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*RESEARCH ARTICLE*

# UNIVERSAL DESIGN FOR LEARNING (UDL) BASED INCLUSIVE CLASSROOMS: A SUSTAINABLE PATHWAY FOR CHILDREN WITH MILD INTELLECTUAL DISABILITIES

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## Abstract

UDL is an outline designed to remove barriers to learning by foreseeing and addressing the varied needs of students. The principal goal of the study is to elucidate the implications of UDL as a sustainable pathway for children with mild intellectual disabilities CWMID to access inclusive classrooms. The existing status of education systems for CWMID necessitates changes in classroom environments to enhance accessibility. The UDL framework supports creating better systems to improve education for all learners in inclusive classrooms. It addresses the difficulties faced by children with mild intellectual disabilities CWMID in classrooms. It encourages teachers to develop multiple ways for students to access and engage with the learning environment, aiming for expected outcomes. The UDL framework helps teachers understand diverse learning strategies to be more inclusive, providing guidance and support to continue mastering knowledge and fostering holistic development for CWMID. This paper highlights the role of UDL in improving access for CWMID to inclusive classrooms and enhancing their academic performance. The UDL framework is frequently endorsed as an inclusive training strategy that integrates all students within modern classrooms. The authors discuss the importance of enhancing classroom learning strategies through UDL, creating a pathway for CWMID to access inclusive education.



## Introduction:-

UDL is an instructional approach considered to accommodate all learners' diverse desires and capabilities, eliminating obstacles in the learning process. According to Orkwis and McLane (1998), despite its recognition in research and policy, the effective execution of UDL remainschallenging for educators. UDL involves designing instructional materials and activities to make acquiring knowledge areas attainable for persons with varying abilities such as vision, hearing, speech, mobility, reading, writing, comprehension, organization, engagement, and memory.

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While UDL principles do not always need technology-based tools, they support educators in utilizing instructional technology (Rose & Meyer, 2000). A significant benefit of UDL is its proactive approach—accessibility is embedded from the beginning, reducing the need for later adaptations or specific assistive technology (Bowe, 2000). Universally designed materials are crucial for confirming access to the standard curriculum for children with mild intellectual disabilities (Wehmeyer, Sands, et al., 2002).

The term "universal" in UDL does not indicate a one-size-fits-all approach (universal approach) but emphasises the need for flexible, customisable content, projects, and activities (Hitchcock, Meyer, Rose & Jackson, 2002). UDL focuses on making the curriculum accessible for all from the outset, rather than devising plans for struggling students only after they fail to meet the general curriculum standards. (Burgstahler & Cory, 2008; Gordon, Gravel & Schifter, 2009). It identifies individual differences in learning as natural and suggests a proactive curriculum design approach to meet these varied needs (Hehir; Rose & Gravel, 2010).

UDL values multiple approaches and inclusiveness, suggesting that integrating UDL with technology can assist more students with significant intellectual disabilities in accessing research-based, balanced literacy approaches.UDL incorporates recent developments in understanding how the mind processes information to create flexible texts and curricula tailored to individual needs (Rose & Meyer, 2002). By reducing potential barriers and increasing learning opportunities, UDL aims to improve learning outcomes for all individuals. The framework strives to enhance learning and teaching from the initial stage of curriculum development (CAST, 2011).

**Need and Justification of the Study**

In today's rapidly evolving educational landscape, guaranteeing that no child is left behind and ensuring all children have access to education is a significant challenge. Learners exhibit a broad diversity of learning capacities and interests, influencing their approach to acquiring various skills and knowledge. Factors contributing to these variations include intelligence levels, learning experiences, teacher-student relationships, and the degree of disability (Sauce & Matzel, 2013).

For children with mild intellectual disabilities CWMID, motivation is crucial for ensuring healthy living, a respectful life, and access to a standard of living. Quality education plays a pivotal role in their overall development and can significantly enhance their quality of life (Shogren et al., 2012). UDL is instrumental in providing inclusive education by making learning accessible to all students, including those with cognitivedisabilities (Katz, 2012).

## Literature Review:-

**Geisa Letícia Kempfer Bock (2016)**emphasizes the principles of Inclusive Education, underscoring the significance of addressing barriers prevalent in diverse educational contexts to guarantee access and consistent attendance for all students within education systems. The objective of this paper is to characterize scientific production on Universal Design for Learning (UDL) and systematize contributions aimed at eliminating methodological barriers within learning contexts.

**Katherine D. Mavrovic-Glaser (2017)** investigated teachers' knowledge and use of UDL. The results showed that 55% of participants claimed to be familiar with UDL, and 55% reported regularly using UDL in their classrooms. The data also indicated that all participants consistently employed strategies aligned with the guidelines for UDL as outlined by the CAST.

**LaRon A. Scott (2018)** examined the attitudes and beliefs regarding the contests of implementing the UDL outline to meet the needs of students both with and without disabilities. The analysis identified several barriers that teachers face when implementing the UDL framework in inclusive classroom environments. Despite their enthusiasm for applying UDL, teachers acknowledged the need to address these barriers to effectively meet student needs.

An integrative literature review on UDL was implemented, analysing the information in the context of DSE and the social model of disability. The discussion is structured around three categories: a) conceptual and critical contributions about disability b) historical and legal contributions,and c) practical applicability contributions. The results indicate a concentration of UDL studies in North America and limited research in Brazil. They highlight the variation between UDL guidelines and principles and other perspectives of UD. Strategies for eliminating barriers to knowledge access are outlined, along with a brief overview of UDL research and identified gaps requiring further investment.

The study underscores UDL's potential to endorse inclusive educational processes by accommodating diverse learning styles. Besides classroom contexts, other spaces such as libraries and school management have been subjects of research attention. The findings emphasize digital learning environments and technology-based education as facilitators of participation and knowledge access, aligning with the understanding of technology's role in inclusive education.

## Objectives of the Study:-

1. To understand accessible inclusive classrooms for children with cognitive disabilitiesthrough UDL.
2. To understand the role of technology and curriculum adaptation in inclusive education.

**Enhancing Education for CWMID through UDL**

UDLholds significant promise for addressing the learning limitations faced by children with intellectual disabilities CWMID. These limitations often hinder their development, causing them to earn at a slower pace compared to their typically developing peers(Burack, 2012). The intensity of intellectual disabilities can vary widely, ranging from mild to profound (Gargiulo & Bouck, 2017).

Intellectual disability impacts both intellectual and adaptive functioning, making it challenging for children to understand, communicate, think logically, remember information, and solve problems (APA, 2018; Räty, Kontu & Pirttimaa, 2016). Furthermore, adapting to changes in conceptual, social, and practical skills poses additional difficulties for intellectually disabled students, further impeding their learning progress.

Unfortunately, intellectually disabled children often face social stigma and discrimination, which can hinder their acceptance and inclusion in educational settings (Wehmeyer, 2006). Therefore, educational experts must assess and address the specific needs of these learners in the classroom.

UDL offers a multifaceted approach to accommodating diverse learning needs, ensuring that the requirements of intellectually disabled learners are appropriately addressed. By providing multiple means of representation, expression, and engagement, UDL helps make inclusive learning atmospheres that furnish the exceptional needs of all students, including those with intellectual disabilities.

**Fostering Inclusion in Classrooms for CWMID**

Numerous methods and techniques, such as UDL, have been established over time to improve the developmental procedure and integrate learners with diverse learning needs into mainstream education (Gargiulo and Bouck, 2017). UDL enables students to address their varying learning needs and abilities in inclusive classrooms, empowering teachers to employ innovative approaches that cater to all learners (Basham, Israel, Graden, Poth& Winston, 2010).

By adopting UDL, educators proactively anticipate students' potential needs and tailor instruction accordingly, thus providing pervasive support that empowers disabled children to tackle challenges beyond their usual capacities. UDL encourages teachers to develop plans by identifying and minimizing barriers, thereby reducing the need for lesson adaptations to accommodate the diverse needs of children with mild cognitive disabilities (Rao &Meo, 2016; Al-Azawei, Serenelli&Lundqvist, 2016).

The evolution and conceptualization of the UDL framework over centuries have led to numerous publications that highlight its functional application in various classroom settings, from early childhood instruction to elementary, middle, and high school classrooms (Basham & Marino, 2013; Bryant, Rao, & Ok, 2014; Glass, Meyer, & Rose, 2013). Inclusive classrooms recognize that no single technique can meet the needs of all learners, necessitating multiple approaches to address diverse learning needs.

Studies have shown that students instructed using UDL principles have made significant gains in reading (Coyne et al., 2012). In a UDL classroom, overcoming challenges requires fostering multiple pathways for thinking, providing various means for expressing knowledge, and offering a variety of engagement choices for each student's learning experience. This multifaceted approach ensures that all learners, including those with cognitive disabilities, can effectively access and engage with the curriculum.

**Technology-Driven UDL: Creating Accessible Learning Environments**

UDL involves the use of a wide range of materials and approaches, and technology plays a crucial part in creating accessible and engaging education environments (Rose & Meyer, 2001; Edyburn, 2010). Technology enables the execution of UDL principles by providing access to diverse instructional modalities and engaging learners effectively. However, it's essential to recognize that UDL is not solely achieved through technology; it requires thoughtful and careful design that considers the variety and inconsistency of the learning situation (Edyburn, 2010).

Technology offers flexible assessment methods,multiple modes of instruction, and collaborative activities, providing learners with choices and empowering them as learners. (Spencer, 2011; Stanford and Reeves, 2009). Despite the potential benefits, teachers may resist integrating technology into classrooms, and there may be a lack of adoption of new technologies to enhance student education (Russell, Bebell, &O'Dwyer, 2003; Angeli &Valanides, 2005; Niess, 2005; Russell et al., 2007).

While print-based learning remains successful for many students, the exponential growth of advanced technologies has transformed education, facilitating the integration of students with disabilities into mainstream education classrooms (Rose & Meyer, 2000, 2002; Edyburn, 2005; Hasselbring & Goin, 2004; Rose et al., 2005). Technology provides new avenues for learning, offering students access to curriculum content through multiple and flexible demonstrations of knowledge (Lee & Vail, 2005; Edyburn, 2005; Rose et al., 2005).

UDL ensures that technology tools are available to all students, particularly those who require additional support when needed (Edyburn, 2010). Digital media and technology align well with UDL principles, as they offer mouldableand effortlessly adaptable environments. Teachers can participatein instructional technologies in classrooms to deliver frameworks and support constant UDL principles (Bryant, Rao, and Ok, 2014). For example, computers and mobile devices offer multimodal tools that enable practice, students to learn, and demonstrate knowledge in various ways within a lesson context.

Additionally, ensuring the accessibility and usability of online learning environments is essential. The UDL scan device evaluates the accessibility and usability of online content, including cognitive access, to ensure that it addresses learner variability (Smith and Basham, 2014).

**Integrating UDL in Curriculum Modifications for Inclusion**

Teaching and learning in today's classrooms present numerous challenges, with teachers encountering students of varying abilities, interests, and diverse backgrounds (Candace Cortiella, 2008). Students face heightened expectations for academic achievement and long-term success, requiring comprehensive learning approaches.

One commonly employed curriculum adaptation is the use of advanced organizers, which provide learners with an overview of the unit structure and connect new material to previously learned information (Peleg & Moore, 1982). The primary goal of UDL and curriculum adaptation is to foster skilled learners, ensuring that students not only master specific knowledge but also become proficient in learning itself. This necessitates the removal of barriers that hinder learners from achieving comprehensive goals.

Traditional curricula often emphasize content or performance goals, whereas a UDL curriculum prioritizes the development of "expert learners." UDL materials exhibit variability and flexibility, offering alternative pathways for access to inclusive classrooms. UDL assessments aim to decrease or eliminate barricades to preciselymeasure learner knowledge, skills, and engagement (CAST, 2011).

UDL is one of several educational adaptations grounded on the philosophy and principles of UD, with others including the Universal Design of Instruction (Burgstahler, 2009). Implementing UDL is likely to result in curricula, materials, and learning environments that are more usable, well-designed, and cost-effective than retrofitting inaccessible pre-existing curricula (Pisha & Brady, 1999).

The success of UDL curriculum modification relies on effective teamwork among various experts, including classroom teachers, special educators, and paraprofessionals. To accommodate the variety of learning needs of today's students, it is essential to provide multiple opportunities for evaluating their learning outcomes (Reynolds, 2005; Reynolds, 2006).

UDL emphasizes the use of multiple instructional modalities, formats, technologies, and curriculum adaptations to engage learners with diverse needs effectively. By embracing UDL principles, educators can make inclusive learning environments that support the success of all learners.

**Evaluation of study outcomes**

The study highlights the positive impact of UDL on teachers' ability to create comprehensive learning environments and adapt lesson plans to support the needs of all students. The qualitative themes recognized in the study, focusing on learning for all and increasing practice, underscore the value of UDL as a model for promoting inclusion in classrooms.

UDL enables teachers to create learning environments that cater to the varied abilities of all students, fostering a sense of community among learners regardless of their differences. By facilitating instructional adaptations, UDL empowers teachers to provide inclusive learning opportunities for every student, thereby promoting equitable access to education.

One significant advantage of UDL is its ability to reduce the need for extensive modifications to instructional plans each year, as teachers meet new students with varying needs. This framework strengthens teachers' capacity to encounter the needs of a broader range of students within the general education classroom, ultimately facilitating fruitful inclusion for all learners.

Overall, the study suggests that UDL serves as a valuable tool for promoting inclusive education practices and supporting the diverse learning needs of pupils in the classroom. By embracing UDL principles, teachers can create more equitable and accessible learning environments that encourage academic success for all learners.

## Concluding Remarks:-

In conclusion, the present study underlines the importance of UDL in creating accessible and inclusive classrooms through curriculum adaptation. UDL serves as a guiding framework for teachers, helping them select and implement appropriate goals, plan flexible and inclusive lessons, and integrate CWMID into inclusive classroom settings.

By embracing the principles of UDL, teachers can mitigate barriers present in the curriculum and enhance opportunities for all learners to access learning pathways designed by experts. UDL emphasizes the importance of considering diverse needs and abilities, confirming that all students have equitable access to education.

Teachers should prioritize UDL as a fundamental learning technique for student achievement, enabling access to learning practices in inclusive classrooms. Teachers need to developlearning materials that cater to a wide range of diverse needs, supporting both students with and without disabilities in inclusive educational settings.

In conclusion, UDL offers a transformative methodof education, promoting inclusivity, equity, and accessibility for all learners. By integrating UDL principles into teaching practices, educators can create environments where eachlearners have the opportunity to thrive and succeed.

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