

Comprehensive Overview of Inclusive Pedagogies for Students with Special Educational Needs: Traditional Methods and Neuropedagogical Innovations

Giovanni Tafuri

University of Naples "Parthenope"
giovanni.tafuri@uniparthenope.it

Federica Badii Esposito

University of Naples "Parthenope"
federica.badiiesposito@uniparthenope.it

Lucia Ariemma

University of Campania "Luigi Vanvitelli"
lucia.ariemma@unicampania.it

Abstract

The importance of this topic is rooted in the delineation of the neuropedagogical dimension associated with mental and pedagogical strategies for instructing children with special educational needs. This manuscript encompasses a theoretical analysis of the discourse surrounding this topic, the elucidation of the term "inclusive education," the core principles governing the education of students with disabilities; as well as the neuropedagogical perspective on mental and pedagogical strategies in the teaching of children with special educational needs. The understanding of the inclusive education concept has been examined, and pertinent literary sources addressing this topic have been synthesized. The findings culminate in the assertion that a rigorous assessment of traditional approaches within the neuropedagogical context of cognitive and educational strategies for teaching children with special educational needs is essential. The research underscores that in the domain of educator preparation for teaching professionals; the application of pedagogical methods specifically designed for children with special educational requirements may facilitate their integration into the educational system. The foundational tenet of inclusion is predicated on the acknowledgment of the distinct abilities of each student. Consequently, the educational framework ought to be organized in a manner that adequately responds to the individualized educational needs of all students.

Keywords: Supportive learning environment; Pedagogy; Disability

Introduction

The cornerstone of inclusion is predicated upon the acknowledgment of the unique capabilities possessed by each student, as articulated through a fundamental tenet. Consequently, the educational framework must be meticulously designed to underscore the specific educational needs of each individual child. In the modern educational landscape, there is a discernible increase in the demographic of children with special educational needs (SEN). This situation calls for a significant transformation and modernization of the educational system from a neuropedagogical standpoint to guarantee that all children receive sufficient and contemporary mental and pedagogical assistance. Inclusive education embodies a holistic paradigm that champions equitable access to high-quality education for all individuals, devoid

of any exclusions. The term "inclusive" education refers to a particular manifestation of comprehensive education that aspires to render education accessible to children across all classifications, while being sensitive to their distinct needs. This approach facilitates the education of children with specialized educational requirements. Inclusive education addresses a diverse array of students' needs by offering a comprehensive suite of educational services, meticulously designed to support their educational pursuits.

The foundational principle of inclusion is anchored in the recognition of the distinct capabilities inherent in each student. Consequently, the educational process must be systematically structured to adequately meet the educational necessities of every learner. The principle of embracing diversity is grounded in humanistic values, cognitive development, and the nurturing of various competencies, thereby ensuring a harmonious integration of intellectual, ethical, emotional, and physiological dimensions within each individual's identity. Faculty members within comprehensive educational institutions receive students irrespective of their socioeconomic backgrounds, cognitive and physical abilities, and emotional states. The pedagogical methodology should concentrate on cognitive strategies and instructional practices that are specifically tailored to address the individual needs of the students. The transition to inclusive education enables students to cultivate the requisite skills in accordance with established educational standards. Numerous scholarly works have been conducted on neuropedagogy, aimed at enhancing the educational processes for students with special educational needs, drawing upon the experiences of foreign nations (Berbets et al., 2021; Demchenko et al., 2021; Karasievych et al., 2021; Kosholap et al., 2021; Prots et al., 2021; Sarancha et al., 2021; Sheremet et al., 2019). Anishchuk asserts that within the domain of neuropedagogy, there exists an urgent need for a thorough reevaluation and reconstruction of the contemporary educational framework to ensure that each child receives effective and up-to-date mental and pedagogical support. Additionally, she advocates for leveraging the expertise of European countries. Through her scholarly research, she elucidates that the foundation of inclusion as a structural component is the recognition of the unique characteristics inherent to each student; in Darling-Hammond's (2010a) perspective, the educational process must be systematically organized to fully identify the educational needs of every child, with an emphasis on international experiences, where this dimension has been explored much earlier. Treviranus (2010) contends that for children experiencing physical, intellectual, and mental disabilities, specialized techniques and standards are essential to facilitate their secondary education, necessitating a reevaluation of the educational content.

1. The essential tenets related to educating learners with limited capabilities

Children characterized by limited capacities are individuals within the juvenile demographic whose cognitive and physical abilities hinder the achievement of a comprehensive education outside the confines of specialized educational environments. These individuals manifest a spectrum of developmental challenges, including auditory, visual, speech, and motor difficulties, cognitive deficits, emotional disturbances, developmental delays, and complex developmental disorders. Consequently, an individualized approach towards each child and a specifically tailored curriculum for children with limited abilities represent the principal advantages in the education of such individuals, as articulated by Ashytok (2015). Voloshyna and Dmitrenko (2017) proposed the viability of identifying the essential principles related to the education of students with restricted abilities: 1. The establishment of an appropriate communicative environment facilitates the opportunity to address errors, allowing students to partake in activities that foster the development of such an environment, acknowledging students' rights to amend mistakes. For instance, in the context of solving a crossword puzzle, students are permitted to erase incorrect entries. Activities centered around schematic representations also demonstrate significant efficacy in this domain.

This methodology markedly enhances student engagement, particularly among those who face difficulties in providing verbal or written responses. 2. The incremental complexity of educational material, delivered in manageable segments, necessitates a constant elevation in the difficulty level of tasks. 3. Adequate educational resources and manuals must be employed. 4. The practical orientation of instructional materials and the emphasis on the child's life experiences should be significantly heightened. 5. There should be a systematic review and reference to "previous" knowledge. Mandatory tasks for repetition should be incorporated into each lesson. Additionally, comprehensive revision should be conducted at the conclusion of each topic utilizing diverse methods and techniques (such as crossword puzzles, puzzles, etc.). 6. To facilitate students' learning, it is crucial to employ a sufficient number of tasks that follow a pattern, specifically tasks based on reproduction. These include assignments that involve completing schemes or symbolizing specific objects in illustrations. The educational content should be preliminarily examined with students based on a textbook, and only thereafter should students be assigned the task to execute in their notebooks.

The current landscape poses significant challenges for children with special needs regarding their integration into societal frameworks. In these circumstances, instructional and pedagogical strategies assume a pivotal role in accommodating the diverse needs of these children. It is essential for educators across all levels of education to employ methodologies that promote the assimilation of differently abled students into society and facilitate their adaptation to conventional lifestyles. Furthermore, technologies play an integral role in the ongoing enhancement of inclusive and effective pedagogical practices aimed at the educational and personal development of students with Special Educational Needs (SEN), particularly when such technologies are incorporated into the innovative domain of neuropedagogy.

2. The neuropedagogical aspect concerning the cognitive and pedagogical methodologies employed in the education of students with distinctive learning needs is of paramount importance

Technology constitutes a compendium of methodologies, implemented across various professional domains, skill sets, or artistic endeavors, as articulated by Budnyk (2017). Kasyanenko (2018) posits that technology can be conceptualized as the structural framework of educational praxis, wherein all pedagogical activities are conducted in a meticulously defined sequence and completeness, with the anticipation of their actualization aimed at achieving predetermined educational outcomes. The application of corrective and educational technology engenders positive advancements in the educational and instructional processes for children with disabilities. It is imperative to underscore the neuropedagogical dimension of contemporary technology, which encompasses components applicable within the context of special educational achievement: 1. Multilevel instructional technology; 2. Problem-based instructional technology; 3. Project-based instructional technology; 4. Compensatory instructional technology; 5. Gaming technology; 6. Information and communication technology; 7. Moral technology; 8. Safe and healthy technology. The efficacious amalgamation of traditional and contemporary technologies is instrumental in augmenting cognitive functions, nurturing creativity, and enhancing students' motivational levels within the educational milieu. Of particular significance are pedagogical strategies that prioritize the sustained emotional engagement between educators and learners. Traditional technology serves to enrich children's imaginative capabilities, stimulating a multitude of associations with their social and emotional experiences, whilst concurrently promoting the development of verbal skills, as observed by Berehova (2019). A potential methodology for modernizing traditional technology encompasses the integration of educational innovations and the incorporation of information, alongside the adaptation of instructional methodologies and formats. The multilevel educational technology takes into account the distinctive attributes of

each learner, thereby establishing a nurturing cognitive environment that promotes active learning and augments students' critical thinking and autonomy, as elucidated by Chupakhina (2019a). The neuropedagogical dimension of multilevel education pertains to the technology employed in organizing the educational process, accommodating diverse levels of instructional attainment predicated on the competencies and unique characteristics of each learner, without transgressing the fundamental minimum threshold. This consideration is particularly vital within correctional educational institutions serving children with specialized educational needs. This technology aspires to facilitate the acquisition of essential knowledge and skills for all learners, thereby supporting their ongoing development. It aids in the enhancement of students' unique aptitudes and their comprehension of professional and social self-identity, as articulated by Voyevutko (2017). The application of level differentiation is critical when engaging with complex topics or thematic units. The utilization of multilevel assessment tasks is particularly prevalent during the concluding phases of instructional sessions. It is essential to delineate explicit educational objectives for learners by the conclusion of each thematic unit, with corresponding multilevel tasks being provided accordingly.

An alternative methodology to contemplate involves the application of differentiation when introducing a new subject, elucidating the topic by commencing with more advanced concepts and subsequently progressing towards simpler elements. Ultimately, the degree of understanding and assimilation of the material can be assessed. The examination of students' comprehension in relation to multilevel educational components has yielded the subsequent conclusions (Crowl et al., 1997): - such educational frameworks promote a differentiated pedagogical approach that acknowledges the distinct individual characteristics of students; - reflexivity is augmented (the inquiry into why, the processes of self-reflection, and the necessity for acknowledgment) alongside an elevation in educational motivation; - the degree of satisfaction or dissatisfaction regarding educational outcomes is assessed by both educators and learners. Problem-based education is articulated as the orchestration of the pedagogical process, integrating challenges posited by the instructor alongside the independent engagement of students. This paradigm nurtures the development of innovative professional competencies, skills, and critical analytical abilities. The problem-oriented methodology is constructed to enable the acquisition of Knowledge, Skills, and Abilities, while amalgamating diverse modes of autonomous learning and promoting the advancement of cognitive and creative faculties. Problem-based education is predicated on motivation derived from challenges, thereby necessitating appropriate didactic frameworks as a sequence of challenges, as noted by Martynchuk (2018). Within contemporary problem-based education theory, two discrete categories of challenges are delineated: cognitive and pedagogical. The former pertains to student engagement, whereas the latter relates to the systematic organization of the educational experience. Strategies for mitigating pedagogical challenges frequently incorporate motivational techniques, investigative inquiries, and a focus on novel interpretations, clarity, or distinctive attributes of the subject matter. Cognitive challenges manifest in a variety of forms. Cognitive tasks, which are neither excessively intricate nor overly simplistic, seldom elicit challenges for children, as indicated by Kearsley (1992).

Challenges may potentially arise at multiple junctures throughout the educational continuum, including stages of explanation, repetition, and revision. The concept of "gaming teaching techniques" encompasses a diverse array of methodologies and strategies aimed at structuring the educational process through pedagogical games, which are specifically designed with an emphasis on teaching and cognitive development. These games can be classified into various categories based on the nature of the activity, including physical (kinesthetic), intellectual (cognitive), action-oriented, social, and psychological dimensions. When selecting games for children with limited capabilities, the following criteria should be adhered to (Mattson & Hansen, 2009). - the gaming lesson format is constructed using gaming

techniques and scenarios, utilized to motivate children and stimulate educational engagement; - the game is adapted to align with the child's chronological age or current developmental stage; - the structure of errors is systematically evaluated; - the selection of instructional materials progresses in complexity; - the content of the game interacts meaningfully with the child's existing knowledge; - alignment with corrective educational objectives is maintained; - the diversity of activity types is considered; - the utilization of engaging, memorable toys and instructional aids is prioritized; - adherence to safety and hygiene standards is ensured. This category of pedagogical methodologies encompasses an array of instructional strategies, such as role-playing, didactic approaches, and board games. To capture the interest of young learners, educators may integrate characters from fairy tales. Consequently, the involvement of well-known fictional figures encourages children to engage in assigned tasks, display enthusiasm for the game itself, and embrace a holistic approach to learning. The notion of "fairy tale lessons" captures the curiosity of nearly every child, attributed to its technological components.

The interactive dimension of the gaming experience sustains children's involvement for protracted durations, subtly seizing their attention and engendering elevated levels of enthusiasm. Moreover, this methodology fosters an intrinsic motivation for academic endeavors among children, thereby culminating in an exuberant execution of tasks by students. The application of gaming technology in the education of children with limited capabilities constitutes an efficacious pedagogical strategy, which is simultaneously engaging and comprehensible for young learners, as noted by Chupakhina (2019b). Empirical findings indicate that gaming challenges which evoke a sense of excitement within the educational framework are instrumental in promoting the development of active cognitive curiosity among students. These instructional sessions create a unique environment characterized by elements of creativity and autonomy. The enhancement of collaborative skills is accentuated, as success relies on the collective efforts of each participant. This frequently proves effective in mitigating shyness and apprehension. Gaming activities can be integrated into instruction in several contexts: - as a component of lessons (vocabulary exercises involving specific terms); - in vocabulary reinforcement (collective questioning with competitive elements among groups). The most efficacious games include: vocabulary bingo, where words are inscribed on one side of the board and their definitions on the opposite; the objective being to match the words with their definitions. Which group exhibits swiftness?; word auction, wherein the participant possessing the most extensive vocabulary and who is the last to vocalize a word emerges victorious. Gaming technology may be utilized as a modality of activity, such as travel games, didactic games focused on revision, repetition, and knowledge generalization, crossword puzzles, riddles, and other cognitive challenges, as discussed by Bondarenko (2018). Consequently, educational games augment and broaden knowledge, thereby facilitating the holistic development of the child.

The incorporation of information technology enriches the educational process through its innovative, objective, and dynamic attributes, integrating animated graphics and gamified elements. When employing information technology, knowledge acquisition occurs through various sensory modalities (visual, auditory), resulting in enhanced comprehension and expedited retention. In summary, this technology adheres to the principle: "When spoken, forgotten. When demonstrated, remembered. When executed, understood." This assertion underscores the necessity of employing information technology in the education of children with special needs. Information technology is implemented through a variety of methodologies. Among these, multimedia presentations are extensively utilized. The preparation of presentations constitutes a significant artistic endeavor, with each component necessitating careful examination and comprehension from the perspective of the student, as articulated by Ashytok (2015). The creation of instructional materials for educational purposes empowers

educators to employ active learning strategies centered on practical application. The execution of these teaching sessions requires specific training for educators. The classes become progressively more engaging, stimulating, and affective, assisting students in absorbing information through visual, auditory, and cognitive channels, thereby facilitating a deeper exploration of the educational content. Multimedia presentations play a pivotal role in enhancing the comprehension of information. Currently, the importance of assessment within pedagogical methodologies is progressively increasing, with digital resources being employed to augment both educational and evaluative practices. The incorporation of self-evaluation can be enhanced through the application of electronic crossword puzzles, which have been empirically validated as effective tools. Interactive crossword puzzles have attracted substantial scholarly attention due to their ability to confirm the accuracy of responses submitted by users. In instances where answers are correct, a corresponding word or visual representation appears within the crossword framework; conversely, incorrect responses may evoke auditory signals or prompt the display of the term "Think." Interactive games and simulations on diverse subjects may prove beneficial for both educators and learners, as noted by Kasyanenko (2018). The technology of moral education plays a critical role in fostering character development and the nurturing of virtues through the expression of individual characteristics; it promotes the establishment of humanistic values and tolerance while facilitating personal growth. Educators bear the responsibility of imparting elevated ethical standards and fostering tolerance to enrich cultural understanding among their students. Visual and auditory resources, such as moral discourses, can be effectively utilized in the educational environment to enhance academic content.

The increasing incidence of disabilities among children can be attributed to various environmental and societal factors. As a result, the integration of secure technological solutions emerges as a paramount objective in the current reform of educational methodologies. In accordance with the Eastern proverb: "The one who is healthy has hope; the one who has hope has everything." To exist, adapt to life, recognize oneself, one's capabilities and limitations, and to define one's role and significance within the broader context of the world requires active engagement and creative endeavors, (Abidova, 2023; Lindner et al., 2023; Martynchuk, 2018). Such technological interventions may include activities encompassing exercises, fitness regimens, and sports. The principal objective of health enhancement technology within the education of children with disabilities is to cultivate the acquisition of skills, competencies, and knowledge that promote a holistic lifestyle with minimal constraints, alongside the development of a health-oriented perspective. The application of these educational strategies for such children is integral to their comprehensive development and societal inclusion. The principles underpinning the implementation of safe technology encompass: - the establishment of a tolerant, tailored environment that facilitates individualized engagement with each child; - the harmonious integration of pedagogical practices alongside health enhancement and rehabilitation within educational institutions; - the restoration of resources, which necessitates the alteration of activities or workloads in conjunction with designated intervals for rest. The specific pedagogical framework employed in educating children with disabilities functions not solely as an instructional apparatus but also as a significant methodology for advancing children's well-being, cultivating their character, resilience, and readiness for collaborative endeavors. A pivotal element of a teacher's responsibility in fostering health entails the deliberate organization of instructional sessions. Initially, new information is elucidated, subsequently students distill the most salient components, engage in task processing utilizing cards, scrutinize tables and diagrams, and leverage thematic presentations, all while the students' engagement is consistently varied, as noted by Darling-Hammond (2010b). To augment children's capacity for task execution and mitigate fatigue along with excessive workloads, it is essential to incorporate intervals for physical activity, emotional relaxation,

visual training, brief instances of humor, and the encouragement of proper posture. The incorporation of health-preserving technologies within academic practices in correctional institutions not only safeguards the welfare of children with disabilities without incurring additional costs but also amplifies the overall efficacy of instructional methodologies. The paradigm of compensatory education entails the employment of diagnostic and corrective curricula aimed at identifying and rectifying divergences in children's developmental trajectories, while simultaneously assisting less proficient students in closing the performance gap with their peers. An extensive range of methodologies within compensatory education encompasses the demonstration of affection towards children through care, empathy, kindness, and compassion.

This methodology necessitates an understanding and empathetic engagement with the challenges and barriers encountered by children, alongside a readiness to embrace the entirety of the child, including their strengths and weaknesses, thus fostering tolerance, offering guidance, and promoting the acquisition of self-regulation competencies. Additionally pertinent are various modalities of educational knowledge perception support, as delineated by Treviranus (2010): • enthusiastic learning based on interest, achievement, and trust; • the interplay of auditory, visual, kinetic, cognitive, and logical faculties in the assimilation of knowledge; • the utilization of approximate action bases (sample signals); • peer teaching and dialogical methodologies; • optimal rates of information processing. Art-therapy technologies, including music therapy, phototherapy, narrative therapy, and origami therapy, are also significant. Artistic expression through painting not only serves to illustrate the representation of reality as perceived by children but also functions as a medium for expressing their attitudes toward that reality, encompassing both its depiction and reconfiguration. Through the process of painting, children convey their deepest emotions, aspirations, and fantasies, while also reconstructing their interactions within various contexts, confronting distressing and uncomfortable imagery with fortitude. The application of a diverse array of visual instruments fosters the stimulation of a child's artistic potential, thereby facilitating the exploration of the most suitable avenues in alignment with their emotional health and need for self-expression. This process substantially contributes to the activation of emotional communication and enhances its adaptability. Each child possesses the capacity to articulate their thoughts and reveal their emotional states through sound, movement, melody, and imagery (Chupakhina, 2019b). Sand play therapy serves as an exceptional medium for elucidating attitudes towards the environment, revealing children's apprehensions, and mitigating anxieties. The application of sand play exerts a significant impact on the emotional health of children, thus establishing it as an invaluable instrument for promoting students' development. Sand therapy is demonstrably more efficacious in comparison to traditional pedagogical approaches.

The incorporation of a sandpit within an educational context can yield benefits not solely for psychologists but also for educators, as it facilitates the integration of educational games involving sand to impart various concepts such as letters, numbers, and spatial awareness. Participating in drawing activities within the sand contributes to the enhancement of creative cognition, imagination, perception, memory, manual dexterity, and sensory competencies. During sand play, children exhibit heightened enthusiasm, endeavor to perform tasks correctly, and do so with both care and, importantly, alacrity (Crowl et al., 1997). Numerous sand games are available that serve the dual purpose of improving literacy and numeracy skills, as well as supporting the development of phonemic awareness and addressing speech disorders. The implementation of cognitive games enables children to traverse the multifaceted dimensions of their environment, comprehend the historical context of their locality and nation, among other aspects; concurrently, project-based games are devised to unveil a child's latent capabilities and nurture creativity and imaginative thought. Within the modern educational paradigm, the school system has assimilated technological methodologies to enhance the instruction of

children with special educational needs, and the deliberate application of these strategies empowers such students to advance intellectually and personally.

Conclusion

The theoretical examination presented in the article meticulously explored the intricate analysis of inclusive education, encompassing the conceptual definition and the foundational principles that underpin the education of students with disabilities. Moreover, the article scrutinized the neuropedagogical aspect of employing cognitive and pedagogical strategies in the instruction of children with distinct educational needs. The study unequivocally established that inclusive education represents a pedagogical paradigm that entails the education and development of children, regardless of their physical, mental, intellectual, or other unique attributes, within the context of an integrated school system. These students participate in mainstream educational institutions alongside their peers, with their educational requirements being adequately addressed and facilitated. Education is a universal entitlement afforded to all individuals, irrespective of their conformity to the criteria established by the educational framework. The cultivation of an individual's character is advanced through the demonstration of respect and acceptance towards others. Concurrently, children assimilate into society, acquiring the competencies necessary for social engagement and forging connections to confront academic challenges in an innovative manner. Inclusive education mandates the involvement of students with disabilities in the learning process, fostering collaborative teaching and problem-solving through the application of interactive methodologies such as games, projects, experiments, and field investigations. Inclusive education enhances the spectrum of personal capabilities in all children, nurturing humanistic values and promoting tolerance.

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