

## UNIVERSAL DESIGN FOR LEARNING: AN APPROACH TO SUPPORT STUDENTS WITH SPECIAL NEEDS IN INCLUSIVE SETTING

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**Abstract.** Universal Design for learning is a framework for instruction organized by three principles based on the learning sciences. It helps teachers to create instructional goals, methods, materials, environments, structures, and assessments without barriers that work for all students. 8 indicators are given to help educators understand more about Universal design for learning approach and some strategies are suggested for teachers and educational support workers to use for students with special needs in Vietnam through multiple means of engagement, multiple means of representation and multiple means of action and expression to support them to learn in effectiveness.

**Keywords:** Universal Design for Learning, students with special needs, principles, strategies.

### 1. Introduction

Universal Design for Learning (UDL) is a theoretical framework developed by the Center for Applied Special Technology (CAST) to guide the development of curricula that are flexible and supportive to all students within diverse contemporary classrooms. UDL improves and optimizes teaching and learning for all people.[1]. UDL is derived from the concept of universal design. The term “Universal Design” is in the Individuals with Disabilities Education Act (IDEA 2004) of the United States as “a concept or philosophy for designing and delivering products and services that are usable by people with the widest possible range of functional capabilities, which include products and services that are directly accessible (without requiring assistive technologies) and products and services that are interoperable with assistive technologies.” [2].

The goal of UDL is to use an inclusive teaching methodology to remove barriers of learning and give all students opportunities to engage in activities and access to all potential needs of students. It is about building in flexibility that can be adjusted for every student’s strengths and needs [3]. UDL framework challenges educators to consider how it can include options and varied supports for all students. This is an important and transformative shift that helps teachers to design and implement accessible, appropriate, and inclusive curriculum for every student [4]. The study by Coyne et al. (2010) stated that UDL designed literacy instruction led to positive and relevant learning outcomes for students with intellectual disability [5]. UDL is applied to instructional activities for students with intellectual disability to examine a variety of interventions and outcomes in educational settings and identifies important questions for consideration in future research to determine how UDL can be applied to curriculum, used with evidence-based and effective practices, and used to support school-wide initiatives inclusive of students with intellectual disabilities [8].

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Narkon and Wells (2013) mentioned in their article how instruction can be designed using principles of UDL with story-mapping strategy to improve reading comprehension for students with learning disability, which by boosting students' accessibility to engagement and interaction [7].

However, barriers for implementing the UDL framework still exist when teachers and educational support workers have been using this to meet the needs of students including the one with special needs. Inclusive teacher and education support workers who need many in-depth pre-service trainings about UDL and its principle, how to apply its principles to set goals and adjust and accommodate curriculum, teaching methodology and educational environment to meet students' diverse demands [9]. A study about improved lesson planning with UDL stated that the improved multiplicity of options in lesson planning demonstrates a better understanding of UDL principles; however, teachers need more experience in implementing the UDL principles in their classrooms to more effectively meet students' individual needs [10]. Properly, educational support workers who help teachers in doing some plans and work directly with students with special needs in classroom could have some knowledge on how UDL process. It makes their works more successful.

Besides, 14 groups of children including children with disabilities are regulated as disadvantaged children accordance to Law on Children of Vietnam. More than 600,000 students with disabilities going to general schools who lack some essential supports in learning are the number estimated by MOET after 20 years implementing inclusive education. The inadequate number of teachers have proficiency in special education, lack of teaching tools with traditional teaching method, inflexible academic curriculum are barriers for students with disabilities to thrive for knowledge. If we can find innovative ways to make curriculum accessible and appropriate for individuals with different backgrounds, learning styles, abilities, and disabilities in various learning situations and contexts, we can ensure the equal possibility in learning for all of children. UDL principle show teachers and educational support worker how to be more flexible in providing multiple ways of what children learn (presentation), why children learn (engagement) and how children learn (expression what they have learned).

Hence, this article aimed to discuss about the roles of UDL in meeting the needs of all students including the individuals with special needs and then provide some strategies to support them in inclusive education in Vietnam.

## **2. Content**

### **2.1. Universal Design for Learning and its principles to ensure the needs of all students**

The Center for Applied Special Technology (CAST) was established in 1984 in the North Shore Children's Hospital in Massachusetts with the aim of using technology to improve learning for students with disabilities [11]. Then, CAST has become a leading authority to popularize the principles of UD for education, through Universal Learning Design which provides a framework to change the actual learning environment for every student. The three principles of UDL were introduced in teaching process including using multiple means of representation, expression and action and engagement [12].

The framework for instruction of UDL organized by three principles based on the learning sciences, guiding the design and development of curriculum that is effective and inclusive for all learners [13].

“Students are provided with scaffolds and supports to deeply understand and engage with standards-based material. They not only have access to content and facts, but they learn to ask questions, find information, and use that information effectively. They learn how to learn.” [2] UDL provides new ways for teachers and educational support workers to customize their methods

to students with a range of abilities, interests, and backgrounds. Rose and Meyer (2006) mentioned that all students even those who come from similar cultural backgrounds and have similar abilities, can have different and unique ways to access learning tasks in order to understand and master knowledge; therefore, UDL aims to adjust and reduce the limitations of a learning environment rather than addressing students' limitations [14].

Based on researching the learner differences and effective instructions, UDL principles formulate a variety and flexibility in present or access information, concepts and idea (the what of learning); plan and execute learning tasks (how of learning) and engagement in learning process (the why of learning).

**Representation:** Representation provides various methods for learners to perceive information represents the 'what' of learning to identify and categorize what we see, hear, and read which offer information in many types of format such as textbooks, text, audio, video and hands-on learning, etc. Multiple representations of meaning should be provided to ensure that students could get the best opportunity to demonstrate their skills and knowledge [1]. Therefore, applying multiple means of representation into curriculum support students with special needs having significantly difficulty in accessing materials. For example, some students have struggles when reading textbooks or understanding their teachers' instruction; some other students cannot control their behavior in their classrooms or have emotional disorders. Hence, teachers need to adapt lesson plans for students with special needs so they can access content in different ways. But UDL is much more than just presenting text digitally. Some students may grasp information better through visual or auditory means rather than printed text. To accommodate these differences, the UDL curriculum includes built-in options such as text, speech, video and audio so that students can interact with the content using multiple senses, aligned to their individual learning preferences.

**Action and expression:** Providing students multiple options for planning and performing content-specific tasks, UDL gives students various ways to interact with the material and to show what they've learned. With UDL, students can choose either take a pencil-and-paper test or g an oral presentation or do a group project. Students differ in the ways that they can navigate a learning environment and express what they know. Students with special needs may struggle with strategic and organizational abilities, have language barriers, or emotional and behavior issues, etc. and will demonstrate their mastery very differently. Multiple means of action and expression provide different ways for students to demonstrate what they have learned such as multiple-choice questions, short answers, matching things, group projects, or oral presentations, etc.

**Engagement:** UDL encourages teachers and educational support workers to look for multiple ways to motivate students and engage students during lessons: Letting students make choices and giving them assignments that feel relevant to students' interest; or playing a game and creating opportunities for students to move around the classroom. This principle is based on the brain's affective dimensions. Multiple means of engagement offer solutions to the problem so often faced by students with special needs who lack of motivation to learn due to obstacles posed by their difficulties in studying or skills. UDL allows teachers to alter the design based on the student's learning strengths and weaknesses while maintaining learning expectations. In order to maintain levels of interest during the active-lecture, other strategies can sustain student motivation, for example, delivering learning content by open discussion, Q&A sessions, peer-tutoring, and an applied problem-solving approach [15].

In summary, UDL approach ensure to provide accessible opportunities to qualified education for all students regardless of ability, disability, gender, age, or background. Its principles help teachers create instructional goals, methods, materials, environments, structures, and assessments

that work for all students and educational support workers find more ways to support students' learning and engaging students in different ways.

## **2.2. Students with Special Educational Needs in Vietnam**

“Special educational needs” is a legal definition and refers to children with learning problems or disabilities that make it harder for them to learn than same age children. Students with special educational needs may have problems with schoolwork, communication or behaviors. In Vietnamese Law on Children 2016, there are 14 categories of disadvantaged children who has many special education needs. The group of children with disability is ranked the fourth among those kids.

All children have a right to access an appropriate and qualified education. The aim of education is the same to all students including students with special educational needs that enable them, in line with their abilities, to live their independent lives so that they can contribute to their communities, cooperate with other people and continue to learn throughout their lives. Hence, education is creating opportunities for all children to develop and growth in all aspects of their lives – spiritual, moral, cognitive, emotional, imaginative, aesthetic, social and physical [16].

According to Action Aid International Vietnam (2014), 80% to 90% of the migrant workers who move their children to new geographic regions must pay high tuition fees to attend semi-public or private schools for hardly to attend public school out of their hometown. Moreover, in 2016, MOET found migrant children non-attendance rate was 1.6 higher compared with non-migrant children [17]. Social-economic status is a significant factor influencing a child's attendance in school. There is a marked difference between a child's attendance rate between the poorest and richest households, which is exacerbated by lower educational levels. At the age of 5, the children drop-out rate in the poorest household is 3 times as high as those from the richest families. Similarly, dropout rates are equivalent 5.5 times higher for primary-aged children and 10 times higher for lower secondary-aged youth [18].

The 2011-2015 Education Sector Analysis found “more than half of the disabled children do not attend classes”. From 2011-2015, the percentage of disabled students in school remained relatively constant, 70% in primary education, about 28% in LSE and less than 1% in USE. While there has been a slight increase in the number of disabled children in school, the government's target of enrolling 70% has gone unmet.

The General Statistics Office and UNICEF on 11 January 2019 announced the results of a national survey of people with disabilities in Vietnam. This is the first large-scale survey using international standards to collect comprehensive information on the lives of people with disabilities in Vietnam, conducted by the General Statistics Office in 2016 and 2017 with UNICEF technical assistance. According to the survey results, Vietnam has about 6.2 million people with disabilities. About 13% of the population, nearly 12 million people live in households with people with disabilities and this percentage is expected to increase [19].

The survey also found that children with disabilities had much lower chances of attending school than children without disabilities especially in high school and higher education. By high school, less than 1/3 of children with disabilities attend school at the right age, compared to 2/3 of children without disabilities.

Although a number of children with disabilities integrate into learning the same curriculum has brought positive results, only 2% of primary and secondary schools are designed to be suitable for students with disabilities and about 1/7 of the schools have a teacher trained in disability [19].

The Vietnam's Education Development Strategy for 2015-2020 underscored the needs for equitable access to education for children with special education needs. Inclusive education for children with disabilities had officially shifted from being understood as a "humanitarian" activity

to show responsibility by the actions of individuals. In addition, the quality of education for children with disabilities is improved, not only focusing on mobilizing numbers to access to schools but also paying attention to the quality of learning [20].

However, lacking data on how many percentages of children with special educational needs in inclusive schools and how to assess those special needs of an individual is a big question to address. Depending on factors in the learning context, special educational needs of a child may or may not be recognized. Consequently, children's special educational needs may not always be sufficiently catered for. Several barriers are hampering the provision of adequate education to students with special educational needs in mainstream schools.

Therefore, it is suggested that teachers and educational support workers should use a flexible approach to recognize and accommodate and adjust the factual environment of classroom to fulfill their students' needs. UDL could be an appropriate framework for them to use.

### **2.3. How Universal Design for Learning can help students with special needs**

All learners differ greatly in “what” they learn, how they learn and why they learn (Coyne et al., 2006; Rose and Meyer, 2002) [21] [22]. All students are quite difference and have diverse needs in learning such as learning style, pace of learning, or interests. Goal, method, material and assessment must address the strengths and weaknesses of individual students to achieve their highest potential.

Using a textbook with a lot of letter lead many students' learning to a failure. Some students with learning disabilities, students with intellectual disabilities and others may not learn by text only. They need some more technologies and some applications to support sometimes such as AAC, computers, text-to- speech software. Unfortunately, study materials that are not in electronic formats, uncaptioned video, PDF files that do not contain any real text and therefore cannot be searched or read aloud by text-to-speech software are often the same obstacles encountered by students who have different learning styles. Through applying UDL, teachers could have many choices to benefit those students by presenting materials in many ways. Hence the “universal” in Universal Design for Learning includes the use of technology, how to present knowledge in multiple modalities of instruction, how to assess the learning of students in flexible ways, and group activities to give students choices and provide them opportunities to empower themselves as learners.

New teachers or even though experienced teachers usually have one common concern on how they can reach their students with special needs. Although most of them are received many trainings to support for diverse students in inclusive school, many still feel that it is so challenging. Within a framework providing three components or principles of engagement, presentation and expression, teachers can provide multiple means of present materials, organize different activities in a classroom to engage students involvement, assess what students learn in different ways. Educational support workers supporting to teachers and directly students with special needs should understand UDL principles to prepare some activities and maintain students' engagement in classroom, and support teachers to instruct lessons by multiple representations and multiple ways of evaluation their achievement.

In general, UDL helps teachers and education support worker to be flexible to find the way to remove barriers and fulfill their student's potential in a diverse learning context.

### **2.4. Universal Design for Learning strategies to support students with special needs in Vietnam**

UDL can positively influence the level and experience of learning for students at various levels of education. There are 8 performance indicators in UDL that can be helpful for all students with special needs [23], as follow:

*Friendly class climate:* Students with special needs need a respectful and friendly school and classroom to welcome them to involve. Some strategies can be used such as: Put a statement on your syllabus inviting all students to discuss about their difficulties during studying and how to support and accommodate to meet their special learning needs; form a circle of friend within students with special needs so that those friend can support students with special needs in their classroom and at home;

*Interaction:* Encourage and promote effective interactions between students and teachers/educational support workers and communication methods should be accessible to all participants. Some strategies such as: Assign group work so that students can support each other;

*Physical environments:* Facilities, activities, materials, and equipment are physically accessible to and usable to all of students; it needs to guarantee the safety for students with special needs. Some strategies such as: Develop safety procedures for students who are blind, deaf, or wheelchair users;

*Multiple instructional methods:* Multiple instructional methods should be accessible to all learners. Some strategies such as: Use multiple modes to deliver content; when possible allow students to choose from multiple options for learning; peer-teaching, collaborative learning groups, hands-on activities, Internet-based communications, educational software, field trip, and so forth;

*Information resources and technology:* Ensure that materials, notes, and other information resources are engaging, flexible, and accessible for all students. Some strategies such as: Use printed materials and prepare a syllabus early to allow students to read materials and work on assignments before a subject; use-books with pictures for students with intellectual disabilities or autism or audio books for students with visual impairments;

*Feedback:* Teachers should provide specific feedback to students. Some strategies such as reward students with special needs when they finish their tasks; timely prompt for students to finish their tasks;

*Assessment:* Teachers should regularly assess student progress by using multiple accessible methods and tools and adjust instruction accordingly. Some strategies such as assess group work and cooperative performance, evaluate an individual achievement following their progress and their strengths;

*Accommodation:* Teachers should have a plan for accommodation whenever students' needs are not met by the instructional design. Some strategies such as: rescheduling classroom locations and arrange physical environment appropriate for student with special needs as students with visual impairment should have a seat closely to teachers to hear teachers' voice.

For students with special needs in Vietnam, which are also named as disadvantaged children, the most vulnerable group is a group of children with disabilities who has a little support at general school. Teachers could use ULD to meet their needs and demands for learning and here are some suggested strategies based on ULD principles for teachers and educators to work with those students:

**Multiple means of representation:** Comprehensive print and electronic syllabus for each subject requirement and expectation should be given. For students who have difficulties in learning, the way of instruction is very important to them so that teachers should include and use examples or illustrations by real object or using teaching tools. In order to introduce a new concept, teachers could highlight and introduce again and again. The content of subject should be presented by using visual, auditory, graphic, and verbal formats. Using electronic devices such as e-book or caption video or AAC is a good idea for teachers to work with students with autism, intellectual disabilities in classroom. Cooperative group activities should be use more in each

class. Educational support workers can help teachers to prepare those teaching tools and support students when they use those technologies in classroom.

**Multiple means of action and expression:** Teachers can create class activities or games. By the way students can be easily to remember lessons through a hand-on activity or an interesting game. Providing examples of learning strategies for student to attain, encourage them to share their thoughts and feeling about the lessons and the world around us. The requirement here is that students can have their opportunities to express what they have learned in multiple ways such as assignment, project, writing test, presentation, image and pictures, paintings, computer-based test, blogs through individual or group works. Let students conduct presentations or their learning. Teachers should offer ongoing feedbacks for each student. Educational support worker help students with special needs to perform the game in case they need or express what they have learned in various ways and give more feedback for their action and achievement.

**Multiple means of engagement:** How to have attraction by all students in classroom and maintain their engagement in the whole lesson is a big question for any teacher. Some ways to get involvement from students with special needs are: Eliminating all distractions; for example, we need to remove detail objects or picture annoyed students with autism in their classroom[24]; Using multimedia technology such as I-pad and computer is an essential tool for teachers/educational support workers to teach or organize an activity in the classroom; Encouraging collaboration in classroom within some group works or set up an cooperative group learning climate; Using their interests to teach; Giving them a choice; Providing opportunities for whole group discussions, and fostering communication with all students. Educational support workers should accompany to teachers to provide multiple means of engagement for students with special needs such as discussing about students' interests to teachers, helping students to involve in a group work and whole class discussion, mobilizing other students to join in activities with special needs students.

### **3. Conclusion and recommendations**

The traditional teaching approach and strategies cannot meet the diversity of students in current situation. Meanwhile, ULD is a framework with 3 principles and can be applied to all students in general and students with special needs. Providing multiple means of presentation, expression and action and engagement help students with special needs access to curriculum and achieve their highest potential. UDL also helps educators to view students' diversity as a chance for enhancing the educational system rather than as a barrier to their engagement and achievement at schools. Although teachers and educational support workers are continually challenged by the differences among their students, resources, reforms, and practices continue to progress, active methods and strategies that provided in this article might help them to meet the needs of their students. UDL should be studied more on how to apply to each category of children with special needs in the context of Vietnam.

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