

EMPOWERING EDUCATORS: BUILDING AWARENESS OF NEURODIVERSITY FOR INCLUSIVE EDUCATION

Dr. Sumbul Mujeeb¹, Sadaf Riaz^{*2}

¹Assistant Professor, Sir Syed University of Engineering and Technology, Karachi

^{*2}Ph.D. Scholar, Department of Psychology, University of Karachi

¹sumbul.mujeeb29@gmail.com, ^{*2}sadafriazahmed@gmail.com

DOI: <https://doi.org/10.5281/zenodo.17826080>

Keywords

mainstream educators, neurodiversity, dyslexia, semi-structured, professional development, sensitivity.

Article History

Received: 09 October 2025

Accepted: 15 November 2025

Published: 01 December 2025

Copyright @Author

Corresponding Author: *
Sadaf Riaz

Abstract

This study examines how professional growth can transform the beliefs of mainstream teachers on the topic of neurodiversity and enhance their capacity to accommodate every student. The research grounded on the neurodiversity approach, in which conditions such as autism, ADHD, dyslexia and dyspraxia are perceived as natural variations in the way individuals think, as opposed to such conditions being considered disorders. This is aimed at breaking the myths that have existed over time that make teachers believe neurodivergent students are bad or undisciplined. The design of the study is before-and-after, in order to know the change in beliefs, feelings, and teaching methods of teachers who have attended a neurodiversity awareness workshop. The Karachi, Pakistan, sample comprised 20 teachers who were interviewed before and after attending the workshop in the public and the private schools. Prior to the workshop, the outcomes revealed a high number of misunderstandings among teachers about the neurodivergent students. They had problems managing the classroom, were under stress, and tended to refer to neurodivergent students as disobedient, lazy, or problematic. Teachers were greatly changed in terms of attitude after the workshop. They felt more understanding, acknowledged the abilities of neurodivergent learners and began applying more accommodating practices such as visual aids, flexible schedules and sensory supports. They also showed more willingness to collaborate with parents and specialists and took a joint accountability towards inclusive education. The analysis was done through thematic analysis to compare the pre-workshop responses of the teachers and post-workshop responses. The primary transformation was that it ceased to be a situation of judgment and confusion and instead became one of sensitivity, patience, and identifying strengths. In general, the study demonstrates that neurodiversity-based professional growth can assist in altering the perceptions of teachers, mitigating the perceived misconceptions, and promoting more inclusive pedagogy, particularly in case of the lack of formal training.

INTRODUCTION

The concept of neurodiversity has transformed our perception toward the differences in learning. It indicates that such neurological disorders as autism, ADHD, dyslexia, and

dyspraxia are not indications of medical incompetence but normal human differences. Such a perspective criticizes the traditional notions that have been entrenched over time in

the conventional models of schooling and urges teachers to acknowledge the diversity of cognitive styles that exist in any classroom setting. Nevertheless, despite the growing awareness of these neurodivergent behaviors in the world, most educators continue to interpret them through the prism of deficit or discipline and as such, they are misunderstood, frustrating, and excluded (Armstrong, 2012; McMahon et al., 2022). Such stereotypes still perpetuate the portrayal of neurodivergent students as disruptive or inability learners and this is not conducive to the inclusive learning process.

This issue is gigantic in nature due to the fact that the attitudes of the teachers spearhead inclusive education. Although legislation and policy may guarantee people are included, everyday behaviors by teachers, including how they understand their behavior, make disciplinary changes, handle difficulties, determine the experience of students. The systematic study of different education systems indicated that the attitudes of teachers are a robust indicator of student involvement, interpersonal inclusion, and academic growth in inclusive learning institutions (Charitaki et al., 2024; Kadriu et al., 2025). The negative/ unsure attitude of teachers to neurodiversity reduces their likelihood to make changes in their lesson, the sensory environment, and cooperate with families and specialists. Conversely, teachers who implement a strengths-based approach establish learning conditions, which affirm students, foster autonomy, and adaptive learning behaviors (Soldovieri, 2024).

The evidence notwithstanding, policy expectations and teacher preparedness still lack a connection. According to many teachers, the neurodiversity was only briefly covered during their pre-service education, and it was often included in short courses on disabilities or behavioral management (Corkum et al., 2014). Even the more senior teachers say that they remain lost in knowing how to explain neurodivergent behaviors, how to modify sensory stimuli, and how to implement the principles of universal design in learning. Professional development chances are either out of date,

highly theoretical, or too broad that the teachers do not have many tools to support the diverse learners (Cook, 2024). This disparity does not only destroy inclusive education but also worsens teacher burnout and frustration because teachers are unable to fulfill the needs of students without clear instructions.

Despite the increasing demand of neurodiversity training, there is a low-level research regarding the actual manner in which such training can transform the thinking of teachers. The majority of the researches are based on the use of opinion polls or quantitative information which describes general attitudes but does not indicate a visible change in perception. Nevertheless, recent qualitative studies indicate that more intensive professional learning experiences, especially those that entail reflective dialogue, case studies, and a neurodiversity-affirmative stance can enable the teacher to change the deficit-based perceptions to more empathetic and strengths-based ones (Florian and Spratt, 2013). However, these results are still not very broad, and there is no knowledge regarding how teachers incorporate new knowledge, update their former assumptions, and integrate their new knowledge into practice.

The proposed research addresses this gap through examining the change in the perception of neurodiversity by teachers before and after they undergo a structured neurodiversity awareness training. This is aimed at investigating the transformations in the knowledge, attitudes and teaching methods of the teachers. Instead of merely assuming that the attitudes of teachers are going to become an improved one, the study is aimed at comprehending how the frames of teachers to explain the behaviors transform, whether they begin perceiving the difference as an expression of different cognitive styles, and not as a defiance and incompetence. New forms of empathy, transformation of language use, and motivation of changing classroom practices are also discussed in the research.

The study employs the qualitative pre- and post-design because the beliefs of teachers are firmly based on their personal experiences, emotional beliefs, school culture, and previous exposure to

concepts of diversity. Numerical scales cannot be adequate in explaining these beliefs. Qualitative methods enable the researcher to understand how teachers make sense of their experiences, manage ambiguity, and acquire new professional identities (Braun and Clarke, 2021). The interviews that done prior to and after the training assist in showing not only the changes in knowledge but also the profound considerations and emotional changes. The current literature demonstrates that qualitative pre-post models come in handy especially when they seek to explain elusive, internal processes that involve how teachers restructure their suppositions and integrate new information (Berg, 2013; Florian and Spratt, 2013). This design gives a central focus on the voices of teachers and offers useful information on how neurodiversity awareness training may develop more inclusive, caring, and pedagogic educational environments. Not only the findings add to the scanty empirical evidence regarding neurodiversity training but also serve as a valuable addition to the broader discussion of how schools can go beyond merely inclusion as a superficial concept to building an environment of the authentic respect of neurological differences.

1. Literature review

Neurodiversity paradigm makes neurological difference a natural cognitive variation instead of deficit and regularizes conditions like autism, ADHD, dyslexia and dyspraxia as different ways of thinking that expand human ability. Modern research emphasizes the fact that neurodiversity leads to creativity, problem-solving, and innovation in case the environment of learning is positive and flexible (Armstrong, 2012; Irish, 2025). This approach is not medicalized in understanding and promotes the appreciation of the strengths, processing styles, and sensory differences of neurodivergent profiles (McMahon et al., 2022; Kapp, 2020). Recent scholarship suggests that neurocognitive variability has to be recognized as a defining characteristic of human development and that inclusive classrooms should be based on pedagogical methods that are flexible, sensorially-aware and respecting of

different learning paths (Fernando, 2024; Dwyer, 2022).

In light of this conceptual change, neurodivergent conditions usually manifested in regular classrooms should be better understood. Autism Spectrum Disorder is characterized by dysfunctions of social communication, sensory processing, and behavioral patterns but is also related to visual thinking skills and areas of concentrated interests (Lord et al., 2018; Joseph et al., 2002). ADHD impairs executive functions, attention regulation, and impulse control, which can be interpreted by teachers as deliberate defiance in school (Fayyad et al., 2017; Agha et al., 2013). Certain learning disorders like dyslexia, dysgraphia and dyscalculia intrude on academic activities even when the sufferers are well instructed and have normal intelligence, but they often are highly reasonable and creative (Inoue, 2016; Odegard et al., 2025). Developmental Coordination Disorder also known as dyspraxia affects motor planning and coordination and causes problems with handwriting, sequencing activities, and practical activities that are typically misinterpreted as laziness or effort-deficiency (Blank et al., 2012).

These cognitive profiles are examples of how wide neurodiversity is already in schools and the need to raise awareness of the educators.

Regardless of heightened focus in the global arena, the studies carried out continuously show that educators continue to have lingering negative beliefs about neurodivergent learners. Research has revealed that in different parts of the world, including South Asia, the Middle East, Europe and Africa, many educators have blamed poor parenting, lack of discipline, or unwillingness of students as a result of neurological factors (Lodhi et al., 2016; Pasha et al., 2021). Teachers often refer to autistic students as inflexible or unsocial or dyslexic students as slow and inattentive, which is a subject to stereotypes of the past (Cook, 2024; Moore et al., 2017). According to qualitative research, educators tend to be unable to differentiate behavioral concerns and sensory overload, executive functioning problems or emotional dysregulation (Harry & Lipsky, 2014;

Corkum et al., 2014). The consequences of such misconceptions are often punitive (warnings, punishments, or punitive classroom management) instead of environmental modification (sensory environment), pedagogical approach or communication style (Soldovieri, 2024; Kadriu et al., 2025). Consequently, a significant number of neurodivergent students feel forced out in the classroom and cannot study effectively, thus affecting their mental health.

The teacher attitudes cannot be overestimated in this process. A considerable amount of research available in the international literature assigns the beliefs and dispositions of teachers as the primary determinants of effective inclusion. When teachers have a positive attitude towards inclusion, they tend to distinguish between instruction and use of flexible instructional methods, as well as work in collaboration with specialists, which results in higher academic as well as social performance of learners with diverse needs (Charitaki et al., 2024; Lindner et al., 2023). These perceptions directly relate to the classroom climate: students with ASD or ADHD state that they feel a greater sense of belonging in the classroom environment when they are taught by a teacher who has empathetic and supportive orientations (Guillemot et al., 2022; Nishan & Matzin, 2020). According to the meta-analyses inclusive attitudes, self-efficacy, past experience and institutional support are all predictors of willingness and ability to use inclusive practices by teachers (Dignath et al., 2022; Karni-Vizer et al., 2025). When both these psychological and contextual elements meet, the teacher will be better placed to identify the strength in neurodivergent students and modify the instructions to suit them.

Professional development has come out as one of the major influences in the formation of such attitudes. The results of several studies confirm that specific training enhances the level of empathy, knowledge and confidence of teacher, decreases the use of stereotypes (Khamzina et al., 2024; Donath et al., 2025). Neurodiversity training can be used to assist teachers in reinterpreting behaviors with cognitive and sensory lenses, which result in practical

approaches to neurodiversity, including systematized routines, visual aids, sensory aids and supportive communication (Dyosini, 2025; Williams, 2024). The teacher preparedness, eagerness to collaborate and apply inclusive pedagogy have been demonstrated to improve in relation to professional learning communities, autism-targeted workshops, and neurodiversity-affirming courses (Alvarez & Sullivan, 2023; Cook, 2024). Studies also reveal that reflective conversation, as opposed to one-sided technical training, is where the most profound changes emerge, and it is also through this approach that a teacher is able to question their beliefs and emotional reactions (Florian and Spratt, 2013; Berg, 2013).

Although this has been made, there are still a number of gaps in the literature. A significant portion of current studies focuses on special educational needs in general and does not use neurodiversity as a definite conceptual approach, which leads to the fact that almost no empirical research exists on the topic of understanding of neurodiversity by teachers (Fernando, 2024; Soldovieri, 2024). Excessive use of cross-sectional surveys based on quantitative research that discerns the patterns but not the evolution of beliefs in teachers and training is also overused (Dignath et al., 2022; Lindner et al., 2023). More so, the lack of qualitative pre- post intervention studies investigating the transformations in the narratives of teachers, interpretive frameworks and emotional reactions after neurodiversity-oriented professional development is also notable (Williams, 2024; Dyosini, 2025). Available qualitative research can describe experiences at one moment in time, which does not provide much information about the dynamics of changing mindset (Harry & Lipsky, 2014; Moore et al., 2017). These lapses bring out the necessity of research that involves a deeper study of conceptual change in teachers and how knowledge interventions redefine the perception. The current research fits into this gap by examining the impact of a neurodiversity awareness workshop on the beliefs, interpretations and attitudes of teachers by using a qualitative pre- post design. This would provide

greater insight into the mechanisms by which educators reflect, re-read and re-build their concept of neurodiversity an understanding that is needed to make learning environments both truly inclusive.

2. Methodology

The qualitative methodology of the study is based on pre- and post-intervention interviewing conducted on teachers, who complete a particular training session to find out how their views on the concept of neurodiversity evolve. This design is useful in tracing change in beliefs, feelings, and interpretation of teachers across time and is thus more informative as compared to their mere quantification. The qualitative method would be best since it relies on the personal experiences of the teachers and the way they think and comprehend neurodivergent learners that are continuing to evolve. The researcher selects the participants critically with regard to the experience in working with neurodiverse students in regular classes. The participants involved in the study consist of 20 teachers in public and private Karachi schools in Pakistan with various teaching levels, subjects and experience. This makes it possible to get a general picture of how Pakistan educators manage neurodiversity in their classrooms.

The data collected by use of semi-structured interviews that done prior to and shortly after the awareness workshop. The pre-intervention interviews include the first beliefs, misconceptions, and interpretations of neurodivergent disorders such as autism, ADHD, dyslexia, and dyspraxia. The post-intervention interviews are directed at the changes in future of the understanding, confidence, empathy, language, and teaching practices of the teachers. The advantages of these interviews are that they enable teachers to express their mind without restriction but nonetheless address some of the main topics such as cognition, behavior, teaching practices and diversity perceptions.

The intervention is a workshop, where the main concepts of neurodiversity are presented. It discusses the key neurodivergent profiles, the

reason neurodiversity is perceived in terms of strength, and a real-life example of cases to demonstrate how the sensory, cognitive, and behavioral differences manifest in the classroom. The workshop consists of applied teaching methods such as visual aids, differentiated instruction, changes that are sensory friendly, routines, and effective communication. The teachers also do the reflective tasks so as to relate the content to their personal experiences. Ethical guidelines are highly observed: the participants provide informed consent, the participation is voluntary, and it is confidential, and the participants may leave any time. The thematic analysis method is applied to the data in which Braun and Clarke refer to the identification of the main patterns of the beliefs, misunderstandings, emotional frames, and intended changes in the teaching of the teachers. Through the comparison of the pre and post intervention data, the research identifies a change in the perception of the teachers about neurodiversity and this provides information about how neurodiversity knowledge is changing in the mainstream education system of Pakistan.

3. Data Analysis and Results

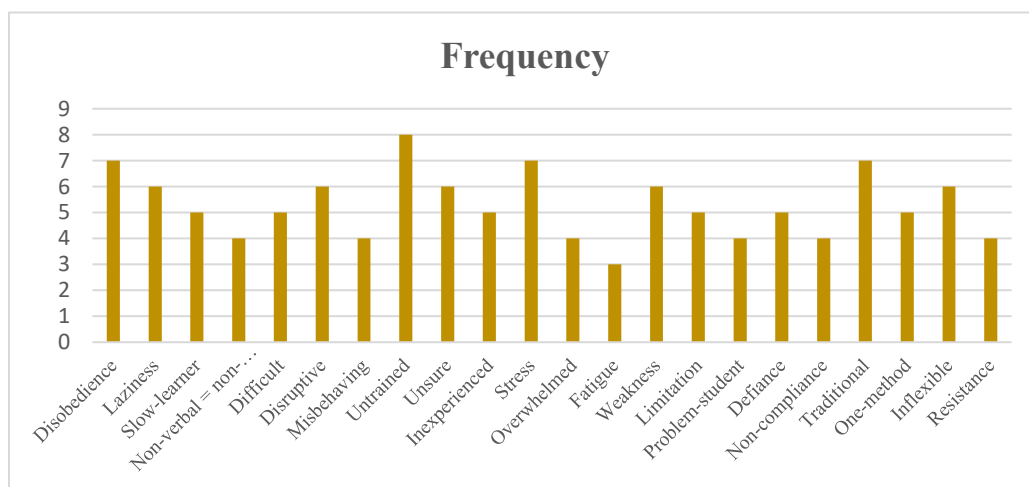
The research employs the thematic analysis as described by Braun and Clarke to discuss how teacher knowledge has changed on the pre- and post- workshop in neurodiversity awareness. The analysis involves introducing oneself to transcripts, line-by-line coding, categorising transcripts into subthemes, subthemes into major themes, and patterns between pre- and post-intervention data.

4.1 Pre-Intervention Themes

Prior to the workshop, there are misconceptions, low confidence, deficit-based thinking, and inflexible classroom practices by the teachers. The codes demonstrate the lack of understanding of neurodivergent behaviors, the fear of dealing with different learners and the use of traditional methods.

Table 1. Pre-Intervention Themes

Theme	Subtheme	Code	Frequency
Misconceptions	Incorrect assumptions	Disobedience	7
		Laziness	6
		Slow-learner	5
		Non-verbal = non-intelligent	4
	Stereotypes	Difficult	5
		Disruptive	6
		Misbehaving	4
Anxiety & Low Confidence	Lack of preparation	Untrained	8
		Unsure	6
		Inexperienced	5
	Emotional strain	Stress	7
		Overwhelmed	4
		Fatigue	3
Deficit-Based View	Negative labeling	Weakness	6
		Limitation	5
		Problem-student	4
	Behaviour misreading	Defiance	5
		Non-compliance	4
Rigid Teaching Methods	Fixed routines	Traditional	7
		One-method	5
	Limited adaptability	Inflexible	6
		Resistance	4



The pre-intervention information indicates that there is a steady set of misconceptions, emotional

tension, deficit-focused ideologies, and inflexible pedagogical processes among the educators. The

personal frequency of codes serves as the emphasis of the degree to which these challenges precondition the perception of neurodivergent students by the teachers prior to the awareness session. The upper frequencies are misconceptions and anxiety, which show that teachers have been assessing neurodivergent behavior mostly based on behavioral or moral judgement and not neurobiological explanations. Such codes as disobedience (7), laziness (6), disruptive (6) and difficult (5) demonstrate that teachers often construct the behavior of students in terms of intentionality, avoidance or bad motivation. The existence of non-verbal = non-intelligent (4) shows a negative misconception that the differences in communication are the same as cognitive constraints. These myths reflect the narrowness of thought and exposure to neurodiversity-based thinking.

The low confidence theme and anxiety are also eminent. The frequency of codes (high) includes untrained (8), stress (7), unsure (6), and inexperienced (5), which demonstrate that teachers do not feel prepared to address the needs of neurodivergent learners. Emotional strain, which is manifested in overwhelmed (4) and fatigue (3), indicates that teachers understand neurodiversity as a liability to the standard classroom diversity and not a normal aspect of classroom diversity. Such emotions are probably the reasons why avoidance, disengagement, or punitive actions are adopted. The cumulative deficit theme, which is based on the deficit appears to focus on negative framing. Other codes such as weakness (6), limitation (5),

and problem-student (4) are used to demonstrate that teachers are more concerned with perceived weaknesses than strengths or learning profiles. There is also a general misinterpretation of behavior, which is reported by defiance (5) and non-compliance (4), meaning that teachers explain behavioral differences by stubbornness or even purposeful resistance rather than by sensory overload or executive functioning difficulties.

Last but not least, the theme of hard teaching practices portrays a low degree of pedagogical flexibility. The traditional (7), inflexible (6), one-method (5), and resistance (4) codes show that the teachers are very dependent on routines and traditional teaching. The frequencies do not imply the differentiated strategies or readiness to alter the classroom settings, which probably restrict the involvement of neurodivergent learners. Collectively, the pre-intervention codes indicate the existence of a profession that has difficulty with conceptual clarity, emotional preparedness, and practical flexibility about neurodiversity. Misconceptions, fear and deficit-oriented assumptions are the reasons why teachers come into the workshop, and it is important to note that a structured training program would help to reorient views and instill confidence in the inclusive approaches.

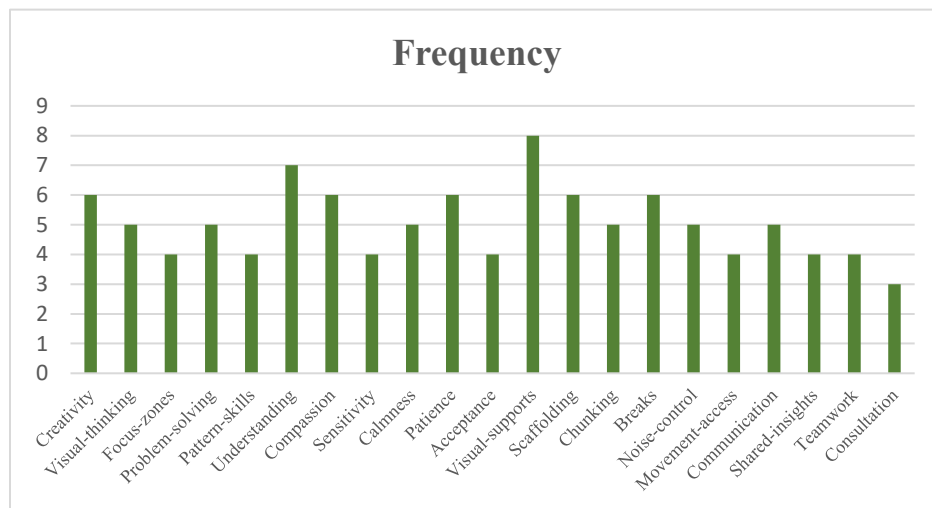
4.2 Post-Intervention Themes

Following the workshop, the participants exhibit better knowledge of neurodiversity, a more empathetic attitude, more adaptable approaches to teaching, and a desire to be collaborative.

Table 2. Post Intervention, Subthemes, Codes, and Individual Frequencies.

Theme	Subtheme	Code	Frequency
Strengths-Based Understanding	Recognition of abilities	Creativity	6
		Visual-thinking	5
		Focus-zones	4
	Cognitive diversity	Problem-solving	5
		Pattern-skills	4
Empathy & Perspective Shift	Emotional insight	Understanding	7
		Compassion	6

Theme	Subtheme	Code	Frequency
Adoption of Inclusive Strategies	Behavioural patience	Sensitivity	4
		Calmness	5
		Patience	6
		Acceptance	4
	Instructional changes	Visual-supports	8
		Scaffolding	6
		Chunking	5
	Sensory adjustments	Breaks	6
		Noise-control	5
		Movement-access	4
Collaboration	Parent engagement	Communication	5
		Shared-insights	4
	Specialist involvement	Teamwork	4
		Consultation	3



Findings after intervention indicate that there has been a significant change in conceptual frameworks, emotional responses and teaching practices of teachers. The individual code frequencies indicate that the awareness workshop was effective in transforming the deficit-based interpretation into strength-based, empathetic and collaborative approach in the thinking of the teachers. The theme Strengths-Based Understanding represents one of the greatest changes. Such codes like creativity (6), visual-thinking (5), and focus-zones (4) demonstrate that the teachers start to see cognitive advantages

rather than the perceived shortcomings. Similarly, there are codes within cognitive diversity problem-solving (5) and pattern-skills (4) which reveal that participants are more likely to perceive specific neurocognitive skills instead of seeing differences as weaknesses. These rates indicate that there is a shift towards viewing neurodivergent learners as competent members with a specific set of skills. Empathy and Perspective Shift is the theme that emphasizes the emotional and attitudinal change. High frequency of understanding (7) and compassion (6) reflects a higher level of

emotional awareness and less judgement and more sensitivity. Codes like calmness (5), patience (6) and acceptance (4) are evidence that the teachers are not only aware of the neurodivergent needs but go to the extent of modifying their interpersonal behavior to establish more supportive learning conditions. These transformations are indicative of more internal embodiment of neurodiversity principles and not a mere retention of knowledge.

The most evident behavioral change of the workshop is demonstrated by the theme Adoption of Inclusive Strategies. It is evident that the highest-frequency code in the post-intervention dataset is visual-supports (8), which proves that teachers actively use concrete instructional tools to support the needs of various learners. The emergence of flexible, responsive teaching practices can be demonstrated through such codes like scaffolding (6), chunking (5), breaks (6), noise-control (5), and movement-access (4). These frequencies show that teachers have come to realize the direct effect of environmental and instructional changes on the level of engagement and comfort of learners.

The topic Collaboration reflects the gains of readiness among teachers to communicate with families and specialists. Such codes as communication (5), shared-insights (4), teamwork (4), and consultation (3) imply that the teachers are aware of the importance of the joint problem-solving. The existence of such codes, which was not present or only minimal in pre-intervention data, indicates a change towards a much more integrated and supportive orientation in the process of decision-making. On the whole, the conceptual, emotional, and behavioral development is impressive in the post-intervention frequencies. Educators shift their negative views towards neurodivergent behaviors towards understanding their strengths, using inclusive strategies, and embracing collaborative ways of thinking. These trends confirm the meaningfulness of the awareness workshop to transform teacher attitudes and inclusiveness practice preparedness.

4.3 Comparison of Pre and Post intervention

The comparison of pre and post interventions results shows that there has been a substantial change in the way of the teacher perceiving, interpreting, and acting on neurodiversity. The prevailing codes prior to the workshop include fear, confusion and uncertainty. Negative labeling, which includes lazy, slow-learner, problem-student, etc, is majorly used by teachers, demonstrating that they view neurodivergent tendencies through the lens of disciplinary or moral, but not developmental or neurological, approaches. These readings demonstrate a profound feeling of uneasiness, as teachers often position themselves as unprepared, untrained or overwhelmed. Their pedagogical approach reflects this uneasiness tight schedules, the adoption of only one approach to teaching and refusal to change are observed throughout the data, which means that they are not flexible and are not aware of the various approaches to the differentiated method of teaching.

To support the data change, the information post-workshop indicates a significant change in teacher reflections content and tone. The codes start prioritizing talents over weaknesses and such words as creativity, visual-thinking, and problem-solving are repeated quite often. These words represent a strengths-based realization that previously was virtually non-existent. The emotional understanding is growing as well, as teachers can be heard saying things like compassion, understanding, and patience, which reveal that they are now being empathetic of neurodivergent behaviors and not judgmental. This paradigm indicates that educators are beginning to look beyond the behavior, and discern internal lives of the learner through sensory needs, communication dissimilarities, and styles of cognitive processing.

The post-intervention data are significantly more flexible in terms of its instructional approaches. Educators are starting to make reference to tangible inclusive practices such as visual-supports, scaffolding, chunking and noise-control, which suggests the definite shift to a deliberate and systematic support. These plans demonstrate the recognition of the potential of

environmental and instructional modifications to alleviate the anxiety, enhance the level of engagement, and improve the outcomes in the learning process of neurodivergent students. Such codes are not only a symptom of conceptual change but also a symptom of behavioral change. The other notable change is the change in the attitude of the teachers towards the collaboration. Such post-intervention codes like communication, shared-insights, teamwork, and consultation demonstrate that teachers now realize the need to cooperate with parents, psychologists, and special educators. It is a contrast to the pre-intervention pattern, where the responses of teachers were more individual and separated.

The code frequencies used by the individual people are a clear indication of how deep this contrast is. Negative words such as lazy, problem-student and inflexible are used commonly in the pre-workshop period but reduces and disappears after the workshop. Conversely, positive codes such as, creativity, compassions and visual-supports increase significantly following the intervention indicating that teachers have started to give behaviors new frames in terms of neurological-supports and sensory codes, instead of judgement and blame. This change proves the fact that the awareness workshop not just changed the knowledge of the teachers but also redefined their emotional and pedagogical reactions to neurodiversity.

4. Discussion of findings

This research shows that there was a significant and significant intellectual, emotional, and pedagogic conceptualization of neurodiversity among teachers after attending the awareness workshop. The pre-intervention information indicates that teachers participated in the workshop with deficit-based attitude influenced by the misconceptions, emotional tension, and strict instructional patterns. These findings are reminiscent of international studies indicating that neurodivergent behaviors remain perceived through the moral or disciplinary concept by many educators who usually think that differences come about due to laziness,

disobedience, or lack of proper upbringing (Lodhi et al., 2016; Pasha et al., 2021). The repetition of the codes, including the following ones, disobedience, lazy, slow-learner, problem-student, is the way to understand that the expressions of behavior were regarded as the evidence of deliberate defiance instead of the manifestation of cognitive or sensory diversity. This resembles the past evidence that educators tend to misjudge the differences in autistic communication as intelligent limitation or restlessness caused by ADHD as a sign of willful misconduct (McMahon et al., 2022; Harry & Lipsky, 2014).

This trend is further validated by the emotional reactions of the teachers before the workshop. High-frequency codes, like untrained, unsure, overwhelmed, and fatigue, demonstrate that teachers felt unprepared to work with neurodivergent learners, which aligns with the research results and argues that teacher lack of training is an independent contributor to teacher anxiety and burnout (Cook, 2024; Khamzina et al., 2024). Most of the participants viewed neurodiversity as a liability instead of an anticipated classroom diversity component, which recent studies found in numerous cultural settings (Moore et al., 2017; Dignath et al., 2022). The significance of these emotional barriers is based on the fact that teacher attitudes are the strongest predictors of inclusion and, in most cases, negative/fearful attitudes result in punitive management and rigid teaching (Kadriu et al., 2025; Lindner et al., 2023). This dynamic was seen in the pre-intervention themes of rigidity and the reliance on the old ways, which demonstrate that teachers did not adapt pedagogically due to the lack of confidence and conceptual clarity to do so.

After the workshop, the changes are significant in conceptual, emotional and behavioral levels. Among the most noticeable ones stands the trend towards the strengths-based approach to neurodivergent learners. Such words as creativity, visual-thinking, problem-solving, pattern-skills are frequently observed in the post-intervention interviews. These can be interpreted as a shift towards the definition of neurodiversity as a

cognitive divergence as opposed to a collection of impairments as expressed in the neurodiversity paradigm by Armstrong (2012), Irish (2025), and Fernando (2024). The recognition of strengths is a paradigmatic shift in the thinking of teachers, as it presupposes that the participants have initiated re-conceptualizing neurological differences as a possible asset, which is a necessary aspect of inclusive education.

A greater sense of emotional understanding and empathy was also exhibited by teachers after the workshop. The use of codes like understanding, compassion, patience, and acceptance increased demonstrates that teachers began to interpret behaviors based on senses, mind, and emotional perspectives instead of being judgmental. Recent studies affirm that this kind of empathic change can be developed based on principles of neurodiversity, which makes the professional development process more productive and less reliant on stereotypes and more sensitive to the needs of the learners (Florian and Spratt, 2013; Donath et al., 2025). The conclusion of this study supports this point, and it is revealed that teachers were more disposed to stop and think about their answers and modify them, which is a major trait of inclusive preparedness.

It is behavioral as the adoption of flexible and inclusive approach towards post-intervention phase is an expression of practical change and not theoretical knowledge. Students engage in writing more frequently, and the percentage of correct spelling forms grows as well as the frequency of mentioning such notions like visual-supports, scaffolding, chunking, breaks, and noise-control (Soldovieri, 2024; Williams, 2024). The prevalence of such codes indicates that the workshop equipped the teachers with practical and implementable strategies that they were comfortable to implement. This is as a contrast to the pre intervention dependence on one-way teaching method and strict schedules. The importance of such instructional flexibility as one of the key conditions of effective inclusion and learner engagement has been extensively found (Charitaki et al., 2024; Karni-Vizer et al., 2025).

One more significant change is the increase in the collaborative attitudes. The appearance of codes related to teamwork, consultation, common sense, and teamwork communication only becomes visible in the post-intervention phase when it is clear that teachers start to perceive neurodiversity support as a collective task, as opposed to an individual burden. Such a change is reflected by the study that the practice of inclusiveness flourishes in case teachers work with families and specialists to develop solutions together instead of addressing the problem individually (Berg, 2013; Alvarez & Sullivan, 2023). The development of collaborative language also shows that the workshop did not only alter the thought process of the teachers towards learners but also their place in the wider support system.

The comparison of the pre and the post results shows a definite shift of deficit-oriented, emotionally tense and fixed interpretations to the strengths-oriented, sensitive, and flexible ones. This development contributes to the current body of literature that shows that a focused professional growth can change teacher attitudes toward neurodiversity, resulting in their improved attitudes and more adaptable pedagogies (Khamzina et al., 2024; Dyosini, 2025). Nevertheless, the qualitative disposition of this study gives a bit of flavor to such conclusions by demonstrating that it is not only the changes in attitudes that happen but also the ways in which teachers redefine their former assumptions. The fact that negative codes such as lazy, problem-student and inflexible have been dropping, and positive codes such as creativity, compassion, and visual-supports are increasing, proves a significant conceptual reorienting. Educators started to appreciate behaviours as manifestations of sensory needs, executive functioning differences or in cognitive processing styles and not defiance or incapacity.

These results are added to the expanding yet minimal amount of empirical research that delves into the transformation of teacher mindset in the context of neurodiversity-based professional development. A lot of the current researches are based on quantitative surveys that determine

general attitudes, but do not reveal inner changes in the meaning-building. This study can show the emotional complexity and cognitive restructuring of teacher learning through a qualitative pre-post design a dimension that is frequently missed in discussions of inclusive education in general. The findings indicate that with the help of structured, reflective, and strengths-based training, educators are not only able to acquire new skills but also rebuild their professional identities in a manner that would be more helpful to neurodivergent learners.

In general, the research demonstrates that neurodiversity awareness workshops can become a powerful trigger to change the beliefs of the teachers, decrease the number of false assumptions, develop empathy, and embrace the strategy of inclusive teaching. These reforms are necessary in closing the gap that has always existed between the expectations of policy influences in inclusion and the differences between policy and classroom reality. Such interventions help to establish learning settings in which neurodiversity is valued and learners have the opportunity to identify themselves, feel psychologically safe, and engage in equitable learning by enhancing the way teachers conceptualize neurodiversity.

5. Conclusion

The results of this research indicate that a well-planned neurodiversity awareness training can be used to change the perception, interpretation, and reaction of mainstream teachers towards neurodivergent students in a meaningful way. Prior to the intervention, the stories of the teachers were characterized by misconceptions, fear, frustration, and this deficit-based judgment. Disciplinary or moral perspectives of behaviors were considered and teaching methods were fixed, constricted and emotionally charged. These early views show the extent to which cultural assumptions are ingrained, staff members have not been trained, and strain to build an emotional response influence how teachers perceive classrooms on daily basis. When educators view neurodiversity as disorder, disruption or difficulty, they will respond with

these ideas, which tend to create practices of exclusion and punishment that impede students' engagement and belonging.

The results of the post-intervention indicate that specific training may break such assumptions and help to develop a meaningful conceptual change. It started with teachers defining neurodiversity as a natural manifestation of cognitive difference, and not a set of deficits. They identified strong points, were more empathetic about students and re-framed the behaviors that were challenging using neurological and sensory explanations instead of blame. More critically, this change did not stop at the language sphere, educators also learned tangible inclusive approaches, showing a desire to modify in-classrooms settings, practices, and teaching decisions. The development of collaborative attitudes means that teachers have begun to regard themselves as a broader system of support that values the importance of their collaboration with parents, specialists, and colleagues.

The comparison of the pre-intervention and post intervention codes shows that changes in concepts were not initiated in isolation and were accompanied by emotional changes. Educators shifted their state of being overwhelmed and uncertain to calm, patient and accepting, demonstrating that awareness-building constitutes more than just a cognition, but it is also a very affective state. This change of heart is essential because the art of inclusivity must be based on a set of knowledge, attitude, and relationship disposition. The workshop facilitated by decreasing fear and replacing it with understanding, which can be a basis where sustainable inclusive practice can develop, as the internal experiences of neurodivergent learners could be acknowledged by the teachers.

On the whole, this study has shown that teacher beliefs can be changed with the support of professional development based on neurodiversity principles and allow to decrease misunderstandings, as well as to create more responsive and humane educational settings. It emphasizes the need to continue, reflective, and context-sensitive training of teachers, especially in those areas where neurodiversity is still a poorly

known concept. The findings indicate that with the provision of tools, knowledge and emotional space allowing teachers to evaluate their assumptions, they can change in a meaningful way and in a permanent one. The kind of change that is needed is the development of inclusive classrooms where all students feel acknowledged, appreciated and in a manner that does not undermine their cognitive identities and the learning process of all students.

REFERENCES

- Agha, S. S., Zammit, S., Thapar, A., & Langley, K. (2013). Are parental ADHD problems associated with a more severe clinical presentation and greater family adversity in children with ADHD?. *European child & adolescent psychiatry*, 22(6), 369-377.
- Alvarez, M. C. P., & Sullivan, T. (2023). Exploring and Developing Pedagogies for Neurodiverse Students in Further Education and Training in Ireland. *Adult Learner: The Irish Journal of Adult and Community Education*, 19, 53.
- Armstrong, T. (2012). Neurodiversity in the classroom: Strength-based strategies to help students with special needs succeed in school and life. ASCD.
- Berg, K. (2013). Teachers' narratives on professional identities and inclusive education. *Nordic Studies in Education*, 33(4), 269-283.
- Blank, R., Smits-Engelsman, B. O. U. W. I. E. N., Polatajko, H., & Wilson, P. (2012). European Academy for Childhood Disability (EACD): Recommendations on the definition, diagnosis and intervention of developmental coordination disorder (long version). *Developmental medicine and child neurology*, 54(1), 54.
- Braun, V., & Clarke, V. (2021). To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qualitative research in sport, exercise and health*, 13(2), 201-216.
- Charitaki, G., Kourti, I., Gregory, J. L., Ozturk, M., Ismail, Z., Alevriadou, A., ... & Demirel, C. (2024). Teachers' attitudes towards inclusive education: a cross-national exploration. *Trends in Psychology*, 32(4), 1120-1147.
- Cook, A. (2024). Conceptualisations of neurodiversity and barriers to inclusive pedagogy in schools: A perspective article. *Journal of Research in Special Educational Needs*, 24(3), 627-636.
- Corkum, P., Bryson, S. E., Smith, I. M., Giffin, C., Hume, K., & Power, A. (2014). Professional development needs for educators working with children with autism spectrum disorders in inclusive school environments. *Exceptionality Education International*, 24(1).
- Dignath, C., Rimm-Kaufman, S., van Ewijk, R., & Kunter, M. (2022). Teachers' beliefs about inclusive education and insights on what contributes to those beliefs: a meta-analytical study. *Educational Psychology Review*, 34(4), 2609-2660.
- Donath, J. L., Lüke, T., Tran, U. S., Botes, E., & Goetz, T. (2025). The Transfer of Teacher Training to Inclusive Classroom Practice: A Meta-Analytic SEM Approach. *Educational Psychology Review*, 37(4), 105.
- Dyosini, T. P. (2025). Early childhood teachers on Neurodiversity: Perspectives and professional development needs. *South African Journal of Childhood Education*, 15(1), 1677.
- Fayyad, J., Sampson, N. A., Hwang, I., Adamowski, T., Aguilar-Gaxiola, S., Al-Hamzawi, A., ... & Kessler, R. C. (2017). The descriptive epidemiology of DSM-IV adult ADHD in the world health organization world mental health surveys. *ADHD Attention Deficit and Hyperactivity Disorders*, 9(1), 47-65.
- Fernando, T. (2024). Embracing Neurodiversity in Education: A Review of Inclusive Practices, Policies, and Pedagogies. *SchoRes Journal of Education Research*, 1(2).

- Florian, L., & Spratt, J. (2013). Enacting inclusion: A framework for interrogating inclusive practice. *European journal of special needs education*, 28(2), 119-135.
- Guillemot, F., Lacroix, F., & Nocus, I. (2022). Teachers' attitude towards inclusive education from 2000 to 2020: An extended meta-analysis. *International Journal of Educational Research Open*, 3, 100175.
- Harry, B., & Lipsky, M. (2014). Qualitative research on special education teacher preparation. *Handbook of research on special education teacher preparation*, 445-460.
- Inoue, A. (2016). *Educational psychology and dyslexia: An investigation into current thinking and practice*. The University of Manchester (United Kingdom).
- Irish, B. J. (2025). *Historical Neurodiversity Studies: A New Paradigm of Experience*. History and Theory.
- Joseph, R. M., Tager-Flusberg, H., & Lord, C. (2002). Cognitive profiles and social-communicative functioning in children with autism spectrum disorder. *Journal of Child Psychology and Psychiatry*, 43(6), 807-821.
- Kadriu, E., Destani, N. A., & Uka, A. (2025). Experiences of school psychologists supporting students with special educational needs in inclusive elementary education. *Support for Learning*.
- Kapp, S. K. (2020). *Autistic community and the neurodiversity movement: Stories from the frontline* (p. 330). Springer Nature.
- Karni Vizer, N., Arslan, M., & Hazan-Liran, B. (2025). Transforming Attitudes: How Training and Culture Shape Teachers' Views on Inclusion. *Education Sciences*, 15(10), 1297.
- Khamzina, K., Stanczak, A., Brasselet, C., Desombre, C., Legrain, C., Rossi, S., ... & Cilia, F. (2024). Designing effective pre-service teacher training in inclusive education: A narrative review of the effects of duration and content delivery mode on teachers' attitudes toward inclusive education. *Educational Psychology Review*, 36(1), 13.
- Lapon, E., Buddington, L., & Swanson, J. (2025). An Examination of Teacher Self-Efficacy to Support Neurodiverse Students in Higher Education. *College Teaching*, 1-9.
- Lindner, K. T., Schwab, S., Emara, M., & Avramidis, E. (2023). Do teachers favor the inclusion of all students? A systematic review of primary schoolteachers' attitudes towards inclusive education. *European Journal of Special Needs Education*, 38(6), 766-787.
- Lodhi, S. K., Thaver, D., Akhtar, I. N., Javaid, H., Mansoor, M., Bano, S., ... & Saleem, S. (2016). Assessing the knowledge, attitudes and practices of school teachers regarding Dyslexia, Attention-Deficit/Hyperactivity and Autistic Spectrum Disorders in Karachi, Pakistan. *Journal of Ayub Medical College Abbottabad*, 28(1), 99-104.
- Lord, C., Elsabbagh, M., Baird, G., & Veenstra-Vanderweele, J. (2018). Autism spectrum disorder. *The lancet*, 392(10146), 508-520.
- McMahon, C. M., Linthicum, M., & Stoll, B. (2022). Developmental disability vs. neurodiverse identity: how cognitive lens affects the general public's perceptions of autism. *Disability & society*, 37(9), 1439-1455.
- Moore, D. A., Russell, A. E., Arnell, S., & Ford, T. J. (2017). Educators' experiences of managing students with ADHD: a qualitative study. *Child: care, health and development*, 43(4), 489-498.
- Nishan, F., & Matzin, R. (2020). Factors contributing to teacher attitudes towards inclusive education. *Asian Journal of Research in Education and Social Sciences*, 2(3), 34-44.

- Odegard, T., Gierka, M., & Ormandy, N. (2025). Reframing dyslexia: Language and linguistic complexity, developmental risk, and the future of science of reading policy. *Annals of Dyslexia*, 1-13.
- Pasha, S., Ijaz, M., & Qadri, M. A. (2021). Awareness of Mainstream Primary School Teachers on the ADHD Symptoms in Punjab. *Review of Education, Administration & Law*, 4(1), 11-22.
- Soldovieri, A. (2024). Thinking, talking, teaching: how primary school educators facilitate neurodiversity-affirming classroom practices to support students' inclusion (Doctoral dissertation, University of British Columbia).
- Williams, T. D. (2024). Examining the Impact of a Professional Learning Community on Teachers' Awareness of Neurodiversity in the Classroom (Doctoral dissertation, University of South Carolina).

