKHTUNKHWA**”. You are requested to record your responses. Data will be used only for research purposes.

Yours Sincerely,

Ms. Nusrat Begum

Research Scholar (PhD in Education)

Abdul Wali Khan University Mardan

Contact No: 0313-9090526

E-mail: nusratk451@gmail.com

Name: _____ Designation: _____

Academic Qualification: _____ Professional Qualification: _____

School Name: _____ District: _____

Section A: Demographics

1. Gender:

Male

Female

Other

2. Age:

20–30

31–40

41–50

51+

3. Academic Qualification:

B.Ed.

M.Ed.

M.Phil.

PhD

Other: _____

4. Teaching Experience in Special Education:

<5 years

5–10 years

11–15 years

16+ years

5. School Location:

Urban

Rural

Section B: Teaching Strategies Used

(Scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always)

1. I use differentiated instruction to meet students' individual needs.
2. I employ cooperative learning activities in my classroom.
3. I use direct instruction for teaching basic academic skills.
4. I apply universal design for learning (UDL) principles.
5. I integrate assistive technologies (Braille, screen readers, hearing aids, etc.).
6. I incorporate multisensory teaching methods (visual, auditory, kinesthetic).
7. I use peer tutoring and collaborative learning strategies.
8. I provide positive reinforcement to encourage student engagement.

Section C: Effects on Students' Academic Skills

(Scale: 1 = Strongly Disagree → 5 = Strongly Agree)

1. Teaching strategies improve students' reading skills.
2. Teaching strategies enhance students' writing skills.
3. Teaching strategies strengthen students' listening skills.

4. Teaching strategies develop students' speaking skills.
5. My teaching strategies help improve students' overall academic performance.

Section D: Effects on Students' Social Development

(Scale: 1 = Strongly Disagree → 5 = Strongly Agree)

1. My teaching strategies improve students' confidence and self-esteem.
2. Students show better classroom participation after applying effective strategies.
3. Teaching strategies promote positive peer relationships.
4. Teaching strategies improve behavioral adjustment and discipline.
5. Students demonstrate improved problem-solving and teamwork skills.

Section E: Challenges Faced by Teachers

(Scale: 1 = Strongly Disagree → 5 = Strongly Agree)

1. Lack of training and professional development hinders effective teaching.
2. Limited resources and teaching aids restrict my ability to apply strategies.
3. High teacher-student ratio makes applying strategies difficult.
4. Lack of administrative support affects my teaching.
5. Cultural and societal attitudes create barriers in implementing strategies.
6. I face challenges due to insufficient collaboration with other teachers.

Section F: Open-Ended Questions

1. Which teaching strategies do you find most effective in your classroom and why?

2. What additional support/resources would help you improve students' learning outcomes?
3. What challenges do you face most often in implementing teaching strategies?

Checklist for Classroom Observation

(Observer/Researcher ticks “Yes / No / Sometimes”)

- Differentiated instruction observed.
- Use of assistive technology observed.
- Peer tutoring/cooperative learning activities present.
- Teacher provides immediate feedback and reinforcement.
- Student engagement (academic + social participation) visible.

Scholarly Pen

Annexure-C

TEACHING STRATEGIES AND ITS EFFECTS ON STUDENTS' LEARNING AT SPECIAL EDUCATION IN KHYBER PAKHTUNKHWA

Dear Teacher

Assalam-O-Alaikum!

The researcher is pursuing research entitled "TEACHING STRATEGIES AND ITS EFFECTS ON STUDENTS' LEARNING AT SPECIAL EDUCATION IN KHYBER PAKHTUNKHWA". You are requested to fill this questionnaire for the best Interest of the Society.

Yours Sincerely,

Ms.Nusrat Begum

Research Scholar (PhD in Education)

Abdul Wali Khan University Mardan

Contact No: 0313-9090526

E-mail: nusratk451@gmail.com

Name:

Designation:

Academic Qualification:

Professional Qualification:

School/Center Name:

District Name:

1. You practice lesson plans for the students in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

2. You use multiple teaching strategies for the students in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

3. You manage your class according to your teaching strategies for the students in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

4. You organize your class in cohesion as a strategy for the students in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

5. You change your teaching strategy according to the need of the students in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

6. You utilize the modern technology in your teaching strategies in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

7. You seek the support of your helper as a teaching strategy in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

8. You evaluate your students on the basis of your teaching strategies in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

9. You use your teaching strategies according to the Students Learning Outcomes (SLOs) in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

10. You get training for the improvement of your teaching strategies in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

11. Your teaching strategies boost up students' level of vocabulary building in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

12. Your teaching strategies enhance students' cognitive domain in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

13. Your teaching strategies help in developing comprehension skill of students in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

14. Your teaching strategies reduce stress level of the students in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

15. Your teaching strategies improve students' thinking capacity in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

16. Your teaching strategies build up mutual respect among students in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

17. Your teaching strategies increase likability among students in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

18. Your teaching strategies encourages student for class participation in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

19. Your teaching strategies cooperate in learning alphabet in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

20. Your teaching strategies enables students to express their feelings in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

21. Your teaching strategies boost up friendly behavior of the students in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

22. Your teaching strategies motivate students in sharing classroom responsibilities in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

23. Your teaching strategies builds up sense of competition in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

24. Your teaching strategies make the student productive in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

25. Your teaching strategies enable students to solve minor issues by themselves in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

26. Your teaching strategies adapt students into useful citizens in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

27. Your teaching strategies enable students to make their own identity in the society in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

28. Your teaching strategies help students to become independent in their decision making in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

29. Your teaching strategies make students good learner in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

30. Your teaching strategies empower students to make good career choices in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

31. Your teaching strategies don't work when Students are sad in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

32. Your teaching strategies stop working when Students are aggressive in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

33. Your teaching strategies break down when Students are hyper in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

34. Your teaching strategies go wrong when Students are excited in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

35. Your teaching strategies become weaker when Students are crying in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

36. Your teaching strategies collapse when Students are upset in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

37. Your teaching strategies cease to work when Students are drowsy in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

38. Your teaching strategies halt when Students are not attentive in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

39. Your teaching strategies decline when Students are not responsive in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

40. Your teaching strategies malfunction when Students are stubborn in Special Education.

Strongly Agreed Agreed Undecided Disagreed Strongly Disagreed

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