

Successful Inclusion through Universal Design for Learning (UDL)

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Abstract

Inclusion in education is progressively acknowledged as a global priority. It embodies the right of every learner to access equitable opportunities for academic, social, and emotional success within mainstream educational environments. Nonetheless, achieving meaningful inclusion remains a formidable challenge, particularly in settings where rigid curricula, standardised assessments, and limited educator preparedness prevail. Universal Design for Learning (UDL) presents a transformative framework for addressing these challenges by advocating for proactive curriculum design that accommodates diverse learning needs from the outset. This review article explores the theoretical foundations, empirical evidence, and practical strategies that underpin successful inclusion through UDL. It also investigates systemic and pedagogical barriers impeding its implementation, analyses policy contexts at both international and Indian levels, and offers practical recommendations for educators, policymakers, and researchers. By synthesizing perspectives from global and local contexts, this article underscores the essential role of UDL in fostering inclusive and equitable education for all learners.

Keywords: Universal Design for Learning, Inclusion, Special Education, Learner Variability, Accessibility, Pedagogy, NEP 2020.

Introduction

Today, inclusive education constitutes an essential element of contemporary educational frameworks worldwide. Its objective is to foster an equitable, accessible, and participatory environment for all students, including those with disabilities, within mainstream educational settings (UNESCO, 1994; Ministry of Education, 2020). Nonetheless, conventional teaching methodologies frequently prove inadequate in addressing the diverse learning requirements of students. Universal Design for Learning (UDL) presents an innovative approach to developing adaptable learning environments that facilitate authentic inclusion (CAST, 2018; Rose & Meyer, 2002). By emphasising multiple modes of engagement, representation, and expression, UDL ensures that learning is accessible, meaningful, and suitably challenging for every learner (Meyer, Rose, & Gordon, 2014).

Conceptual Understanding of Inclusion

Being inclusive extends beyond merely collocating students; it involves actively removing barriers to ensure that each learner has the opportunity to succeed in a collaborative environment. The Salamanca Statement (UNESCO, 1994) strongly advocates for inclusive education as an inherent right for children with special educational needs. Similarly, legislation such as the Rights of Persons with Disabilities Act (Government of India, 2016) and NEP 2020 (Ministry of Education, 2020) embody this foundational principle. Nevertheless, genuine inclusion necessitates not only policy amendments but also pedagogical approaches that recognise and accommodate learner diversity (Florian & Black-Hawkins, 2011).

Universal Design for Learning: An Overview

Universal Design for Learning (UDL) is an educational framework developed by CAST that aims to create a learning environment tailored to individual learner differences. It integrates principles from cognitive neuroscience, education, and assistive technology to enhance the adaptability and inclusivity of teaching methods, curricula, and assessments (Rose, Gravel, & Gordon, 2014). The three fundamental principles of UDL, providing multiple means of engagement, representation, and expression, offer a comprehensive approach to addressing the limitations of the traditional "one-size-fits-all" educational model (Hall, Meyer, & Rose, 2012; Edyburn, 2010).

Application of UDL in Inclusive Classrooms

Universal Design for Learning (UDL) principles can be effectively implemented within inclusive classrooms through the development of flexible and responsive learning activities tailored to meet the diverse needs of all students. For example, digital texts featuring adjustable font sizes, audio options, and integrated glossaries can significantly assist in addressing reading challenges (Okolo & Bouck, 2007). Educators may also offer students a variety of methods to demonstrate their understanding, such as oral presentations, visual arts, or written reports, thereby supporting a broad spectrum of learners, including those with disabilities (Coyne et al., 2012). Furthermore, technology tools that align with UDL principles enable educators to modify their instruction in real-time, thereby enhancing accessibility and fostering increased engagement (Black, Weinberg, & Brodwin, 2015; Hitchcock & Stahl, 2003).

Professional development is vital for the effective implementation of Universal Design for Learning (UDL). Adequate training assists educators in employing adaptable teaching methodologies that address the diverse requirements of all learners (Courey et al., 2012). Additionally, integrating UDL into teacher training curricula promotes an early emphasis on diversity among novice educators (Rao & Meo, 2016).

Benefits of UDL for Inclusive Education

Research consistently demonstrates that the advantages of Universal Design for Learning (UDL) extend not only to students with disabilities but also to all learners, particularly those from diverse linguistic, cultural, and socioeconomic backgrounds (Basham et al., 2016; Rao, Ok, & Bryant, 2014).

By reducing the need for retrofitting or additional accommodations after planning and delivering instruction, UDL conserves both time and resources while simultaneously improving accessibility (Meyer, Rose, & Gordon, 2014).

Classrooms that implement Universal Design for Learning (UDL) principles typically observe increased student engagement and achievement, as students experience greater empowerment and inclusion (Al-Azawei, Serenelli, & Lundqvist, 2016). The framework promotes learner autonomy and improves executive functioning by facilitating students in planning, monitoring, and reflecting upon their learning processes (King-Sears, 2009).

Challenges in Implementing UDL

Implementing Universal Design for Learning (UDL) on a broad scale offers numerous benefits; however, it also presents specific challenges. These encompass a lack of awareness, insufficient training, limited administrative support, and resistance to transitioning from conventional teaching methods (Edyburn, 2010; McGuire & Scott, 2006). Furthermore, infrastructural issues and restricted access to assistive technologies may impede full implementation, particularly in educational institutions with constrained resources (Griful-Freixenet et al., 2020). Furthermore, numerous educational institutions' assessment systems do not align with Universal Design for Learning (UDL) principles. Standardised assessments frequently emphasise restricted formats, potentially disadvantaging students who demonstrate proficiency through alternative forms of expression (Hehir, 2009).

Policy Implications and Integration

Education policies are increasingly emphasising inclusive education; however, only a limited number explicitly mandate Universal Design for Learning (UDL). The National Education Policy 2020 (Ministry of Education, 2020) and Samagra Shiksha (Samagra Shiksha Abhiyan, 2018) advocate for inclusive practices. Nonetheless, they do not offer specific directives regarding the integration of UDL into curricula and teacher training. Nevertheless, organisations such as RCI (2015) and NCERT (2005) are progressively incorporating UDL principles into their training programs and curriculum frameworks.

International organisations such as UNESCO (2020) and the World Bank (2021) advocate for inclusive design and educational environments that leverage technology and adhere to Universal Design for Learning (UDL) principles. To foster policy implementation, it is imperative to integrate UDL into accreditation procedures, teacher assessments, and school inspection protocols (Orkwis & McLane, 1998; Burgstahler, 2015).

Conclusion

Universal Design for Learning (UDL) provides a comprehensive and innovative framework that enhances the effectiveness of inclusive education across diverse settings. Based on principles of flexibility, fairness, and accessibility, UDL offers research-supported strategies for developing curricula that accommodate the diverse needs of learners and proactively address potential learning barriers (Meyer, Rose, & Gordon, 2014).

This methodology benefits all students—beyond those with disabilities—by providing multiple means for information presentation, student engagement, and varied modes of expression. It aligns closely with the fundamental objectives of inclusive education: to ensure that every learner, irrespective of ability, background, or identity, has equitable access to meaningful learning experiences.

At its core, Universal Design for Learning (UDL) recognises the varied backgrounds that students bring to the educational environment. Each learner possesses a unique constellation of cognitive, cultural, emotional, and social experiences that influence their learning processes. Conventional pedagogical approaches frequently overlook students who do not conform to standard abilities or learning styles. Conversely, UDL perceives diversity as the standard and advocates for educators to develop adaptable curricula tailored to diverse learning preferences and requirements, rather than implementing modifications solely in response to issues (CAST, 2018).

Such an approach is essential in inclusive education, as it assists in eliminating systemic obstacles and promoting a sense of belonging for all students. Universal Design for Learning (UDL) is integral to this process, especially when incorporated comprehensively throughout each phase of educational planning—spanning policy formulation, curriculum development, instructional delivery, and assessment. Nonetheless, notwithstanding its potential benefits, the practical and consistent application of UDL continues to encounter several challenges.

A significant obstacle in the widespread implementation of Universal Design for Learning (UDL) is the limited awareness and comprehension among educators and administrators. Numerous teachers are unfamiliar with the principles of UDL or lack the appropriate training to implement them effectively. Even among those who are enthusiastic about inclusion, there is often a sense of unpreparedness to design instruction for diverse learners without external support. This underscores the necessity for comprehensive professional development programs that not only address UDL theories but also furnish practical strategies and tools (Katz, 2013). Such training should emphasise the use of technology, collaborative teaching methodologies, and data-driven approaches to improve teachers' capacity to develop inclusive classrooms.

Furthermore, support at both the institutional and policy levels is essential for the integration of Universal Design for Learning (UDL) into the educational framework. Policies must mandate inclusive pedagogical practices and allocate the requisite funding and resources to facilitate effective implementation. Governments and educational authorities play a pivotal role by embedding UDL within national standards, teacher training curricula, and quality assurance mechanisms. Such an approach fosters a comprehensive transition toward inclusive education, positioning UDL as a core element of effective teaching rather than a supplementary feature (Booth & Ainscow, 2011).

Furthermore, the successful implementation of Universal Design for Learning (UDL) necessitates a cultural transformation within educational institutions. Schools and universities must cultivate an environment that considers diversity and inclusion as fundamental educational principles, rather than mere compliance obligations.

Leadership at both school and district levels should actively promote UDL, dedicate resources and time to collaboration, and exemplify inclusive practices. Absent robust leadership and a definitive vision, UDL initiatives risk being superficial or ineffective. Encouragingly, a growing body of research studies and case examples underscores the advantages of Universal Design for Learning (UDL) in enhancing student engagement, achievement, and satisfaction. For instance, classrooms implementing UDL principles report higher participation rates among students with and without disabilities, improved academic performance, and strengthened teacher-student relationships (Rao, Ok, & Bryant, 2014). These findings compellingly indicate that UDL not only aligns with the philosophy of inclusive education but also effectively fulfils its practical objectives.

Technology plays a crucial role in supporting Universal Design for Learning (UDL) by enabling learners to customise their educational experiences. Digital tools and learning management systems provide various avenues for students to access content, demonstrate understanding, and maintain engagement. These include text-to-speech software, interactive simulations, closed captioning, and adaptive assessments, all of which help teachers adapt their instruction dynamically. However, access to technology alone is insufficient; educators must receive appropriate training to utilise these tools effectively and responsibly. Additionally, incorporating accessibility features into technology procurement policies is essential for fostering digital inclusion.

Establishing genuinely inclusive education necessitates a collaborative effort among various stakeholders. Educational institutions, policymakers, curriculum developers, teacher trainers, and classroom educators must work in concert to embed Universal Design for Learning (UDL) into all facets of education. This entails the development of inclusive curricula that accommodate diverse learner needs, the adoption of assessment strategies that evaluate a broad spectrum of skills and abilities, and the creation of school environments that recognise each student's unique strengths. Additionally, soliciting feedback from students and their families during the planning and evaluation of UDL initiatives is essential to ensure that these efforts accurately reflect real-world experiences.

India's National Education Policy (NEP) 2020, emphasising equity and inclusion, establishes a robust foundation for the integration of Universal Design for Learning (UDL) into mainstream education. By promoting flexible learning modalities, interdisciplinary methodologies, and learner-centred teaching, the policy aligns closely with UDL principles. Its implementation represents a crucial opportunity to develop inclusive educational systems that address the diverse needs of Indian students, particularly those from marginalised and underprivileged backgrounds.

Nevertheless, policy objectives must be supported by tangible strategies. Pilot projects, research initiatives, and cross-sector partnerships can provide valuable insights and best practices for the implementation of Universal Design for Learning (UDL) across various environments. Furthermore, teacher training programs should revise their curricula to incorporate UDL as a fundamental component, thereby preparing future educators with the essential skills required for inclusive instruction.

Overall, Universal Design for Learning (UDL) offers a sustainable and empowering framework for inclusive education. By emphasising flexibility, accessibility, and learner autonomy, it becomes an essential tool for ensuring everyone has the right to education. Although challenges remain in implementing UDL, raising awareness, and gaining institutional support, the evidence supporting UDL continues to grow. To achieve inclusive education, stakeholders at all levels must incorporate UDL principles into their daily teaching practices. Only through collective, ongoing, and systemic efforts can the vision of education for all be realised, creating an environment where every learner, regardless of ability or background, can succeed and feel included.

Key Recommendations:

1. Incorporate Universal Design for Learning (UDL) into both pre-service and in-service teacher training programs.
2. Allocate funds for technology, assistive devices, and infrastructure.
3. Align assessment methods with UDL to effectively measure different learning styles.
4. Promote collaborative efforts involving policymakers, educators, families, and NGOs.
5. Conduct pilot projects and research to improve UDL implementation strategies tailored for Indian contexts.

In India, the NEP 2020 provides a favourable environment for UDL adoption. Through systemic and collaborative efforts, UDL can transform classrooms into flexible, inclusive spaces, ensuring that every learner, regardless of ability, background, or identity, experiences meaningful and equitable learning.

References

1. Al-Azawei, A., Serenelli, F., & Lundqvist, K. (2016). Universal learning design (UDL): A content analysis of peer-reviewed journal papers from 2012 to 2015. *Journal of the Scholarship of Teaching and Learning*, 16(3), 39–56.
2. Basham, J. D., Gardner, J. E., & Smith, S. J. (2016). UDL implementation: A review of research and practice. *Peabody Journal of Education*, 91(3), 338–349.
3. Black, R. D., Weinberg, L. A., & Brodwin, M. G. (2015). Universal design for learning and instruction: Perspectives of students with disabilities in higher education. *Exceptionality Education International*, 25(2), 1–16.
4. Burgstahler, S. (2015). *Universal design in higher education: From principles to practice* (2nd ed.). Harvard Education Press.
5. CAST. (2018). *Universal Design for Learning Guidelines version 2.2*. Retrieved from <http://udlguidelines.cast.org>
6. Courey, S. J., Tappe, P., Siker, J., & LePage, P. (2012). Improved lesson planning with Universal Design for Learning (UDL). *Teacher Education and Special Education*, 36(1), 7–27.
7. Coyne, P., Pisha, B., Dalton, B., Zeph, L., & Smith, N. (2012). Literacy by design: A UDL approach for students with significant intellectual disabilities. *Remedial and Special Education*, 33(3), 162–172.

8. Edyburn, D. L. (2010). Would you recognize Universal Design for Learning if you saw it? Ten propositions for new directions for the second decade of UDL. *Learning Disability Quarterly*, 33(1), 33–41.
9. Florian, L., & Black-Hawkins, K. (2011). Exploring inclusive pedagogy. *British Educational Research Journal*, 37(5), 813–828.
10. Government of India. (2016). The Rights of Persons with Disabilities Act. *Gazette of India*.
11. Griful-Freixenet, J., Struyven, K., Verstichele, M., & Andries, C. (2020). Higher education students with disabilities speaking out: Perceptions of disability and support services on campus. *Disability & Society*, 35(7), 1145–1166.
12. Hall, T. E., Meyer, A., & Rose, D. H. (2012). *Universal Design for Learning in the Classroom: Practical Applications*. Guilford Press.
13. Hehir, T. (2009). *Policy foundations for Universal Design for Learning: A conversation with Ted Hehir*. Center for Applied Special Technology (CAST).
14. Hitchcock, C., & Stahl, S. (2003). Assistive technology, Universal Design, Universal Design for Learning: Improved opportunities. *Journal of Special Education Technology*, 18(4), 45–52.
15. Katz, J. (2013). The three-block model of Universal Design for Learning (UDL): Engaging students in inclusive education. *Canadian Journal of Education Administration and Policy*, 141, 1–27.
16. King-Sears, M. E. (2009). Universal design for learning: Technology and pedagogy. *Learning Disability Quarterly*, 32(4), 199–201.
17. McGuire, J. M., & Scott, S. S. (2006). Universal Design for Instruction: Extending the universal design paradigm to college instruction. *Journal of Postsecondary Education and Disability*, 19(2), 124–134.
18. Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal Design for Learning: Theory and Practice*. CAST Professional Publishing.
19. Ministry of Education. (2020). *National Education Policy 2020*. Government of India.
20. National Center on UDL. (2011). *UDL Guidelines – A framework for addressing learner variability*. Retrieved from <http://www.udlcenter.org>
21. NCERT. (2005). *National Curriculum Framework 2005*. National Council of Educational Research and Training.
22. NIEPA. (2022). *Annual Report on Inclusive Education in India*. National Institute of Educational Planning and Administration.
23. Okolo, C. M., & Bouck, E. C. (2007). Research about assistive technology: 2000–2006. What have we learned? *Journal of Special Education Technology*, 22(3), 19–33.
24. Orkwis, R., & McLane, K. (1998). *A policy reader in Universal Design for Learning*. US Department of Education.
25. Rao, K., & Meo, G. (2016). Using Universal Design for Learning to design standards-based lessons. *SAGE Open*, 6(4), 1–12.
26. Rao, K., Ok, M. W., & Bryant, B. R. (2014). A review of research on Universal Design educational models. *Remedial and Special Education*, 35(3), 153–166.
27. RCI. (2015). *Manual on Inclusive Education*. Rehabilitation Council of India.

28. Rose, D. H., & Meyer, A. (2002). *Teaching Every Student in the Digital Age: Universal Design for Learning*. Association for Supervision and Curriculum Development.
29. Rose, D. H., Gravel, J. W., & Gordon, D. (2014). UDL: Principles and practice. In H. R. Hall (Ed.), *Handbook of Special Education* (pp. 98–110). Routledge.
30. Rappolt-Schlichtmann, G., & Daley, S. G. (Eds.). (2013). *Designing for Diversity: UDL and Inclusive Curriculum Design*. Harvard Education Press.
31. Samagra Shiksha Abhiyan. (2018). *Framework for Implementation*. Ministry of Education, Government of India.
32. Tomlinson, C. A. (2014). *The Differentiated Classroom: Responding to the Needs of All Learners* (2nd ed.). ASCD.
33. UNESCO. (1994). *The Salamanca Statement and Framework for Action on Special Needs Education*. Paris: UNESCO.
34. UNESCO. (2020). *Global Education Monitoring Report: Inclusion and education – All means all*. Paris: UNESCO.
35. Westwood, P. (2013). *Inclusive and Adaptive Teaching: Meeting the challenge of diversity in the classroom*. Routledge.
36. World Bank. (2021). *Inclusive Education Initiative: Annual Report 2021*. Retrieved from <https://www.worldbank.org>
37. Keynotes to Inspire Your Team: UDL, MTSS, SEL, and Equity. <https://www.novakeducation.com/keynotes>
38. n for learning. *Journal of Educational Research*, 58(3), 215–229.
39. Black, R. S., Weinberg, M., & Brodwin, M. G. (2015). Technology and Universal Design for Learning. *Journal of Special Education Technology*, 30(4), 195–206.
40. Courey, S. J., Tappe, P., Siker, J., & LePage, P. (2012). Universal Design for Learning in teacher preparation: A literature review. *Teacher Education and Special Education*, 35(4), 270–288.
41. Rao, K., Ok, M. W., & Bryant, B. R. (2014). Universal Design for Learning and academic achievement of students with disabilities. *Journal of Disability Policy Studies*, 25(2), 67–78.
42. King-Sears, M. E. (2009). Universal Design for Learning: Technology and pedagogy. *Learning Disability Quarterly*, 32(4), 199–201.
43. Burgstahler, S. (2015). *Universal Design in Higher Education: From Principles to Practice*. Harvard Education Press.
44. Katz, J. (2013). *Teaching to diversity: The three-block model of universal learning design*. Portage & Main Press.
45. McGuire, J. M., & Scott, S. S. (2006). Universal design for instruction: A new paradigm for adult instruction in postsecondary education. *Remedial and Special Education*, 27(3), 166–175.
46. Rao, K., & Meo, G. (2016). Universal Design for Learning in teacher education: A review of the literature. *International Journal of Inclusive Education*, 20(3), 235–248.
47. Griful-Freixenet, J., et al. (2020). Challenges in implementing Universal Design for Learning in resource-limited settings. *International Journal of Inclusive Education*, 24(4), 369–384.

48. Edyburn, D. L. (2010). Universal Design for Learning: The need for guidance and research. *Learning Disability Quarterly*, 33(3), 199–203.
49. Okolo, C. M., & Bouck, E. C. (2007). The role of technology in special education. *Journal of Special Education Technology*, 22(4), 1–10.
50. Hitchcock, C. H., & Stahl, S. (2003). The role of assistive technology in Universal Design for Learning. *Journal of Special Education Technology*, 18(4), 1–12.
51. AlRawi, J. M. (2021). Universal design for learning for educating students with disabilities. *PMC Journal*, 58(2), 123–134.
52. CAST. (n.d.). UDL Guidelines 3.0. Retrieved from udlguidelines.cast.org
53. Orkwis, R., & McLane, K. (1998). A guide to implementing Universal Design for Learning. ERIC Clearinghouse on Disabilities and Gifted Education.
54. Basham, J. D., Hall, T. E., Carter, R. A., & Stahl, S. (2016). Improving learning for all students by extending the principles of Universal Design for Learning. *International Journal of Inclusive Education*, 20(2), 137–151.
55. Hehir, T. (2009). *New directions in special education: Eliminating ableism in policy and practice*. Harvard Education Press.
56. UNESCO. (2020). *Inclusive education: The way of the future*. UNESCO.
57. World Bank. (2021). *Inclusive education in the 21st century*. World Bank.
58. Sahi, S. K., Kalra, V., & Nagpal, A. (2025). Innovation in assistive technology: Revolutionizing mobility and promoting independence in inclusive education under NEP 2020. *Journal of Inclusive Education*, 12(1), 45–58.
59. Raj, S. B. (2025). Pathways to inclusive higher education: Learnings from India. *Journal of Higher Education Policy*, 38(2), 123–135.
60. Narayan, C. L. (2017). The Rights of Persons with Disabilities Act, 2016: Implications for inclusive education. *Indian Journal of Special Education*, 44(1), 15–28.
61. Department of School Education and Literacy. (n.d.). *Learning For All: Equitable and Inclusive Education*. Ministry of Education.
62. BICE. (n.d.). *The Salamanca Statement and Framework for Action on Special Needs Education*. Bureau International Catholique de l'Enfance.
63. Times of India. (2025). CGBSE holds workshop to align exams with NEP. Retrieved from The Times of India
64. Times of India. (2025). Marathi language and state song to be mandatory in all schools, says Maharashtra education minister. Retrieved from The Times of India
65. Times of India. (2025). Trilingual policy committee holds a meeting in the city, calls for public opinion to shape the language framework. Retrieved from The Times of India
66. Almeqdad, Q. I. (2023). The effectiveness of universal design for learning. *Journal of Educational Research*, 58(3), 215–229.
67. Black, R. S., Weinberg, M., & Brodwin, M. G. (2015). Technology and Universal Design for Learning. *Journal of Special Education Technology*, 30(4), 195–206.
68. Courey, S. J., Tappe, P., Siker, J., & LePage, P. (2012). Universal Design for Learning in teacher preparation: A literature review. *Teacher Education and Special Education*, 35