



# UNIVERSAL LEARNING DESIGN: AN EFFECTIVE SOLUTION TO MEET LEARNING NEEDS OF CWNVLD

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## Abstract

Universal Learning Design (UDL) is an accessible, cost effective, educational approach which caters to diverse learning needs of all learners irrespective of their age, gender, cultural and linguistic background, race and abilities. UDL provides a framework which guides educators to adapt the curriculum, select strategies, identify assessment strategies and develop tools and Teaching Learning Materials to reach them. UDL allows trainers to present material, engage students and execute learning tasks using multiple, flexible and adaptive means. Children with Non-Verbal Learning Disability (CWNVLD) face difficulty in recognizing non-verbal cues such as social cues such as facial tone and need verbalization of ideas. They struggle with reading comprehension and mathematical problem solving. Physical clumsiness, bumping into objects and struggling with abstract concepts are some significant characteristics shown by such individuals. This study reviews the usage of UDL based strategies and techniques to support the unique learning and social needs of CWNVLD. The findings reveal that usage of classroom accommodations in form of active verbalization, raised line paper, graph sheets, physical prompting among other such simple yet effective ways can support children having NVLD within classrooms. The study recommends the provision of cognitive supports in form of organizing clues, pictorial and visual clues, variety of resource materials like PowerPoint presentations, videos, podcasts, manipulatives, e-books, role play, cooperative learning, use of case studies and field trips to support their social and learning needs.

**Keywords:** *Children with Non-Verbal Learning Disability (CWNVLD), Educational approach, Strategies, Universal Design for Learning (UDL).*

## Introduction

Nonverbal Learning Disability (NVLD) is a less-known condition that impacts the daily functioning of affected children and adults. It is often overlooked, commonly misunderstood, under-identified, and improperly diagnosed condition. It is a type of learning disability that is characterized by a lack of visual-spatial and organizational skills along with difficulty in recognizing and processing non-verbal information. People confuse nonverbal learning disorders with those individuals who do not speak. However, children and adults with NVLD are able to interpret verbal communication, however, they are found lacking in the usage of nonverbal communication which includes body language, facial expressions, and tone of voice. Persons with Nonverbal Learning Disability (PWNVLD) rely on verbal expression leading to excessive talking as compensation for the difficulties faced. They may also have good memory and retention powers. Research studies show that NVLD is as highly prevalent as dyslexia however the incidence rates of NVLD are low due to poor identification and misdiagnoses. Such persons have precocious conversation skills which can look charming but they develop anxiety, have poor social connect, poor connection with peers, poor priority setting and lack of ability to understand social cues which in turn affects their vocational competence, social relationships, and personal life.

PWNVLD has the following characteristics:

- They have trouble and difficulty in recognizing nonverbal communication which includes facial expressions, body language, and gestures
- They have precocious conversation skills which mean from an early age they have good language acquisition and speech which makes them talk like adults.
- They are having poor motor coordination and always seem like clumsy individuals coupled with poor fine motor skills which makes it difficult for them to use Scissors, tying shoes, etc.
- They may seem repetitive and interrupt conversation as they tend to ask more questions due to their inability to understand and follow social cues.
- they also need to verbally label information in order to understand it as they have poor organizational skills and lack spatial understanding
- They face difficulties in visual-spatial discrimination, they face difficulty in determining their location in space
- They can be extremely literal with linguistic usages such as the use of sarcasm.
- They easily trust people and face difficulty in coping with change
- Have challenges in following multi-step instructions
- Their challenges are often masked by their precocious verbal skills which seem advanced compared to their age
- Despite having verbal proficiency, they often have the poor reading skill
- They are often wrongly diagnosed with ADHD due to the presence of disorganization, lack of visual-spatial awareness, and lack of social skills present (Frye & Karanzalis, 2022)

## Overview of Universal Learning Design (UDL)

Universal Design for Learning is a teaching approach that works to provide accommodation to all learners by eliminating various barriers faced by them in the learning process. UDL aims at developing a flexible, accommodative, and adaptive learning environment in which information is presented in multiple ways the students.

Students tend to engage in multiple ways and they also get multiple means of Representation and demonstrating their learning. UDL is a Universal instructional design that advocates for accessibility and inclusive instructional approaches based on the needs, abilities, and skills of the student. By incorporating universal learning design principles, course trainers and curriculum developers can enhance the inclusive learning environment provided within schools and training institutions. It also helps the learners to engage with the material presented in numerous ways encouraging skill development and better learn put top Union has three major principles:

- The principle of multiple means of Representation is based on the premise that learners access information differently hence teachers provide information using flexible and multiple ways which can be through verbal oral visual auditory and other multisensory mechanisms.
- The principle of multiple means of expression since the learners have varied abilities hence they can demonstrate their learning in various ways students get a chance to express and demonstrate their learning through verbal or written auditory and other multiple means.
- Multiple means of action and engagement: according to this principle learners are motivated to engage with the activity in the learning process such as group activities, and individual work activities extra wherein they get multiple flexible ways to engage and act with the information they're learning.

## Need and Significance of UDL approach for NVLD

it is seen that individuals with NVLD have tertiary social-emotional effects which extend from adolescence to late adulthood years and the damaging effects of this disorder are experienced in various facets of life, hence an educational module for such students is needed which is constructed in a manner so as to reduce and eliminate the barriers experienced as a result of the disability and also work towards the prevention of such tertiary experience (**Goldstone, 2011**).

It is also important to note that inclusion should not be restricted only to school education or to classroom-based instruction but rather to holistic areas of living hence the usage of principles of UDL will help those with a disability to overcome the segregation and lack of inclusive experiences through a well-structured mechanism of instruction.

UNESCO describes inclusive education as a right of all learners towards receiving a quality education that meets the basic learning requirement focusing especially on vulnerable and marginalized groups which include groups having disabilities seeking to develop the full potential of an individual especially children with NVLD to have right towards the goal of inclusion which can be achieved by following UDL based approach. The student with NVLD has diverse needs which often go unnoticed due to the unique characteristic features of this disability. Hence, they often remain unrecognized and un-noticed until the

middle of their school years or during higher educational years. It is considered best to address the need of the student through the usage of UDL approaches which would provide a continuum of options.

Facilitation of true inclusion will also allow individuals with NVLD to function and experience success not only in the inclusive classroom but also in the workplace, at home, and in social capacities by exercising appropriate options which are made available to them. The alternate educational options and mechanisms made available to them under UDL approaches would target specific areas of functioning of NVLD who have an overall average Intelligence, full-scale IQ, and an overall average performance scale allowing them to compensate into a higher range of total scores.

## Research Objectives and Questions

For the present study, the researchers have framed the following objectives:

- To explore the literature available in NVLD highlighting the core deficits and features of NVLD.
- To explore available literature in UDL based management strategies and techniques for NVLD.

### Research Questions:

RQ-1: What are the core deficits and features of NVLD as seen through reviewed literature?

RQ-2: What are the issues and challenges faced in the management of NVLD which can be targeted by UDL as found through a review of relevant literature?

## Methodology

The research study follows an in-depth and detailed review of literature. Only those studies which fulfil the criteria were selected for the review process. The inclusion criteria involved:

- Studies over past two decades, ranging from 2002 to 2022.
- Studies published in journals of national and international repute.
- Studies with full abstract and text were considered.
- Government reports published between 2002 to 2022 were also considered.
- Keywords used for selection of published reports and papers were: UDL, NVLD, needs, approaches, issues, and challenges.

## Results and Discussion

### Finding-1

The available literature when reviewed critically clearly indicates that despite the early Research and identification dating back to 1970 it remains less researched and less discussed and poorly identified area among learning-disabled. Children with NVLD face difficulties in three major areas:

1. motoring deficit
2. visual-spatial deficits and
3. Inability to comprehend nonverbal information.

These three deficits further complicate the child's experiences in other areas such as social experiences, vocational competence, and personal efficiency.

**Social area deficit:**

The child or the student with NVLD shows the following characteristics. He or she struggles to fit his or her actions according to the accepted social norms due to their inability to understand the social cues. They are seen as “annoying or simply attention grabbers” by their peers around them. They face deficits in social awareness and making social judgments. It is difficult for them to adapt socially as they find it difficult to interpret and perceive social situations with accuracy. Previously published research studies showed that disabilities in social competence are central to NVLD which leads to their excessive dependence on caregivers, parents, and significant other members.

**Visuo-Spatial Organizational deficit:**

As a result of a deficit in processing visual and spatial-related concepts, they face challenges in the following areas: The individuals with NVLD are unable to recognize and understand facial gestures, body posture, judge physical proximity, and social distance. They also face difficulty in identifying and noticing changes in voice tone, pitch, quality, and speed of speech delivery, are unable to fit the tone and mode of the occasion etc. Such deficits lead to the feeling of social withdrawal. Children with NVLD display problems in discriminating visual detail, visual relationships, visual-spatial orientation, such as the right to left orientation, visual memories, visual input coordination, for example, eye-hand coordination, visual form constancy, whole to part, etc which adversely impact concept formation which is based on visual perception and visual imagery. The child may also show a Central coherence deficit like children having Autism Spectrum Disorder (ASD).

**Motor area deficit:**

The third area is also known as a motoric deficit area in which children with NVLD often have poor psychomotor coordination, face balance problems, show motor clumsiness, and are not able to recognize how to avoid bumping into other people and objects as they are unaware of their body positioning in space. This also increases the risk of personal injury problems and balance issues. This makes CWNVLD appear drunk in the early attempts at walking, and they tend to be reluctant and clingy to objects and parents' hands to gain stabilization. These children also have fear of heights. Their sensorimotor period of development is slow which hinders their concept of problem-solving ability (LD online.org)

**Table 1. Characteristics of CWNVLD**

Areas of deficit	Features
Nonverbal communication deficits	Inability to understand physical gestures, facial expression, postures, nonverbal cues
Motoric deficits	Clumsiness, banging into persons and objects, poor motor coordination, poor eye-hand coordination, absence of spatial awareness
Visual-spatial deficits	Poor eye-hand coordination, poor visual input, absence of central coherence, inability to understand visual relationships
Social deficits	Lack of social adjustment, inability to understand and perceive social clues
Mental health issues	Anxiety, frustration, confused with ADHD

The table 1 summarizes the various characteristic features and deficit areas seen in NVLD.

### **Finding-2**

According to the study by Hartmann (2015), UDL framework allows learners to engage in an inclusive learning environment in the classrooms. This Framework provides guidance to teachers to support learners with disabilities and it also ensures that teachers understand ways to provide access to quality learning for their students.

According to the UDL guidelines (CAST, 2011) the curriculum can be adapted and modified to provide learners with opportunities to engage with the learning materials.

Rose and Meyer (2006) state that the school's agenda needs to be refocused and re-centred so that the priority is given to the designing and developing of a curriculum that supports the development of the needs of learners in all the classrooms and further commit towards the provision of lifelong learning processes. According to Dymond et al (2006) the curriculum goals should be focused on two things like a double-edged sword. First, it should focus on the content, and second, it should focus on the skill development which will help the learner to engage with the content to be a useful member of society.

Another study by Doyle and Giangreco (2009) states that the collaborative, cooperative, learning skills developed by providing an inclusive learning atmosphere through the adoption of you UDL Framework help learners to gain knowledge, stay motivated, increase mastery of knowledge, and raise focus on knowledge. It helps to sustain the learners, understand the content and retain it better along with gaining the opportunity for independent living and socialization.

## Discussion and Conclusion

These findings clearly help us to understand that the adoption of a UDL Framework for children with disabilities especially NVLD can be crucial and of immense importance to not only help them overcome and manage the deficits as per their unique needs but also help them to manage the tertiary effects of the disability on their socialization, problem-solving organizational skills.

Snell (2008) supports the use of the UDL framework-based curriculum which is of flexible nature to benefit all learners, especially learners with disability so that they benefit from the instructions given in the classroom along with their peers and gain a rich foundation in pedagogical knowledge. Several studies support the use of UDL implementation towards helping learners with disabilities to engage in the learning process, gain access to quality education and improve the learning outcomes (Dolan, Hall, Banerjee, Chin, & Strangman, 2005; Crevecoeur et.al., 2014.)

Thus, it can be seen that despite the growth of research in the area of LD, NVLD remains more hidden disability which is less studied, largely ignored and misdiagnosed, or under-diagnosed, as it is often confused with ASD and ADHD. The UDL framework is a well-tested, evidence-based approach that was developed and implemented to help learners gain access to quality, inclusive education by overcoming all barriers. However, despite the positive outcomes, there is a need for further research in order to understand the use of UDL to help learners with NVLD to improve their learning outcomes and reach their projected potential. This study makes such an attempt to review UDL Framework and NVLD which is an important area for research with learners with severe disabilities and hidden disabilities. Secondly, can Children with Disabilities (CwDs) especially CWNVLD benefit from the implementation of the UDL framework is a highly crucial question, which this study tries to answer through an in-depth review. questions are still on answered and need to be asked focused and researched over the years through implementation of UDL based curriculum for a meeting the learning needs of children with Non-Verbal Learning Disability.

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