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ENHANCING LEARNING AND EXPLORING UNIVERSAL DESIGN FOR LEARNING (UDL) PRINCIPLES AND PRACTICES IN THE CLASSROOM

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ABSTRACT

Universal Design for Learning (UDL) is a framework that aims to promote inclusive education by providing multiple means of representation, expression and engagement for all learners. This paper explores the principles of UDL and its potential impact on designing learning experiences for all learners. The paper begins with an overview of the UDL principles, including its three main guidelines: providing multiple means of representation, multiple means of expression and multiple means of engagement. The paper also explore the practices of UDL, such as perceptible, equitable use, flexibility, personal assistants, simple, intuitive use, tolerance and low efforts. Additionally, the challenges of implementing UDL in practice are discussed, such as the need for professional development, access to resources and overcoming resistance to change. Overall, this paper highlights the importance of designing learning experiences that are accessible and inclusive for all learners. By utilizing the principles of UDL, educators can create environments that support a diverse range of learners, promote equity and foster success.

Keywords: UDL, Inclusive education, Equality, Equity, Diverse learners, Supportive environment, Differentiated instruction, Engagement.

INTRODUCTION

According to widespread understanding, inclusive education is the process by which schools try to respond to each student as an individual by rethinking and restructuring the organization and presentation of instruction and allocating resources to improve equality of opportunity. (Joseph, 2007). Numerous studies in different nations with a history of inclusive education for students with special needs have revealed abundant educational benefits

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for both them and their peers in addition to the social benefits of this approach to fostering an inclusive society for all (Blandul, 2010, Downing, 2002, Leatherman & Niemeyer 2005). It takes work to provide inclusive education for students with special needs. The success of special education students' education is influenced by a number of factors. These variables include instructional approaches and classroom assistance (Leatherman & Niemeyer 2005), as well as the attitudes and beliefs of the key participants, including students, instructors and parents (Blandul 2010). Peer tutoring, peer group interaction and team teaching were some of the effective pedagogical approaches identified by Nind and Wearmouth (2006) in the literature. Other successful approaches included adaptation of instruction, materials, assessment and the classroom environment, as well as behavioral and programmatic interventions. The foundations of inclusive programs for children with disabilities are built by school teams over the course of a long period of time. According to Walther-Thomas, et.al, (2000), co-taught classes are carefully planned out, balanced rosters are made, co-teaching partners are trained and collaborative relationships are formed the right supports are offered to students with disabilities. As a result, inclusive education is a dynamic process that calls for ongoing assistance and teacher professional development. Adaptations inside the classroom are just the beginning of inclusive education. Examining exclusion, its polar opposite, might help one understand inclusion. The process of removing obstacles to participation can be considered as inclusive education. Identifying the impediments that prevent some people or groups of kids from attending school with their peers and then working to remove those obstacles. In addition to supporting access to a high-quality education for all children in settings where they can learn with one another, such understanding acknowledges diversity among groups and individuals.

UNIVERSAL DESIGN FOR LEARNING (UDL)

A set of curriculum development guidelines called "universal design for learning" ensures that all students have an equal chance to learn. It offers a guide for developing universally applicable educational objectives, strategies, resources and assessments rather than a rigid, one-size-fits-all strategy that cannot be altered to meet the needs of every student. In order to increase learning chances for all people through universal design for learning, CAST (Centre for Applied Special Technology), a nonprofit organization dedicated to education research and development, operates. With the intention of ensuring equal access to the curriculum through technology, CAST created the equal access programme in 1988.This renewed emphasis on "fixing" the curriculum as opposed to addressing the unique learning needs of each student plants the seeds for universal design for learning. This method of instruction increases learning for everyone by removing unnecessary barriers to learning and addressing the needs and skills of all students. This entails creating a flexible learning environment where knowledge can be provided in a number of ways, students interact in learning in various ways and students are given choices when displaying their understanding. Katz (2013) looked into how the Three Block Model of Universal Design for Learning (UDL) affects the academic and social involvement of students. The effects on involvement of student and teacher demographics, task kinds and assigned grouping structures were examined. Through improved peer relationships, student autonomy and inclusivity, the intervention dramatically increased

students' engaged behaviour, particularly active engagement and promoted social engagement. Courey et al., (2013) compared the lesson plans created by teacher candidates in a programme for pre-service teachers before and after UDL training was given. Following training, instructors (n = 45) improved the content accessibility for all students by including more differentiated options and a variety of teacher tactics based on UDL principles. Lesson planners now have a wider variety of alternatives, which shows that they have a greater knowledge of UDL's guiding principles. However, instructors still need more practice putting UDL into practice in their classrooms. Vitelli (2015) studied the integration of UDL into programmes for pre-service general education teacher preparation. Faculty in general education programmes taking part in Teacher Quality Enhancement (TQP) funds were given an online survey to complete. According to the results of the online poll, programmes funded by TQP funding had only little awareness and instruction of the framework. Nearly all professors who do teach UDL cover all three UDL principles. Senechal (2016) showed that the challenges to UDL implementation and factors affecting its ongoing and sustained implementation were aligned with local factors (leadership, time, professional development and resources), external factors (success for all students, systemic pressures, resources) and change characteristics (pragmatism and difficulty of UDL). The implications for leadership and future directions are discussed, including the leadership role in UDL implementation, efficient, long-term professional development for teachers adopting UDL and the role of systemic forces in UDL implementation. Loreman (2017) examined several inclusive teaching methods that have been shown to be flexible in a variety of settings and may be effective. It began with an overview of inclusive education before briefly discussing the historical forebears of the modern kinds of inclusive education pedagogical practice.

CONSIDERATIONS FOR UDL

- **Provide Options for Perception**-This approach, which is based on the idea that different types of learners access information differently, calls for offering flexible and numerous ways to convey information. Using Microsoft PowerPoint for supplementing your teaching with visuals is a good instance.
- **Provide Options for Expression** - This idea calls for offering flexible and numerous opportunities for pupils to communicate their knowledge or display their skills as learners their abilities to demonstrate what they have learnt in different ways vary. Allow students the choice between writing a final exam and submitting a final assignment, for instance.
- **Provide Options for Comprehension –** The types of educational activities that keep students interested in their studies vary depending on their motivation for learning. Having different options for participating in course activities is the third principle. A good example would be to have students work independently and in teams, as opposed to having they work solely on their own

PRINCIPLES OF UNIVERSAL DESIGN FOR LEARNING

The three guiding principles of the Centre for Applied Special Technology (CAST) model of Universal Design for Learning (UDL) advocated by Rose et.al, (2014) are (a) Multiple ways to engage engagement, (b) Various means of representation and (c) Numerous means of action and expression.

- **Multiple means of engagement**. Encourage interest in and enthusiasm for studying among obedient, driven students. In alignment with this idea, UDL guidelines encourage the creation of curricula and methods of instruction that offer possibilities for perception, language, expression and symbolism, in addition to comprehension. According to Parker et.al, (2017), encouraging individuals to make educated choices about the tasks they achieve and the peers with whom they interact may boost their motivation and engagement, help them to take advantage of their abilities and help them to meet their unique learning needs. According to Tobin and Behling (2018), learners want the opportunity to show their knowledge in real-world situations. According to Corley and Zubizarreta (2012), suggested that portfolio is the best tool for accomplishing this type of realistic assessment. Rao et.al, (2021), who endorse this viewpoint, claim that digital portfolios can give learners an authentic opportunity to self-reflect on progress, highlight accomplishments and share work with their peers. Digital tools can assist students create ideas progressively and share them with their peers. Students showed enthusiasm for peer involvement in a universal design research by Street et al. (2012). Discussions and collaborative efforts in the classroom session encouraged collaboration and interaction among peers. According to Burgstahler (2020), giving students collaborative assignments to complete can lead to greater diversity in collaborative education since it places a high importance on the variety of talents and responsibilities that pupils must support one another in.
- **Multiple means of representation.** Present information and content in many ways for resourceful, educated learners. The implementation of instruction and curriculum that include opportunities for physical activity, expressive abilities and fluency, or executive processes is encouraged by UDL guidance under this framework. Moreover, using a variety of formats when presenting course material to students is one theme that has come up in the literature on different forms of representation. To enhance the material provided through text-based readings along with additional mediums, instructors can use lectures and tutorials which are video-based. In addition to giving an in-person lecture, recording the presentation, and/or providing various kinds of audio recordings relevant to the class topic, Smith (2012) advises instructors to offer lessons in various forms. Based on Simonds and Brock (2014), older students prefer video lectures, while Younger students prefer interactive tasks in a virtual course; they encourage instructors to offer both options while making use of a number of representational methods. Tobin (2014) highlights the benefits of closed captioning for students who have disabilities, English language learners and students working in peaceful environments like libraries. Social networking sites can be used to improve student learning in educational environments, whether they are online or face-to-face.

Furthermore, also claim that incorporating social media activities into a classroom improves student interaction, cooperation, innovation and a sense of community (Friedman & Friedman, 2013). According to Schelly et.al, (2011), the representation principle demands that every learning resource should easily accessible, easy to use and well-organized.

- **Multiple means of action and expression**. Differentiate the ways in which pupils can communicate their knowledge for strategic, goal-directed learners. This principle's UDL recommendations promote the creation of curricula and training that offer options for arousing interest, maintaining dedication, persistence and controlling oneself. According to a study by Kumar and Wideman (2014), learners value the inclusion of various forms of activity and expression in a course. The adoption of a range of actions and modes of expression is related to learning goals and how students demonstrate that they are familiar with and comprehend the course material (Boothe et al., 2018). Although it is rarely used as a tool for evaluation, choice and diversity is regarded as effective assessment technique (Heelan, 2015). Students with various styles of learning may be successful by using a variety of assessment formats (Padden et al., 2019) and they should be able to decide from a broad range of options that allow them to show their comprehension (Kennette & Wilson, 2019). According to Basham et.al., (2020), UDL can offer an adaptive strategy that takes into consideration for learner diversity and improve student learning while modern technology is included. The use of modern technology may broaden options, encouraging students to choose the supported learning method that meets their learning objectives and preferences (Gronseth & Hutchins, 2020).

PRACTICES FOR UNIVERSAL DESIGN FOR LEARNING IN TODAY'S CLASSROOMS

How might the universal design principles be put into effect in today's classrooms to make learning more accessible? How can students with a wide range of intelligences and skills be successfully served to? How can we utilize the time and resources that we have more effectively? How the adverse can impacts of unsuitable the curriculum and situations be reduced to a minimum? How can we move away from classrooms that are largely print-based (textbooks, workbooks, worksheets), which deny access to the curriculum to too many learners considering the demands on teachers and lecturers in today's schools? How can we use what we currently understand from what the research tells us to work more intelligently through the development of curricula? In order to investigate strategies to prepare in advance for the many learners in our classrooms, keep the seven universal design principles in mind.

UDL PRACTICES FOR ALL CLASSROOMS

The following are some examples of universal design principles applied in the UDL classroom that can help all students:

- **Equitable use:** A classroom website enables equitable access because it can be accessible by students who are unable to be present in class at home, in a hospital, or abroad. Students with limited eyesight,

reading disabilities or other aural preferences can access the content if speech to text capability has been added to the print materials used in class. For example; in a 7th-grade social science class, a teacher can use a classroom website to provide digital resources on topics like the Mughal Empire, ensuring equitable access for students who are absent or have disabilities through features like text-to-speech (Rose & Meyer, 2002). This promotes inclusivity and learning continuity.

- **Flexibility:** Reading materials are offered in Braille, digital and hard copy variations to provide flexibility. For students who are left- or right-handed, there are scissors accessible, as well as different writing tools. In a 7th-grade social science class, when studying ancient civilizations, the teacher can offer reading materials in Braille, digital formats with text-to-speech options and printed versions. This ensures that visually impaired students and those with reading preferences can access the same content. Additionally, providing adaptive tools like left-handed scissors or various writing implements allows all students to participate in map-drawing or note-taking activities (Rose & Meyer, 2002).
- **Simple and Intuitive use:** For easy and intuitive usage, materials, charts and equipment in the classroom are labelled using words, illustrations and symbols. Programmes for computers adapt to user proficiency levels. Peers, teachers, helpers or computer technology can offer prompting or feedback as appropriate. In a 7th-grade social science class, while learning about Indian geography, maps and charts are labeled with words, illustrations and symbols to make them easily understandable for all students. (Rose & Meyer, 2002).
- **Perceptible:** More students can understand information when a video contains closed captioning activated or when comprehensive directions for an activity are recorded on a portable audio device. This data is presented alongside identically written, graphical, or symbolic directions on a card or chart. In a 7th-grade social science class, when studying the Indus Valley Civilization, a teacher can show a video with closed captioning to ensure students with hearing impairments can follow along. Comprehensive instructions for a related group project can be provided through a portable audio device, along with written and symbolic directions on a chart, ensuring all students can perceive and understand the material (Rose & Meyer, 2002; Hall et.al, 2012).
- **Tolerance for error:** Tolerance for error can be offered by programmes or peer tutors who assist the user when they provide the incorrect response. An immediate correction is made by going over background information or clarifying why a response was inaccurate. In a 7th-grade social science class, when students are working on a quiz about India's independence movement, a computer program or peer tutor can provide feedback when a student selects an incorrect answer. The program or tutor can immediately review relevant background information or clarify why the response was inaccurate, allowing the student to learn from their mistakes (Rose & Meyer, 2002; Hall et.al, 2012).
- **Low Physical effort:** A different computer keyboard or touch screen monitor can make it simpler and more enjoyable for someone with a motor problem to reply. For example; in a 7th-grade social science

class, when students are completing an online assignment on global trade routes**,** a touch screen monitor or adaptive keyboard can be provided for students with motor difficulties, making it easier and more enjoyable for them to participate and respond (Rose & Meyer, 2002; Hall et.al, 2012).

- **Personal assistants:** The classroom has sufficient space for personal assistants or assistive technology to work effectively. For students of various sizes, tables and chairs can be raised or lowered. All students can access the equipment and materials they require. For example; n a 7th-grade social science class, when studying cultural diversity, the classroom is designed with adjustable tables and chairs to accommodate students of different sizes and needs. Also, there is ample space for personal assistants or assistive technology to support students, ensuring everyone can access the necessary materials and participate fully in group activities (Rose & Meyer, 2002; Hall et.al, 2012).

CONCLUSION

On the basis of review, we may conclude that UDL increases student's active engagement and social engagement through increased peer interactions. UDL as inclusive pedagogical approach has adaptable regardless of context. Local and external factors, as well as characteristics of change, were found to affect UDL implementation and needed to address to better support UDL currently and in the future. The proper understanding of the principles of UDL have a positive impact on making the lesson plans to cater the needs of all learner. Also, implementing Universal Design for Learning (UDL) principles in the 7th-grade social science classroom fosters an inclusive environment where all students can engage, participate and succeed. By providing varied resources and flexible support, educators ensure that diverse learning needs are met effectively. The findings of this study have significant implications for educators, administrators, policymakers and other stakeholders involved in the field of education. They provide a foundation for further research and encourage the adoption of UDL principles to transform educational practices and promote inclusive education for all learners. Ultimately, this study contributes to the broader goal of breaking barriers and enhancing learning, ensuring that every student has equal opportunities to succeed and thrive in educational settings.

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