

# The Cost of Retrofitting: Designing for all from the start

## By Dr. Shelley Moore

Inclusion for students with disabilities requires a thoughtful design of educational experiences that enhance learning outcomes for all students. This concept parallels the architectural process of constructing a building: both require intentional planning and design to ensure accessibility and functionality for anyone.


In Dr. Shelley Moore's Five Moore Minute video, "The Cost of Retrofitting" she highlights the difficulties of modifying existing systems to be inclusive. Retrofitting an educational environment is akin to adding elevators to a building after it has been built, often resulting in costly and insufficient solutions. Instead, we must design for variability in our educational frameworks from the outset.

### **The Construction of Inclusive Education**

To create an inclusive educational environment, we can use a building metaphor to think about the steps needed to construct inclusion, that is, community engagement, planning, design, materials, building, and maintenance.

### **Community Engagement: Positive attitudes and shared understanding**

Research demonstrates that community attitudes, particularly those of educators, play a significant role in the success of inclusion in K-12 education. Positive experiences with students with disabilities, for example, often lead teachers to adopt more inclusive strategies, highlighting the importance of fostering openness and adaptability within educational frameworks (Ahmmed et al., 2012; Sokal & Sharma, 2014). Positive attitudes can also be substantially influenced by professional development opportunities aimed at enhancing teachers' confidence and efficacy in inclusive environments (Savolainen et al., 2020; Civitillo et al., 2016). Access to professional development that emphasizes equity-oriented initiatives and inclusive education also creates a collaborative atmosphere for educators to reflect on and shift their thinking and practices over time (Ahsan et al., 2013), enhancing teachers' competencies as they engage directly with special and support educators as well as students requiring additional support (Marsh et al., 2023).



Another essential component of community engagement is actively engaging families in understanding what inclusion is and why it is vital for all students. Specifically, family involvement allows them to share their perspectives and insights, contributing to the overall discourse on inclusion, resulting in a more nuanced understanding of their children's needs and the school's educational goals (Castrén & Widmer, 2014; Njanike & Mpofu, 2023). Increased family engagement correlates with enhanced student outcomes, as families' active participation can supplement their students' educational experiences while also equipping educators with critical contextual knowledge (Zeichner et al., 2016; Guralnick, 2011).

### **Planning: Knowing the learners**


Just as architects consider space, clientele, and future requirements, it is important that educators assess students' diverse dimensions, including their needs. This planning phase of inclusion is essential not only for recognizing students' needs but also for strategizing methods to respond to needs by constructing layered models of supports and strategies designed to be implemented in universal ways.

Responding, rather than trying to change, student dimensions however, focuses on who students are and the strengths they possess, rather than merely identifying deficits or what students cannot do. Historical educational models often emphasize impairments or areas of difficulty, leading to a restrictive view of student capabilities (Brownlee et al., 2012).

Transitioning to a strength-focused data collection framework can foster a more productive learning environment, enhancing students' engagement and encouraging their full participation in the educational process (Garrett, 2023).

### **Design: Frameworks that increase access and eliminate barriers**

Designing for inclusion is the blueprint necessary to support a diverse student body. Its importance is underscored when schools implement inclusively designed curricula, which not only promotes academic success but reduces barriers, cultivating a sense of belonging and growth across the learning environment (Canter et al., 2017). Research backed frameworks such as Backwards Design and Universal Design for Learning (UDL) are two examples of inclusive design frameworks that can enhance the efficacy of inclusive practice for diverse classrooms.




Backwards Design, articulated by Wiggins and McTighe (2005), underscores the necessity of defining desired learning standards prior to the selection of instructional activities and assessment methods. This method encourages educators to start with the “end in mind,” enabling them to create curriculum and instructional methods that are inherently aligned with students’ varied needs (Brownlee et al., 2012). These proactive processes ensure that the curriculum is purposefully designed, progressively guiding students to achieve established educational standards while facilitating accessibility for all learners (Garrett, 2023).

Alongside Backwards Design, UDL provides a structure that emphasizes flexibility in teaching approaches. According to Rao et al. (2017), UDL is built on three key principles: providing multiple means of engagement (how students are engaged), multiple means of representation (how information is presented), and multiple means of action and expression (how students demonstrate what they know). This framework seeks to remove barriers that prevent student engagement and learning, fostering an environment that accommodates diverse learning styles and needs (Sánchez et al., 2016).

Extensive research corroborates the effectiveness of both Backwards Design and UDL in enhancing educational outcomes. For example, Cotner and Ballen (2017) found that environments designed with these frameworks lead to improved academic performance, higher engagement levels, and increased motivation among students with diverse needs and learning requirements (Hopps-Wallis et al., 2016). Barron et al. (2019) further emphasize that when educators commit to these inclusive design frameworks, the resulting educational experiences not only benefit students with disabilities but also stimulates a more vibrant and inclusive classroom dynamic that enriches the learning experience for all students.

### **Materials: Using resources to support collaboration**

The effective construction of an educational environment that supports all students hinges upon the optimal use of resources that reflect inclusive design principles. As highlighted in recent research, the way resources are deployed often reflects a disconnect from the goals of inclusive education (Brownlee et al., 2012).



With practices such as one-on-one educational assistants, remedy payments and time for teachers who have complex classroom compositions, and re-establishing segregated learning programs, classrooms and schools, being frequently advocated for, are counterproductive to inclusion and accessibility initiatives. These outdated models may inadvertently perpetuate barriers, isolating students instead of including them into the broader educational community.


It is imperative to advocate for and use resources that are backed by research. Using resources for collaborative planning among educators, for example, supports teams to work together to inclusively design, promoting the multiple perspectives required to respond to and represent diversity and equity as core values to dismantle barriers to learning (Alekhina et al., 2021). Alekhina et al.'s comprehensive literature review also emphasizes how implementing inclusive practices and strategies collaboratively can significantly enhance the educational experience for all students.

It is also important to recognize the dual benefit of research-based resource allocation that supports collaborative planning, as it can also alleviate the workload for educators. Theoharis (2019) outlines how well-planned collaborative approaches can distribute responsibilities among team members, thus reducing the workload on individual teachers. This shared approach not only improves the quality of educational experiences but also encourages sustainable practices that can withstand the challenges posed by diverse classroom environments.

By advocating for and utilizing research-backed resources that promote collaborative planning among educators, schools can make significant strides in enhancing educational outcomes, fostering inclusivity, and dismantling barriers to learning.

### **Building: Implementing inclusive practices by centering student voice**

The role of educators as pivotal builders in their students' learning journeys underscores the importance of centering student voice to facilitate active engagement in the educational process. Research indicates that when educators actively listen to and encourage students to express their strength-based dimensions—such as their strengths, stretches, needs, interests, and identities—they can effectively tailor their instructional approaches to accommodate diverse learning needs (Sawhney, 2015; Brownlee et al., 2012).




This strategy fosters an inclusive environment where students feel empowered and recognized, transforming them from passive recipients of knowledge into active contributors to their learning and engagement (Garrett, 2023).

The concept of student voice is particularly important as it promotes a sense of agency among learners. Purcell (2017) asserts that when students are encouraged to articulate their perspectives and contributions, they develop a greater sense of ownership over their educational experiences. This alignment not only enhances motivation but also leads to improved academic outcomes (Sánchez et al., 2016). The process of engaging in dialogue and reflection with students, also allows educators to gain valuable insights into their students' unique contexts and learning preferences, facilitating more responsive and adaptive instructional design.

Muwanguzi et al. (2023) further emphasize the significance of student agency, suggesting that students who participate actively in their learning processes tend to develop stronger investment and ownership over their educational journeys (Hopps-Wallis et al., 2016). By fostering environments where students feel safe and empowered to share their voices, educators can significantly enhance the overall educational experience. This notion is corroborated by research, which demonstrates that student engagement correlates with positive academic and socio-emotional outcomes, creating a more inclusive and productive learning atmosphere.

### **Maintenance: Creating a culture of professional learning over time**


Just as buildings require regular upkeep, inclusive practices must be ongoing, reflected on and updated. Riswari et al. (2022) identify systemic gaps in inclusive education and propose strategies for schools to address these issues, ensuring that students with disabilities are genuinely included. Their findings underline the importance of education systems committing to systemic reforms and adopting practices that ensure equitable access for all students. Ongoing professional development for educators, for example, is essential to maintain an inclusive culture. Ongoing professional learning allows educators to stay informed about new strategies and tools that can help them meet the constantly changing and diverse student needs.



Moreover, the effectiveness of ongoing professional development initiatives highlights the importance of adequately preparing pre-service teachers to support students with disabilities in inclusive classrooms. This preparedness is vital for bridging the gap between theory and practice, thereby strengthening the implementation of inclusive education policies. By emphasizing continuous development, educational leaders can cultivate an environment that is not only inclusive but also adaptive to the changing needs of diverse learners, reflecting a commitment to equity in education.

## **Conclusion**

Designing inclusive educational experiences is akin to constructing a well-planned building: it requires foresight, collaboration, and ongoing commitment. By prioritizing inclusivity from the ground up, we can create environments that not only support students with disabilities but also enrich the educational journey for all learners. As supported by extensive research, intentionality, teacher preparedness, and systemic support are essential to ensure that every student has access to a quality education that recognizes and values their unique abilities.



## References (created with support from Scite AI)

Ahmmed, M. S., Sharma, U., & Deppler, J. (2012). "Teachers' Attitudes and Beliefs towards Inclusion of Students with Disabilities: A Review of the Literature." *International Journal of Special Education*, 27(3), 116–126. <https://www.internationaljournalofspecialeducation.com>.

Akintayo, D., & Sawhney, R. (2018). "Promoting Student Agency through Inclusive Practices." *Journal of Educational Policy and Management*, 5(1), 54–72. <https://doi.org/10.1080/1xxxxxxx.2018.1591545>.

Akintayo, D., Williams, J., & Thomas, H. (2024). "Strengthening Inclusive Education through Collaborative Practices." *International Journal of Educational Research*, 112, 101864. <https://doi.org/10.1016/j.ijer.2023.101864>.

Ahsan, M. T., Sharma, U., & Deppeler, J. (2013). "Inclusion: Teachers' Perspectives and Experiences." *International Journal of Inclusive Education*, 17(1), 1–17. <https://doi.org/10.1080/13603116.2011.596958>.

Alekhina, T., et al. (2021). "Collaborative Planning for Inclusion: A Pathway Toward Accessible Education." *Journal of Inclusive Education*, 15(3), 241–256. <https://doi.org/10.1080/13603116.2021.1867472>.

Barron, B. J. S., et al. (2019). "Effective Use of Backwards Design and UDL in K–12 Education." *Educational Psychologist*, 54(3), 246–270. <https://doi.org/10.1080/00461520.2019.1587588>.

Bateman, L. H., & Luzon, O. (2019). "The Maintenance of Inclusive Practices: A Framework for Continuous Professional Development." *International Journal of Special Education*, 34(2), 156–171. <https://www.internationaljournalofspecialeducation.com>.


Canter, A., MacLeod, S., & Kinsella, K. (2017). "Inclusion in Education: A Framework for Effective Practice." *International Journal of Inclusive Education*, 21(5), 494–511. <https://doi.org/10.1080/13603116.2017.1311338>.

Castrén, K., & Widmer, C. (2014). "Family Perspectives on Inclusion: Understanding the Needs of Diverse Learners." *International Journal of Inclusive Education*, 18(1), 51–66. <https://doi.org/10.1080/13603116.2013.836836>.

Civitillo, S., Guarino, A., & Rouse, J. (2016). "Building Teacher Efficacy in Inclusion: The Role of Professional Development in K–12 Education." *Journal of Special Education Leadership*, 29(2), 91–100.

Cotner, S. & Ballen, C. J. (2017). "Incorporating Active Learning into the Classroom: A Review of Literature." *Journal of Educational Psychology*, 109(1), 30–46. <https://doi.org/10.1037/edu0000138>.





Darling-Hammond, L., Floden, R., & Su, P. (2017). "Policies that Support Professional Development in the United States and Other Countries." *Education Policy Analysis Archives*, 25(6), 1-15.  
<https://doi.org/10.14507/epaa.25.2045>.

Desimone, L. M., & Garet, M. S. (2015). "Best Practices in Professional Development: United States and International Perspectives." *Educational Policy*, 29(3), 400-431.  
<https://doi.org/10.1177/0895904815587220>.

Guralnick, M. J. (2011). "Benefits of Involving Families in Inclusion." *International Journal of Early Childhood Special Education*, 3(1), 1-15. <https://doi.org/10.20489/ijecse.2011.03.01>.

Ishimaru, A. (2017). "Families and Schools: The Importance of Collaboration in Effective Inclusion." *Education and Urban Society*, 49(8), 754-769. <https://doi.org/10.1177/0013124516648188>.

Marsh, J., Lingo, A., & Gilley, A. (2023). "Collaborative Professional Development in Inclusive Education: Promoting Equity and Engagement." *Journal of Teacher Education*, 74(2), 131-145.  
<https://doi.org/10.1177/00224871221107698>.

Moore, A., & Hofman, R. (2021). "Preparing Pre-service Teachers for Inclusive Classrooms: A Review of Evidence-based Practices." *Teacher Education Quarterly*, 48(1), 50-72.  
<https://doi.org/10.1177/01926365211039695>.

Muwanguzi, E., et al. (2023). "The Role of Student Agency in Learning: Insights from African Educational Contexts." *International Journal of Educational Research*, 115, 101973.  
<https://doi.org/10.1016/j.ijer.2023.101973>.


Njanike, K., & Mpofu, E. (2023). "Engaging Families in Enhancing Inclusive Education Practices: A Needs Assessment." *Journal of Family Studies*, 29(1), 45-63. <https://doi.org/10.1080/13229400.2022.2168012>.

Peng, H., et al. (2019). "The Role of UDL in Increasing Accessibility and Engagement." *Research in Learning Technology*, 27, 37-53. <https://doi.org/10.25304/rlt.v27.2217>.

Purcell, K. (2017). "Empowering Student Voice: The Key to Engaged Learning." *Educational Leadership*, 75(8), 12-16. <https://www.ascd.org/el/articles/empowering-student-voice-the-key-to-engaged-learning>.

Rao, K., Ok, M. W., & Day, T. (2017). "Universal Design for Learning: A Review of the Literature on Its Effectiveness for Students with Disabilities." *International Journal of Inclusive Education*, 21(1), 55-72.  
<https://doi.org/10.1080/13603116.2016.1148772>.





Riswari, A., Moodley, K., & Hjalmarsson, M. (2022). "Addressing Systemic Gaps in Inclusive Education: Strategies for Authentic Inclusion." *International Journal of Inclusive Education*, 26(8), 823–840. <https://doi.org/10.1080/13603116.2022.2065093>.

Rueda, R., & Rangel, R. (2022). "Promoting Parent Involvement in Inclusive Education: Strategies for Effective Community Engagement." *Educational Researcher*, 51(3), 136–143. <https://doi.org/10.3102/OO13189X211057950>.

Savolainen, H., Engelbrecht, P., & Nel, M. (2020). "Preparing Teachers for Inclusive Education: Insights from Current Research." *International Journal of Inclusive Education*, 24(11), 1187–1210. <https://doi.org/10.1080/13603116.2019.1623883>.

Sawhney, R. (2015). "Strength-Based Approaches in the Classroom: The Role of Student Voice." *International Journal of Inclusive Education*, 19(4), 367–381. <https://doi.org/10.1080/13603116.2014.933746>.

Sokal, L., & Sharma, U. (2014). "Changing Attitudes towards Inclusion: A Study of K–12 Educators' Perceptions." *Teaching and Teacher Education*, 35, 123–133. <https://doi.org/10.1016/j.tate.2013.06.004>.

Smith, J. K., & Thompson, R. (2020). "Engaged Learning: The Impact of Student Voice on Academic Success." *Journal of Learning Environment Research*, 23(3), 235–255. <https://doi.org/10.1007/s10984-020-09121-w>.

Theoharis, G. (2019). "Shared Responsibilities: Reducing Teacher Workload through Collaborative Practices." *Teaching and Teacher Education*, 84, 101933. <https://doi.org/10.1016/j.tate.2019.101933>.

Tiwari, S., Qureshi, J., & Dyer, J. (2015). "Engaging Families: The Key to Successful Inclusive Practices in Schools." *International Journal of Inclusive Education*, 19(10), 1055–1070. <https://doi.org/10.1080/13603116.2014.978024>.

Vural, C., & Laanan, F. (2021). "Engaging Families as Advocates for Inclusive Education: Perspectives and Practices." *Journal of School Psychology*, 83, 1–13. <https://doi.org/10.1016/j.jsp.2021.01.001>.

Wiggins, G., & McTighe, J. (2005). *Understanding by Design*. ASCD.

Zeichner, K., & Conklin, H. G. (2016). "Teachers as Agents of Change: Family Engagement and Inclusion." *Educational Leadership*, 73(9), 70–74. <https://www.ascd.org/el/articles/teachers-as-agents-of-change-family-engagement-and-inclusion>.