Adapting teaching strategies to empower learners with intellectual disabilities in inclusive environment

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Abstract
This comprehensive review explores the multifaceted landscape of tailoring instructional approaches to adapt teaching strategies for learners with intellectual disabilities. The study delves into the intricate construct of intellectual disability, considering not only individual limitations but also cultural influences, societal attitudes, and support systems. Assessment and diagnosis are pivotal in understanding and supporting learners, necessitating a thorough clinical approach considering risk factors, family impact, and mental health. Adapting instructional methods is explored through addressing teacher attitudes, employing evidence-based practices, and utilising varied instructional strategies to meet diverse needs. Creating a supportive learning environment is discussed in the context of collaboration between stakeholders, inclusive policies, and the integration of technological resources. Positive relationships and behavioural challenges are highlighted, emphasising the importance of understanding factors influencing relationships and adopting a multidimensional approach to intervention. The abstract concludes by underscoring the dynamic nature of tailoring instructional approaches, emphasising continuous adaptation, collaboration, and a profound understanding of the unique needs of each learner with intellectual disabilities. This commitment aims to empower these individuals for growth, development, and meaningful social participation.

Keywords: Empower, intellectual disability, learners, teaching strategies

Introduction
Intellectual disability (ID) is a multifaceted construct encompassing intellectual functioning and adaptive behaviour limitations. Learners with ID have significant cognitive impairments and adaptive behaviour limitations, including conceptual, social, and practical adaptive skills (Flack et al., 2022; Jacob et al., 2022a; Schalock et al., 2021; Wehmeyer et al., 2008) [40, 24, 65, 75]. A state of cognitive functioning associated with ID can be described as the relationship between individual capacities and limitations and the demands and support provided by the environment (Garrels, 2021) [26]. Learners with ID are vulnerable to exploitation and stigmatisation, and their parenting abilities often attract negative attention due to the perception of their limited capacities to parent (Courtenay & Perera, 2020; Llewellyn & Hindmarsh, 2015; Dorozenko et al., 2015) [17, 49, 22].

Adams et al. (2019) [11] opined that individuals with ID may face challenges in understanding and managing their prescription medications, highlighting the need for accessible and tailored information to meet legal and best practice standards. According to Tassé et al. (2012) [70], the construct of ID is influenced by cultural relativity and the social construction of disability, which impacts how it is understood internationally. Additionally, the understanding of ID is not limited to the individual but also involves the perceptions and experiences of their families and caregivers and broader societal attitudes and support systems (Aldersey, 2012; Chou et al., 2006; Lewis, 2015) [2, 13, 47]. The quality of life of individuals with ID and their families, based on the opinion of Verma and Kishore (2009) [74] and Chou et al. (2006) [13], is a subject of substantial literature, reflecting the importance of addressing their needs and providing appropriate support.

Intellectual disability is a complex and evolving construct that goes beyond individual limitations and encompasses societal attitudes, cultural influences, and support systems. Understanding and addressing the needs of individuals with ID requires a comprehensive approach that considers their intellectual functioning, adaptive behaviours, and the broader social and cultural context in which they live. Effective teaching for learners with ID is crucial for their academic and social development.
Courtade et al. (2014) [16] reported that research has shown that instructional practices play a significant role in educating individuals with ID. Kodak et al. (2016) [44] contended that effective instruction involves various components, including materials presented, opportunities for participants to respond, reinforcement for correct responses, and feedback or correction for incorrect responses. Furthermore, it has been demonstrated that implementing evidence-based practices, including the utilisation of constant time delay in providing instruction, has significantly enhanced the acquisition of academic material by students with ID ranging from moderate to severe (Hudson et al., 2013) [37]. In addition, teachers’ disposition and intentions towards teaching students with special educational needs, including those with ID, impact the implementation of appropriate pedagogical approaches (Batsiou et al., 2008) [73]. Developing instructional strategies should consider the specific needs of learners with ID. For instance, cognitive-based instruction facilitates problem-solving skills for students with mild ID (Chung & Tam, 2005) [14]. A comprehensive educational programme with appropriate instructional strategies and materials can support literacy skills development among learners with ID (Sari et al., 2018) [66].

According to Morgan and Moni (2008) [52], real-world interactions and relevant activities are crucial for motivating and engaging learners in the learning process. It is essential to consider the impact of teachers’ attitudes and beliefs on students in an inclusive learning environment. Evidence shows that explicit and implicit teacher beliefs can influence inclusive learning, highlighting the importance of addressing teachers’ attitudes and self-efficacy towards children with ID (Wilson et al., 2019) [77].

Assessment and Diagnosis of Learners with ID

Several factors must be considered when assessing and diagnosing learners with ID. These factors include prenatal, perinatal, and neonatal risk factors, clinical assessment, and the impact on family members. Huang et al. (2016) [36] identified potential causal factors for ID during prenatal, perinatal, and neonatal development. Hence, it is imperative to understand developmental disabilities and their associated risk factors. Provide a clinical primer on ID, emphasising the need for a comprehensive assessment of cognitive and adaptive abilities by qualified professionals for an accurate diagnosis (Patel et al., 2020) [59]. This underscores the significance of a thorough clinical assessment in diagnosing ID. Brennan et al. (2020) [9] conducted a systematic review of future planning for family care of adults with ID, emphasising the need for structured models/frameworks for future care planning.

This highlights the importance of considering the long-term impact of ID on family members and the necessity for comprehensive future planning. Additionally, a study on siblings of adults with developmental disabilities reveals the pervasive impact on the life decisions of siblings, emphasising the need for support and understanding for family members (Heller & Arnold, 2010) [53]. Mental health implications for learners with ID should also be considered. Researchers found that there is a need for education and skill development in mental health services for the assessment of psychiatric disorders in individuals with ID (Naveed, 2019) [55]. This highlights the importance of addressing mental health concerns among individuals with ID. Cooney et al. (2017) [15] conducted a randomised controlled trial examining cognitive-behavioural therapy for adults with ID. The findings support the importance of addressing psychological wellness in this population through tailored interventions.

Adapting Instructional Methods for Learners with ID

The nature of a learner’s disability may influence how teachers view inclusive education since learners with severe or multiple disabilities require more individualised instruction and significant modifications to curricula (Donohue & Bornman, 2015) [21]. It has been proposed that Universal Design for Learning (UDL) can provide a flexible developmental environment for integrated education that addresses students’ learning differences. Various interventions have been used to optimise teaching effectiveness for learners with disabilities, including assistive and instructional technologies, peer tutoring, storytelling, cooperative learning, and the teaching of metacognitive strategies (Hornby, 2015; Jacob et al., 2022b; Jacob et al., 2021) [38, 41-42]. Programs such as the Teacher Empowerment for Disability Inclusion (TEDI) have enabled quality education for learners with intellectual and developmental disabilities by empowering and recognising teachers (Vergunst et al., 2021) [73]. Malik and Emat (2017) [50] state that limited teacher abilities are major obstacles to implementing inclusive education policies for pupils with ID.

Studies have shown that individuals with intellectual disabilities (ID) are more likely to enhance their language and literacy skills if they receive appropriate teaching and learning strategies to support their literacy education (Young et al., 2004; Moni & Jobling, 2013) [78, 51]. Multimedia applications, such as Multimedia in Education for Special Education (MESE), have improved reading ability and memorisation for children with ID (Munir et al., 2018) [54]. It is essential to address the attitudes and perceptions of teachers and head teachers towards the inclusion of learners with ID, as these attitudes can significantly impact the effectiveness of inclusive education (Ruteere et al., 2021; Ojok & Wormnaes, 2013) [62, 57]. According to Annie and Muvombo (2019) [3], students believe that inclusive education can be improved through awareness campaigns, additional learning materials, infrastructure modification, existing teaching methods, and positive language towards learners with disabilities.

Instructional strategies and approaches can be employed to provide differentiated instruction for learners with ID. Research has shown that learners with ID can benefit from student-directed learning models (Garrels, 2018) [25], phonics-based instruction, music therapy, multimedia applications, and pictorial illustrations (Jacob & Pillay, 2022) [39]. The effectiveness of direct instruction techniques, such as constant time delay, in teaching reading to students with ID has been highlighted (Alnahdi, 2015) [4]. It is important to note that including learners with ID in mainstream classrooms can be challenging for teachers. Therefore, providing professional development opportunities for teachers to enhance their attitudes towards inclusion and equip them with the necessary skills to support the diverse needs of learners with ID is crucial.

Parental involvement is crucial in meeting the needs of students with intellectual disabilities (ID). Furthermore, studying the lived experiences of parents of learners with ID...
can provide valuable insights for educators and other stakeholders in understanding the challenges and coping mechanisms associated with raising a child with an ID. Additionally, the role of head teachers in providing appropriate instructional supervision skills for teaching adaptive skills to learners with ID has been highlighted as a crucial factor in enhancing the effectiveness of educational interventions for these learners.

Creating a Supportive Learning Environment for Learners with ID

A supportive learning environment is crucial for the educational and personal development of learners with ID, which can be achieved through inclusive education. Inclusive education is vital for students with ID, as failures in its implementation can perpetuate segregated schooling and disadvantage these students (Buchner et al., 2020) [10]. Including students with disabilities in higher education programs is gaining traction, highlighting the importance of creating an inclusive environment for these students (Kubiak et al., 2021) [40]. It can be challenging to select and implement effective instructional techniques for learners with severe intellectual and developmental disabilities due to their highly intensive and variable learning needs (Courtade et al., 2014) [16].

Obtaining informed consent for research studies involving individuals with ID requires patience, sincerity, and flexibility to overcome barriers and build trust and respect between researchers, individuals with ID, and their support networks (Ho et al., 2018) [34]. According to Salinas and Tiamzon (2022) [63], knowledge of the lived experiences of parents of learners with ID can help develop effective strategies for assisting these students. Although television programming about ID does not influence learners' participation in inclusive education, Lidubwi et al. (2023) [48] emphasise the necessity for a more comprehensive support system for learners with ID. A study conducted by Mosito et al. (2017) [53] found that technology can enhance the reading abilities of learners with ID. Technology can enhance effective learning among learners with ID.

Positive treatment of learners with disabilities, a modified curriculum, and more resources are essential for successful inclusion in educational settings (Annie & Muvombo, 2019) [5]. Primary school teachers have shown slightly more positive attitudes than negative attitudes and a greater tendency to teach learners with ID (Ojok & Wormmaes, 2013) [57]. This indicates the potential for a significant change in attitudes towards inclusive education. Understanding the teaching and learning process for learners with ID is crucial for adapting educational systems to meet their needs (Infantri & Lintangsi, 2022) [38]. Promoting a supportive learning climate and autonomy can enhance learner engagement and self-regulated learning strategies (Kubiak, 2015) [45].

Support services offered to parents of learners with ID can significantly impact their perceptions and expectations of their children’s future, highlighting the importance of ongoing support for parents (Sefotho et al., 2021) [67]. Negative attitudes toward persons with disabilities may lead to low expectations and reduced learning opportunities, emphasising the need to address and change these attitudes (Chhabra et al., 2009) [12]. Postsecondary education for people with ID can improve their chances of employment and create a more satisfying life, underscoring the importance of inclusive postsecondary education programs (O’Connor et al., 2012) [56]. Effective educational and work readiness programs have demonstrated utility for people with ID, emphasising the potential for innovative programs to support their transition to work (Shevlin et al., 2020) [68].

Building positive relationships for learners with ID

Research has shown that increased specific educational training for ID is associated with more positive attitudes and emotions among caregivers (Desroches et al., 2019) [19]. Additionally, positive sibling relationship quality has been linked to better outcomes for individuals with intellectual and developmental disabilities (Williams et al., 2022) [70]. Furthermore, collaborative efforts between parents, teachers, disability experts, and healthcare providers benefit adolescents with ID (Aderemi et al., 2013). Several programs are available to help learners with ID increase their self-esteem, confidence, interpersonal relationships, self-determination, social inclusion, and employment prospects (Kubiak et al., 2021) [40]. Moreover, inclusive educational settings are crucial in shaping students’ attitudes towards their peers with ID (Rillotta & Nettelbeck, 2007) [61]. Teachers’ attitudes towards the participation of learners with ID are influenced by their teaching experience and professional development (Avramidis & Kalyva, 2007) [6]. It is crucial to involve parents and teachers in the education of learners with intellectual disabilities. This can be achieved through improved support structures and better dissemination of knowledge and skills in this area (Stephinah, 2014) [69]. It is crucial to understand the relationship between motor skills, physical activity, and self-concept in learners with intellectual disabilities. Furthermore, it is important to examine the impact of physical and motor skills on these children's self-concept (Schluchter et al., 2021) [66]. Additionally, the role of caregivers, particularly adult siblings, is significant, as they are expected to assume greater caregiving responsibility based on factors such as gender, proximity, and the quality of their relationship with an individual with ID (Burke et al., 2012) [11].

Addressing Behavioural Challenges among Learners with ID

It is essential to provide educators and caregivers with a comprehensive understanding of how learners with ID behave. Additionally, understanding the impact of their responses on their behaviour will help develop appropriate interventions. According to Hastings and Brown (2002) [31], staff’s emotional reactions to challenging behaviours are affected by their understanding of behavioural knowledge, causal beliefs, and perceived self-efficacy. Furthermore, challenging behaviours may prevent a person from being discharged from associating with community members, thus emphasising the importance of effective interventions (Boer & Iyer, 2020) [8]. Interaction dynamics have been understood by observing individuals with challenging behaviours (Guikas & Morin, 2021) [28]. Ali et al. (2014) [3] reported that interventions for challenging behaviours in individuals with ID have been a focus of research, with a meta-analytic study highlighting the prevalence of self-injurious, stereotypical, and aggressive behaviours. In addition, Grey et al. (2006) [27] have identified staff training as a critical factor in improving quality of life and reducing challenging behaviours. Staff perceptions and
attributions regarding the causes of challenging behaviour are significantly influenced by their cognitive and emotional responses, which are crucial when dealing with challenging behaviours (Tierney et al., 2006; Dilworth et al., 2010; Poppes et al., 2016; Hastings, 1997; Hastings et al., 1995) [71, 25, 60, 50, 32]. The severity of challenging behaviours and their impact on individuals with ID has been assessed through psychometric measures, highlighting the need for a comprehensive understanding of impact dimensions (Oliver et al., 2003) [89]. Moreover, the implementation of community care has necessitated services to meet the needs of adults with ID and additional needs related to challenging behaviours (Joyce et al., 2001) [43]. Care staff responses to challenging behaviours have been analysed from a cognitive-emotional perspective, providing insights into applying cognitive-emotional models of helping behaviours (Dagnan et al., 1998; Hastings, 1995) [18, 20, 32].

Finally, the persistence of challenging behaviours in adults with ID and the long-term effects of behavioural interventions on children with severely challenging behaviours have been studied, emphasising the need for sustained support and interventions (Totsika et al., 2008; Emerson et al., 1996) [72, 23]. These findings underscore the complexity of addressing challenging behaviours among learners with ID and the importance of considering multifaceted interventions and support systems.

Conclusion
Tailoring instructional approaches for learners with ID is a multifaceted endeavour that demands a comprehensive understanding of the individual and their unique needs within the broader societal context. It is imperative to prioritise a thorough assessment process, considering prenatal and perinatal risk, clinical evaluation, family impact, and mental health. This calls for the involvement of qualified professionals skilled in cognitive and adaptive ability evaluation to ensure accurate diagnosis and ongoing support. Adapting instructional methods is crucial, involving strategies like Universal Design for Learning (UDL), assistive technologies, peer tutoring and metacognitive approaches. Ongoing professional development for educators becomes pivotal, enhancing their capacity to cater to the diverse needs of learners with ID.

Creating a supportive learning environment necessitates collaboration between parents, teachers, disability experts and healthcare providers. Inclusive education and technological interventions are highlighted for their positive impact on the learning experiences of individuals with ID. Building positive relationships emerges as a key element, acknowledging the influence of such connections on emotional, social, and academic development. Targeted training for caregivers, fostering supportive sibling relationships and collaborative effort among stakeholders contribute significantly to this aspect. Addressing behavioural challenges requires a nuanced and comprehensive approach.

Staff training, understanding the cognitive and emotional factors influencing responses, and continuous assessment of behaviour impact are emphasised for effective intervention strategies. In implementing these recommendations, a holistic and inclusive approach is paramount. This involves considering the diverse needs of individuals with ID and engaging all relevant stakeholders, including parents, educators, and healthcare professionals. Furthermore, ongoing research, collaboration, and professional development are integral to continuously enhancing and adapting instructional approaches to empower learners with ID.

Recommendations
Adapting teaching strategies to empower learners with ID in inclusive environments is a multifaceted endeavour that demands a comprehensive understanding of the individual and their unique needs within the broader societal context. The methods involve promoting evidence-based practices tailored to the needs of learners with ID. Positive teacher attitudes towards inclusive education, achieved through professional development and awareness campaigns, are essential. Collaboration between parents, teachers, disability experts, and healthcare providers is pivotal, requiring ongoing professional development for educators to support diverse learners effectively.

Advocating for inclusive education policies and integrating assistive technologies, peer tutoring, and cooperative learning are essential in creating a supportive learning environment. A critical component of inclusive education policies addresses challenges such as insufficient inclusion hours and limited mainstream teacher abilities. Continuous adaptation and collaboration underscore the dynamic nature of tailoring instructional approaches, requiring ongoing research, collaboration among stakeholders, and professional development to empower learners with ID comprehensively.

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