RESEARCH BRIEF

Addressing Specific Learning Differences Through Learner- Centered Education:

Evidence from Practice and Literature

Khara Schonfeld-Karan, Ph.D. (Education Reimagined)
Caleb Collier, Ph.D. (Institute for Self-Directed Learning)



OCTOBER 2025

"I felt so happy. I had never experienced that type of care and acceptance at any of my previous schools."

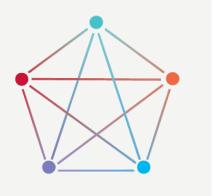
Graduate
NORRIS SCHOOL DISTRICT

Introduction

Specific learning disabilities represent the largest category among the 7.5 million students served under the Individuals with Disabilities Education Act, affecting approximately 32% of students with disabilities nationwide (NCES, 2024). These learning differences significantly influence educational outcomes; for instance, students with disabilities graduate from high school at only 67.1% compared to 84.6% for all students (NCES, 2024).

These academic disparities may stem from a fundamental mismatch between the support young people with learning differences need and what conventional education systems typically provide. To explore this further, we conducted research investigating how these populations of young people are being served by learner-centered environments. Learner-centered education is an approach to education that focuses on the holistic development of learners¹ within and as part of supportive communities and through unique learning journeys. Five key elements are integral to learner-centered education:

Learner Agency
Socially Embedded
Personalized, Relevant, & Contextualized
Open-Walled
Competency-Based



¹Education Reimagined uses the term learner to refer to young people (ages 3–22) in learner-centered environments. Unlike "student," which implies a passive role, "learner" encompasses the evolving ways that young people grow, explore, and understand the world around them.

ABOUT THIS BRIEF

This brief is part of Education Reimagined's Learning Differences Research Series, conducted with funding provided in part by **Oak Foundation**. While this brief focuses on evidence-based practices for specific learning differences, more details on the research context and methodology can be found in our **Research Study Overview**. For the complete series (available in 2026), visit **Learning Differences Research Series**.

Research Approach

This brief presents findings in relation to specific types of learning differences that surfaced through

- a literature review of research-validated strategies conducted by **Education Reimagined** in partnership with the **Institute for Self-Directed Learning**, and
- 2 a collaborative multi-case study conducted by Education Reimagined with a team of practitioner-researchers.

In this research study, we utilized an inclusive definition of "learning differences" that includes

- **Specific learning disabilities** (e.g., dyslexia, dyscalculia, dysgraphia);
- Neurological processing challenges (e.g., attention deficits, sensory processing, executive function challenges); and
- Youth with or without formal diagnoses who experience mismatches between how they learn best and how classrooms are typically designed.

Our multi-case study involved three participating environments, which were selected based on their learner-centered model designs and practices, geographic diversity, and significant enrollment of youth with Individual Education Programs (IEPs) and Section 504 plans (504s).





Case Study Overview

Study Design: Collaborative multi-case study **Duration:** 8 months (2024–25 school year)

Research Team: 16 education leaders, practitioners, advocates, and researchers

Data Collection: Site visits, interviews, focus groups, observations, surveys, and documents

Data Analysis: Thematic analysis

Overview of Participating Sites: 2024–2025 Academic Year

Learning Environment	Location	Grades & Enrollment	Learning Supports	Approach
Avalon School Public charter school	St. Paul, MN (Urban)	6–12 275 learners	50% IEPs 10% 504s	Project-based learning with teacher-and learner-led governance; serves many youth with diverse identities and learning needs
LaFayette Big Picture School Public school within district high school and part of the Big Picture Learning network	LaFayette, NY (Suburban Rural)	9–12 50 learners	29% IEPs 18% 504s	Real-world internships with community mentors developing self-advocacy skills; serves many youth from the Onondaga Nation
Norris School District Public school district	Mukwonago, WI (Rural)	K–12 63 learners	76% IEPs 1% 504s	Trauma-informed, individualized approaches; serves many youth who are highly mobile in justice or foster care systems

Using the above definition of learning differences as a foundation, we explored how these learner-centered environments support youth through three main categories: 1) specific learning disabilities, 2) neurological processing challenges, and 3) related conditions that affect learning.

After analyzing the data, we identified six dimensions of learner-centered environments that are effective in supporting youth with learning differences. The following section explores how these dimensions manifest as evidence-based practices across different learning differences.

Key Findings

Our findings indicate that the learner-centered settings prioritize and embed many approaches identified as effective in research on learning differences. These environments structure their model designs to emphasize flexibility, inclusivity, and holistic development, which is evidenced by these six integral dimensions across the sites:

- 1 **Safety:** Every learner feels secure, respected, and supported by adults.
- 2 **Community**: Connections foster belonging and mutual contribution among learners and adults.
- 3 **Advocacy**: Youth are empowered to voice their needs and shape their learning experiences.
- 4 **Adaptability**: Spaces and systems accommodate diverse learning needs and backgrounds.
- 5 **Relevance**: Learning experiences connect to learners' authentic interests and real-world contexts.
- 6 **Choice**: Multiple pathways and modalities are available for accessing and demonstrating learning.

In this brief, we organized our findings by condition for clarity. However, many youth experience multiple, intersecting learning differences, and the studied sites recognize that these often interact and compound one another. Therefore, rather than addressing each condition in isolation, the learner-centered environments use coordinated, holistic approaches to support the whole learner.

Our analysis also revealed that the practices described in this brief are broadly beneficial, serving not only learners across multiple categories, but also supporting the learning needs of all youth. Importantly, these practices derive their effectiveness from being embedded within highly inclusive learning environments, as opposed to being treated as discrete strategies. Moreover, these environments cultivate shared responsibility for all learners with the abovementioned integral dimensions guiding their educational priorities.

Specific Learning Disabilities

Specific learning disabilities are neurobiological conditions that can interfere with the brain's ability to process language, numbers, and written expression. In this category, we explore 1) dyslexia, 2) dysgraphia, and 3) dyscalculia.

DYSLEXIA

Dyslexia is a neurobiological learning disability that affects reading and spelling processes due to difficulty manipulating sounds of spoken language and occurs in approximately 5–10% of the population (Roitsch & Watson, 2019).

Intersection of Research and Learner-Centered Practices

Research shows that youth with dyslexia often experience higher anxiety and lower self-esteem, underscoring the need for support that extends beyond academics (Zuppardo et al., 2023). Adaptive instructional strategies that flex with individual learner needs significantly enhance the learning experience and satisfaction of youth with dyslexia (Alghabban & Hendley, 2020). In particular, integrating speech-based response modalities into instruction and assessment has been shown to strengthen learning outcomes for this population (Wilschut et al., 2025).

Our study revealed that one-on-one support is provided through trusting relationships in the three learner-centered environments, allowing for stigma-free assistance that is rooted in learners' interests and real-world contexts. The low adult-to-learner ratio in these settings helps create safe environments where learners feel secure enough to reveal challenges like reading struggles. In these supportive contexts, educators are able to look past literacy barriers to discover what each learner actually knows.

The environments also prioritize multiple formats for learners to access and demonstrate knowledge, reducing their reliance on text-based information. This approach is further supported by flexible pacing that allows learners to practice independently while having immediate support available when needed. Additionally, project-based learning and authentic assessment reduce reliance on reading-heavy evaluations, while peer mentoring opportunities, like Reading Buddy programs, enable learners with reading challenges to build confidence by teaching others.

These practices exemplify the **choice**, **adaptability**, and **safety** dimensions, while **relevance** through interest-based contexts strengthens learning outcomes.

DYSLEXIA (CONT.)

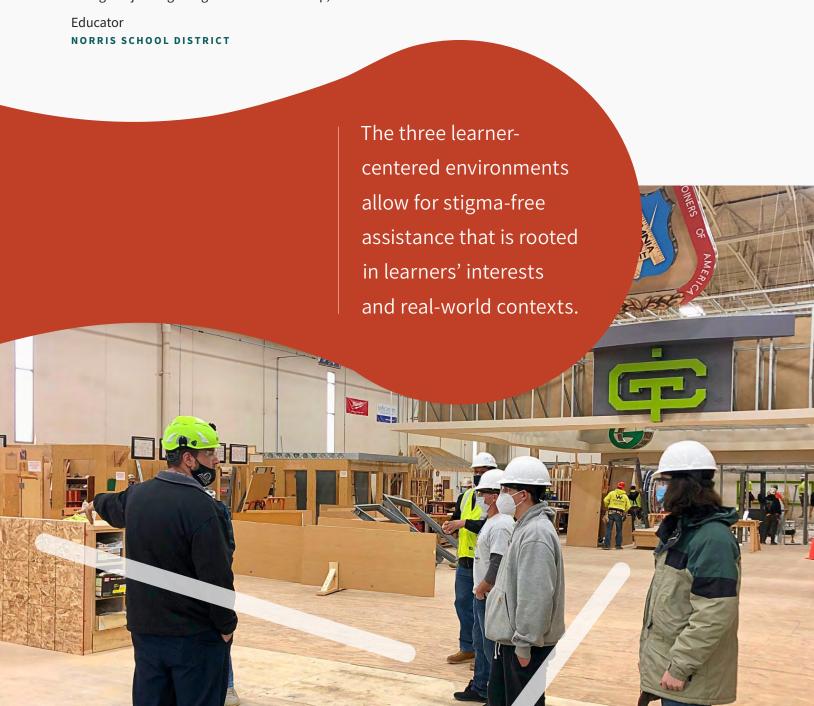
What We Heard

"Sometimes they have me read it by myself so I can learn. But if I really am struggling ... I go to them and they help me with my reading. ... People aren't judgy here."

Learner with IEP for reading disorder

LAFAYETTE BIG PICTURE HIGH SCHOOL

"I've had several examples of kids where I've had that 'aha' moment like, 'Oh, that's why they're not doing their work. ... They can't read the instructions.' Our ratio of adults and staff members to learners is such that we can generally get two adults in the room and have somebody work with that young person. ... I think as a staff we do a good job of getting kids over that hump, that hurdle."



DYSGRAPHIA

Dysgraphia is a specific learning disability that results in unusual difficulty writing legible letters automatically and consistently (Berninger & Wolf, 2016). While handwriting challenges impact an estimated 10–30% of children, dysgraphia represents a more persistent and specific form of these difficulties (Kushki et al., 2011).

Intersection of Research and Learner-Centered Practices

For youth with dysgraphia, research indicates that when they are able to utilize their verbal, creative, or conceptual strengths, they experience increased levels of inclusion and affirmation in their learning abilities (Tomlinson, 2014). Learners with dysgraphia also benefit when given flexible modes of expression that emphasize content over form, which reduces the cognitive load associated with writing (MacArthur, 2009). To further support their development as writers, assistive technologies (e.g., speech-to-text software, keyboard accommodations, and graphic organizers) can be employed to compensate for handwriting challenges, enhancing written output when tools are appropriately matched and instruction is provided (Edyburn, 2020).

Across the studied sites, competence over written output alone is prioritized to create validating, confidence-building environments. This is accomplished by offering multiple formats for learners to demonstrate knowledge and understanding, such as hands-on demonstrations, oral presentations, and collaborative work. Learners with dysgraphia are also supported through assistive technologies like dictation software and graphic organizers, which help them communicate their ideas and organize their thoughts before writing.

Scaffolded project processes (e.g., proposals, check-ins, final deliverables) were also observed. These processes offer structured opportunities for learners with dysgraphia to practice their communication skills in safe, low-stakes settings. One educator recounted a learner with written expression challenges who, after graduating, successfully applied for a job as a sheriff's deputy. This was a goal the learner had shared when he first enrolled at the school. Although it seemed out of reach at that time, his success demonstrates how focusing on learners' strengths and providing needed support can lead to meaningful outcomes.

Approaches such as these demonstrate how **advocacy**, **choice**, and **relevance** dimensions create conditions where learners develop communication skills, with **safety** emerging through validating environments.

What We Heard

"We have a meeting so the parent can discuss how dysgraphia impacts their child—as dysgraphia can show up in so many different ways. We allow the parent to tell their child's story so we are better prepared and can help their learner in the best way possible."

Site leader

LAFAYETTE BIG PICTURE HIGH SCHOOL

"[Before Avalon,] I'd never felt like someone cared about what my child struggles with and how we can get them to graduation and not destroy their self-confidence, or their sense of self, while doing it."

Parent of learner with ADHD, autism, dysgraphia, and dyscalculia

AVALON SCHOOL

DYSCALCULIA

Often referred to as "math dyslexia," dyscalculia is a learning disability that impairs someone's ability to understand numbers and mathematical concepts and affects approximately 3–7% of school-aged children (Butterworth et al., 2011).

Intersection of Research and Learner-Centered Practices

Research suggests that explicit, step-by-step instruction improves math performance for learners with learning disabilities by providing concrete frameworks from which they can then engage more effectively with abstract principles (Gersten et al., 2009). Digital interventions can further address key numerosity processing deficits underlying dyscalculia, helping learners develop the building blocks of mathematics (Butterworth & Laurillard, 2010). When these methods are paired with data-based individualization and progress monitoring, outcomes improve for learners with dyscalculia (Lemons et al., 2018).

The environments in the study translate this research into practice by providing real-world mathematical applications, interest-based projects, and mentorship. These approaches help learners, particularly those with dyscalculia, develop positive relationships with math. For example, one site offers a "workplace math" class to prepare learners for algebra, teaching them about budgeting, finance, and interest.

In these environments, flexible pacing and individualized support are prioritized, creating opportunities for learners to engage deeply with mathematical concepts without time pressure. This approach seems to counteract prior negative experiences with math. While employing these strategies, the sites attend to learners' individual processing needs and styles, offering multiple ways to access, practice, and demonstrate mathematical understanding. For instance, all of the sites emphasize gamifying mathematical practice, using tools like playing cards to help learners with dyscalculia engage with concepts in a safe, collaborative, and low-stakes environment.

These approaches reflect the **relevance**, **safety**, and **community** dimensions working together, with **adaptability** enabling individualized mathematical engagement.

What We Heard

"There's a student who has significant difficulties with math but loves sports statistics. We used game scores to provide mathematical instruction as a way to soothe the math anxiety and make the learning of the mathematical concept more comfortable. It worked beautifully."

Site leader

LAFAYETTE BIG PICTURE HIGH SCHOOL

"When I was younger ... I never did math.
I was not good at math. But here, math is
my favorite subject."

Learner enrolled for 4 months
NORRIS SCHOOL DISTRICT



Neurological processing challenges involve differences in how learners take in, organize, and respond to information, affecting their ability to access and engage with instruction. In this section, we explore: 1) attention regulation challenges, 2) executive function challenges, 3) sensory processing disorders, and 4) dyspraxia.

ATTENTION REGULATION CHALLENGES

Attention challenges are primarily associated with Attention-Deficit/Hyperactivity Disorder (ADHD), a neurodevelopmental condition characterized by persistent patterns of inattention and impulsivity that affects an estimated 7 million (11.4%) children aged 3–17 years in the United States (CDC, 2024; Thomas et al., 2015).

Intersection of Research and Learner-Centered Practices

Research demonstrates that providing meaningful choices and promoting self-regulation can increase motivation, academic success, and overall well-being for learners with ADHD (Frolli et al, 2023). Choice and autonomy tap into learners' intrinsic motivation, increasing their focus and improving not only learning outcomes but also their engagement in the learning experience (Deci & Ryan, 2008). Additionally, physical activity interventions and sensory support are shown to strengthen cognitive functions like working memory, inhibitory control, and sustained attention in youth with and without ADHD (Arenas et al., 2024).

The studied sites integrate these principles through flexible, adaptive structures that benefit all learners and are especially impactful for youth with attention and engagement challenges. They offer choices in learning projects, modalities, and formats; integrate movement as a regulation strategy; and honor individual learning patterns to channel learners' energy into productive learning. For example, one educator worked with a learner who was in "refusal mode" by having them write a proposal for a project on bowling physics, thereby channeling their energy into an interest-based project.

Another educator regularly plays chess and cards with learners to build relationships and help them self-regulate before moving on to academic content. These relationship-centered approaches reflect a broader philosophy across the sites: behaviors that are often labeled as "disruptive" are reframed as signals of unmet needs rather than problems, fostering collaborative problem-solving between young people and adults.

This reframing of behaviors exemplifies the **safety** and **advocacy** dimensions, while **choice** in projects and **adaptability** through flexible structures channel learners' energy productively.

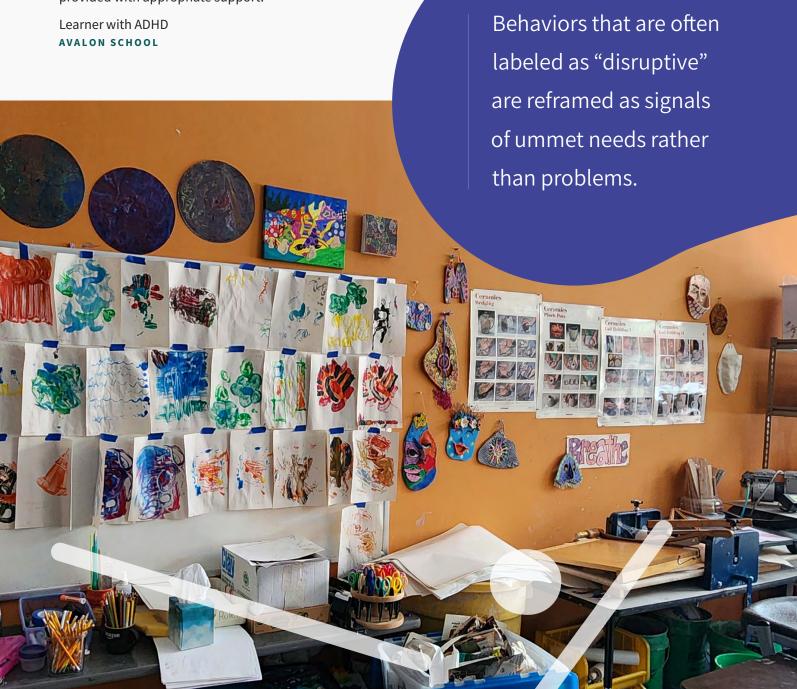
ATTENTION REGULATION CHALLENGES (CONT.)

What We Heard

"I could not sit down. So, we'd go in the gym and play basketball for 15 minutes to get what I needed so that I could move along.
... It teaches you about yourself—knowing when you need to take that time to go away or get out of a situation."

Graduate with ADHD
NORRIS SCHOOL DISTRICT

"ADHD is a superpower. ... People with ADHD could probably be the best at anything in the world when provided with appropriate support."



EXECUTIVE FUNCTION CHALLENGES

Executive functioning refers to a set of mental skills that allow individuals to plan, focus attention, remember instructions, manage time, regulate emotions, and juggle multiple tasks. These cognitive processes are primarily regulated by the prefrontal cortex, and develop throughout childhood and adolescence (Diamond, 2013).

Intersection of Research and Learner-Centered Practices

For learners encountering executive function challenges, research highlights the value of explicit instruction to build awareness and control over one's own thinking (Meltzer, 2010). Repeated practice that exercises and challenges one's capacities improves executive functions and mental health (Diamond, 2013). Equally important, "safe to fail" cultures that reflect a growth mindset offer particularly beneficial contexts for learners to take healthy academic risks and recover from mistakes in supportive settings (Dweck, 2006).

The participating learner-centered environments bring these insights to life by engaging young people in authentic work and supporting them with planning structures that cultivate self-advocacy and independence. Community routines and clear expectations that are learner-driven and focused on goal-setting support executive function development across all three sites.

Some of the environments offer on-campus internships, like a learner-run coffee shop, woodworking shop, and accounting work, to help learners develop the social and executive functioning skills they will need to participate in off-site internships. Such scaffolded supports enable learners to practice organizational strategies and communication skills, while honoring their individual regulation needs. These needs are carefully tracked through platforms such as a shared digital dashboard that helps staff track learner engagement, attendance, and progress in real time, allowing for proactive intervention and coordinated support.

These scaffolded supports reflect the **adaptability** and **relevance** dimensions, while **advocacy** development and **choice** in planning approaches foster independent functioning.

What We Heard

"If I go to class, and I am mad or frustrated, I would 'Make a Plan' and go to a different lab where I could be by myself, or I could let my mind go off and just play basketball. And then I'm going to be happy again."

Learner

NORRIS SCHOOL DISTRICT

"I struggled academically ... and that's because I had poor self-advocacy skills and communicating skills. ... At this school, not only do I self-advocate for myself, but I've definitely picked up advocating for other people, too."

Learner

LAFAYETTE BIG PICTURE HIGH SCHOOL

SENSORY PROCESSING DISORDERS

Sensory processing disorders are neurological conditions that impact 5–13% of children ages 4 to 6 and interfere with the way the brain interprets and responds to sensorial information, resulting in difficulty detecting, modulating, interpreting, and/or responding to sensory experiences (Passarello et al. 2022).

Intersection of Research and Learner-Centered Practices

Research shows that sensory processing disorders can significantly affect children's participation in educational settings, particularly in areas such as auditory filtering and tactile sensitivity (Tomchek & Dunn, 2007). Establishing environmental adaptations and regulatory supports can help these learners engage more effectively in educational activities (Miller et al., 2007). Assistive technology can also augment how learners access information via their individual processing strengths (Thomas et al., 2019).

The three sites we studied align their design with this research by creating adaptable environments that support learners' sensory processing needs. Prioritizing sensory regulation, and understanding its fundamental importance in learning, can help learners understand and advocate for their unique needs.

One educator stated that they have the "flexibility to manipulate" the environment to "fit what the kids need," demonstrating a systemic commitment to adaptability. This philosophy translates into specific accommodations that foster psychological safety and sensory well-being, such as quiet corners, adjustable lighting, flexible seating, and canine therapy. All three sites also provide dedicated spaces for regulation, movement, and exploration, including regulation rooms, fully equipped gyms, and outdoor areas.

The sites' systematic commitment to environmental flexibility exemplifies the **adaptability** and **choice** dimensions, with **advocacy** helping learners understand their unique needs.

What We Heard

"If you just need to talk to a teacher, you can get that accommodation. If you need a quiet room where you can just sit down calmly or lay down, we've got a room for that here. If you need the room where you can get out some anger, we've got a room to punch back here as well."

Learner with autism and ADHD

AVALON SCHOOL

"We have a hammock outside where we can sit down and relax. We can go sit in the main office. Some people go outside just to play basketball for 5–10 minutes if they're overstimulated, and they've been working all day, and they just need a break to cool down to regain their energy."

Learner

LAFAYETTE BIG PICTURE HIGH SCHOOL

DYSPRAXIA

Dyspraxia, also referred to as Developmental Coordination Disorder (DCD), is a neurodevelopmental disorder that impacts an individual's motor skills and ability to plan and coordinate physical movements. It occurs in an estimated 5–6% of school-aged children (Zwicker et al., 2012).

Intersection of Research and Learner-Centered Practices

Research highlights that the most effective DCD interventions prioritize functional activities that are relevant to the learner's daily life and personally meaningful (Blank et al., 2012). Variety in learning tasks and topics stimulates interest, and reinforcement aids long-term memory development (Patrick, 2015). Providing additional time to learn and practice skills and concepts, without adding undue time pressure, further improves outcomes for learners with dyspraxia (Patrick, 2015).

The learner-centered environments incorporate these principles by offering individualized pacing and emphasizing meaningful practice that helps learners move from dependence to independence. Interest-based contexts tap into learners' natural motivation to develop motor skills while providing authentic opportunities for repetitive practice that builds muscle memory. For instance, an educator worked patiently and repetitively with a learner who struggled with tasks like scooping and wrapping items at an internship site due to motor-skill challenges.

The hands-on approaches used at these sites support both motor and academic development. For example, a learner with dyspraxia gained confidence by teaching younger students about maple syrup production. In addition, practices of gradual skill building and flexible timelines help learners with dyspraxia develop independent functioning.

These individualized, interest-based approaches demonstrate the **relevance** and **choice** dimensions working together, with **community** connections enabling confident skill development.

What We Heard

"I had a student ... who had some pretty severe executive functioning issues along with a condition known as dyspraxia. ... We started making grilled cheese sandwiches. ... Just the buttering of the bread and the flipping was a huge obstacle. But, eventually, we ended up getting more on plates than on the floor, and less burns, and he was very successful."

Educator

LAFAYETTE BIG PICTURE HIGH SCHOOL

"He needs a lot of repetition. ... You might have to show it to him maybe 10 to 15 times, and then he'll get it. ... We didn't know if my son would ever be able to work without somebody supporting him. So I'm proud to say that this year, he is on his own, and he doesn't need a teaching assistant to go with him anymore."

Parent of learner with dyspraxia LAFAYETTE BIG PICTURE HIGH SCHOOL

Related Conditions that Affect Learning

While not typically classified as learning differences, there are related conditions that significantly impact how young people learn, communicate, and self-regulate in educational settings. In this section, we explore two of these: 1) autism spectrum disorder, and 2) anxiety disorders.

AUTISM SPECTRUM DISORDER

Autism is a neurodevelopmental condition characterized by persistent difficulties in social communication and interaction. It can manifest as restricted, repetitive patterns of behavior, interests, or activities, with an estimated prevalence of 1 in 36 children aged 8 years in the United States (American Psychiatric Association, 2013; Maenner et al., 2023).

Intersection of Research and Learner-Centered Practices

Research suggests that for youth with Autism Spectrum Disorder, smaller learning communities create more nurturing family-like settings in which they are better able to function and learn (Goodall, 2019). Social and learning opportunities embedded in real-life contexts are also beneficial, as they provide authentic opportunities for engagement and allow learners to pursue individual interests (Wong et al., 2015). Research broadly demonstrates that understanding and accommodating autistic traits supports learners' mental health, which in turn enhance their academic and skill development (Mukherjee & Beresford, 2023).

All of the studied environments cultivate these enabling conditions by design, adapting to support learners with autism rather than requiring conformity. Relationship-centered approaches create safety for social and emotional risk-taking and growth for these learners, while also prioritizing social skills development through authentic community participation and interpersonal connections. For example, an educator helped a learner with autism who was passionate about a radio station pursue an internship and develop confidence working in a professional environment with colleagues.

In another case, an educator recognized that a learner with autism had extensive skills beyond what was on their IEP. Being seen in this way allowed the learner's confidence to grow to the point where he became an advocate for the school after graduating and entering college. Focusing on interests as a pathway to growth is further illustrated by a learner with autism who learned how to DJ and did stand-up comedy at his school with the entire community cheering him on.

The relationship-centered approaches described above reflect the **community**, **relevance**, and **advocacy** dimensions, while **adaptability** in accommodating individual differences supports authentic growth.

AUTISM SPECTRUM DISORDER (CONT.)

What We Heard

"I used to be really impulsive. I was really wild. ... I did not have manners at all, but I've learned to control it. I'm not as impulsive. I'm more calm. I can actually maintain a stable friendship, which the last time I could say that was in third grade."

Learner with autism

AVALON SCHOOL

"[I learned from being here] that it's okay to be different from everybody else and have different learning styles and have different emotions and feelings from everyone else. This was a loving, supporting, nurturing environment. ... It's kind of like a family here."

Graduate with autism

NORRIS SCHOOL DISTRICT



Relationship-centered approaches create safety for social and emotional risk-taking and growth, while also prioritizing social skills development.

ANXIETY DISORDERS

Anxiety disorders are mental health conditions involving persistent, excessive worry or fear that interferes with daily functioning, affecting 11% of children ages 3–17 (CDC, 2025; Kenwood et al., 2022).

Intersection of Research and Learner-Centered Practices

For children with anxiety disorders, research shows that structured flexibility creates supportive learning environments that reduce stress and promote inclusivity (Ruesch & Sarvary, 2024). Equally important are warm, supportive relationships with trusted adults and peers, which are strong predictors of learner motivation and achievement (Pianta et al., 2012). Intrinsic motivation is further enhanced when learners have choice in learning topic, style, and modality. Moreover, exercising autonomy reduces anxiety levels and increases their ability to be present and engaged in learning (Reeve & Tseng, 2011).

The three learner-centered environments foster these supportive conditions for youth with anxiety disorders through relationship-centered approaches and structured flexibility. Recognizing that many youth with learning differences have experienced educational trauma, the sites prioritize psychological safety as the foundation for learning. Each of the environments establishes a culture of unconditional positive regard for learners that often contrasts with their prior educational experiences.

Experiencing this culture of support can have a profound impact on learners and families. For instance, one parent noted that their son's daily stress was "greatly reduced," allowing him to come off medication. Another parent shared that they no longer have to "fight with" their child to get them to go to school every day. These supportive approaches help transform school from a stress-inducing setting to a safe haven for youth with anxiety.

The findings demonstrate how **safety** and **community** dimensions create healing environments, with **choice** and **advocacy** empowering learners to reengage with education.

What We Heard

"I used to really struggle to be in school. I always used to get in trouble, referrals. When I came here, a lot of that stopped. The teachers understand me, they get where I come from, and they work through my problems with me."

Learner with anxiety
LAFAYETTE BIG PICTURE HIGH SCHOOL

"She went from crying every day to wanting to come to school every single day happy and joyful. And she feels supported, and seen, and is making plans for her life that I didn't think she'd be making as a ninth grader."

Parent describing daughter's transformation with anxiety after enrollment AVALON SCHOOL

While research literature validates many of the strategies observed in the sites, this study also reveals how these evidence-based practices come to life in learner-centered environments. Across all conditions studied, the approaches were enabled by the six integral dimensions: safety, community, advocacy, adaptability, relevance, and choice.

The findings suggest that these six dimensions work synergistically to create environments where learning differences become strengths rather than deficits. By prioritizing these dimensions, learner-centered environments create the conditions where learning differences are regarded as assets rather than obstacles.

Conclusion

Our analysis reveals how these dimensions translate into specific educational practices that consistently support youth with learning differences. **Safety** manifests through trauma-informed approaches that reframe "disruptive" behaviors as signals of unmet needs, creating stigma-free assistance delivered through trusting relationships and low-stakes, collaborative learning environments. **Relevance** emerges through interest-based projects that connect learning to authentic contexts and real-world applications.

Choice appears in multiple formats for accessing and demonstrating knowledge, varied assessment methods, and flexible environmental accommodations that honor diverse learning needs. **Adaptability** takes shape through individualized pacing, environmental modifications, scaffolded project processes, and real-time tracking systems that enable proactive intervention. **Community** builds through peer mentoring programs, family-like learning environments, and collaborative problem-solving approaches between adults and youth. Finally, **advocacy** develops through learner-driven goal setting, self-regulation skill development, and meaningful opportunities for youth to voice their needs and shape their learning experiences.

This research upholds learner-centered education as an evidencebased approach for supporting youth with diverse learning differences.

Key stakeholders can use insights shared in this brief in several ways. Learning differences advocates and specialized educators can use this evidence base to champion learner-centered education for youth with learning differences. Practitioners in existing learner-centered environments can incorporate these practices when serving young people with diverse learning needs. Researchers have a foundation for further investigation into how educational environments utilize the learner-centered approach to address learning differences.

This research upholds learner-centered education as an evidence-based approach for supporting youth with diverse learning differences.

Areas for Continued Exploration

To build on these findings, several areas warrant continued exploration:

DEEP-DIVE STUDIES ON SPECIFIC CONDITIONS:

 Conduct focused research on how learner-centered practices support specific learning differences to deepen understanding of targeted interventions.

EXAMINE INTERSECTIONALITY AND CO-OCCURRING CONDITIONS:

 Study how learner-centered practices support youth with multiple learning differences (e.g., dyslexia with ADHD, autism with anxiety) and how factors like race, socioeconomic status, and language background intersect with learning differences in these environments.

INVESTIGATE TRAUMA-INFORMED PRACTICES FOR LEARNING DIFFERENCES:

 Research how youth with learning differences respond to trauma-informed approaches, particularly the relationship between past educational trauma, current learning challenges, and recovery within learner-centered environments.

TRACK LONG-TERM OUTCOMES AND IMPACTS:

 Conduct longitudinal studies following graduates with learning differences from learner-centered environments to examine their post-secondary academic success, career outcomes, mental health, and life satisfaction.

The broader implications of this work extend far beyond individual accommodations or specialized programs—it illuminates a clear path toward more inclusive and effective educational systems. As one graduate reflected, experiencing "that type of care and acceptance" transforms not just academic outcomes, but learners' fundamental relationship with education itself and with themselves. The evidence presented here provides guideposts for creating environments where every young person can discover their strengths, develop their voice, and chart their own path toward a lifetime of empowered learning.

Acknowledgements

This project was possible thanks to the support of Oak Foundation.

We extend deep gratitude to our collaborative research team:

SITE LEADERS & CO-RESEARCHERS

Carrie Bakken (Avalon School); Susan Hart (LaFayette Big Picture High School); Kristofer Koneazny (Norris School District); Johnna Noll (Norris School District); Tim Quealy (Avalon School)

CO-RESEARCHERS

Scott Bain (King-Murphy Mountain School); Sarah Bishop-Root (Education Reimagined); Kim Carter (Q.E.D. Foundation); Catayah Clark (Palmetto Pathways Academy); Eddie Fuentes (Education Reimagined); Emily Liebtag (Education Reimagined); Liz Masters (Lab School of Memphis); Lindsy Ogawa (Education Reimagined); Ayana Verdi (Verdi EcoSchool); Lela Wesley (Big Thought Institute)

We are especially grateful to the learners, families, and educators at Avalon School, LaFayette Big Picture School, and Norris School District, who generously shared their experiences and insights.

SUGGESTED CITATION

Schonfeld-Karan, K., & Collier, C. (2025). Supporting learning differences through learner-centered education: Evidence from practice and literature. Education Reimagined.

https://education-reimagined.org/addressing-specific-learning-differences/

References

Alghabban, W. G., & Hendley, R. (2020, July 14). *The impact of adaptation based on students' dyslexia type: An empirical evaluation of students' satisfaction* [Virtual conference session]. UMAP '20: 28th ACM Conference on User Modeling, Adaptation and Personalization, Genoa, Italy.

https://doi.org/10.1145/3386392.3397596

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Publishing.

Arenas, D., Bodi-Torralba, M., Oliver, A., Cantallops, J., Ponseti, F. J., Palou-Sampol, P., Collado, J. A., Flórez, I., Galvez-Pol, A., Terrasa, J. L., Sitges, C., Sánchez-Azanza, V., López-Penadés, R., Adrover-Roig, D., & Muntaner-Mas, A. (2024). Effects of active breaks on educational achievement in children with and without ADHD: Study protocol and rationale of the Break4Brain project. *Frontiers in Psychology, 15*, Article 1451731.

https://doi.org/10.3389/fpsyg.2024.1451731

Berninger, V. W., & Wolf, B. J. (2016). *Dyslexia, dysgraphia, OWL LD, and dysgraphia: Lessons from teaching and science* (2nd ed.). Paul H. Brookes Publishing Co.

- Blank, R., Smits-Engelsman, B., Polatajko, H., & Wilson, P. (2012). European Academy for Childhood Disability (EACD): Recommendations on the definition, diagnosis and intervention of developmental coordination disorder (long version): EACD recommendations. *Developmental Medicine and Child Neurology*, *54*(1), 54–93. https://doi.org/10.1111/j.1469-8749.2011.04171.x
- Butterworth, B., & Laurillard, D. (2010). Low-numeracy and dyscalculia: Identification and intervention. *ZDM Mathematics Education*, *42*(6), 527–539. https://doi.org/10.1007/s11858-010-0267-4
- Butterworth, B., Varma, S., & Laurillard, D. (2011). Dyscalculia: From brain to education. *Science*, 332(6033), 1049–1053. https://doi.org/10.1126/science.1201536
- Centers for Disease Control and Prevention. (2024, November 19). *Data and statistics on ADHD*. https://www.cdc.gov/adhd/data/index.html
- Centers for Disease Control and Prevention. (2025, June 5). *Data and statistics on children's mental health*. https://www.cdc.gov/children-mental-health/data-research/index.html
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology*, 49(3), 182–185. https://doi.org/10.1037/a0012801
- Diamond, A. (2013). Executive functions. *Annual Review of Psychology, 64*(1), 135–168. https://doi.org/10.1146/annurev-psych-113011-143750
- Dweck, C. (2006). Mindset: The new psychology of success. Random House.
- Edyburn, D. L. (2020). Inclusive technologies: Assistive technology for all learners. *Forum Pedagogiczne*, *10*(2), 17–28. https://doi.org/10.21697/fp.2020.2.02
- Frolli, A., Cerciello, F., Esposito, C., Ricci, M. C., Laccone, R. P., & Bisogni, F. (2023). Universal design for learning for children with ADHD. *Children*, *10*(8), 1350. https://doi.org/10.3390/children10081350
- Gersten, R., Beckmann, S., Clarke, B., Foegen, A., Marsh, L., Star, J. R., & Witzel, B. (2009). Assisting students struggling with mathematics: Response to intervention (RtI) for elementary and middle schools (NCEE 2009-4060). National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. https://ies.ed.gov/ncee/wwc/Docs/PracticeGuide/rti_math_pg_042109.pdf
- Goodall, C. (2019). "There is more flexibility to meet my needs": Educational experiences of autistic young people in mainstream and alternative education provision. *Support for Learning*, *34*(1), 4–33. https://doi.org/10.1111/1467-9604.12236
- Kenwood, M. M., Kalin, N. H., & Barbas, H. (2022). The prefrontal cortex, pathological anxiety, and anxiety disorders. *Neuropsychopharmacology*, 47(1), 260–275. https://doi.org/10.1038/s41386-021-01109-z

- Kushki, A., Schwellnus, H., Ilyas, F., & Chau, T. (2011). Changes in kinetics and kinematics of handwriting during a prolonged writing task in children with and without dysgraphia. *Research in Developmental Disabilities*, 32(3), 1058–1064. https://doi.org/10.1016/j.ridd.2011.01.026
- Lemons, C. J., Vaughn, S., Wexler, J., Kearns, D. M., & Sinclair, A. C. (2018). Envisioning an improved continuum of special education services for students with learning disabilities: Considering intervention intensity. *Learning Disabilities Research & Practice*, 33(3), 131–143. https://doi.org/10.1111/ldrp.12173
- MacArthur, C. A. (2009). Reflections on research on writing and technology for struggling writers. *Learning Disabilities Research & Practice*, 24(2), 93–103. https://doi.org/10.1111/j.1540-5826.2009.00283.x
- Maenner, M. J., Warren, Z., Williams, A. R., Amoakohene, E., Bakian, A. V., Bilder, D. A., Durkin, M. S., Fitzgerald, R. T., Furnier, S. M., Hughes, M. M., Ladd-Acosta, C. M., McArthur, D., Pas, E. T., Salinas, A., Vehorn, A., Williams, S., Esler, A., Grzybowski, A., Hall-Lande, J., ... Shaw, K. A. (2023). Prevalence and characteristics of autism spectrum disorder among children aged 8 years—Autism and Developmental Disabilities Monitoring Network, 11 sites, United States, 2020. MMWR Surveillance Summaries, 72(2), 1–14. https://doi.org/10.15585/mmwr.ss7202a1
- Meltzer, L. (2010). Promoting executive function in the classroom. Guilford Press.
- Miller, L. J., Anzalone, M. E., Lane, S. J., Cermak, S. A., & Osten, E. T. (2007). Concept evolution in sensory integration: A proposed nosology for diagnosis. *The American Journal of Occupational Therapy*, 61(2), 135–140. https://doi.org/10.5014/ajot.61.2.135
- Mukherjee, S., & Beresford, B. (2023). Factors influencing the mental health of autistic children and teenagers: Parents' observations and experiences. *Autism*, *27*(8), 2324–2336. https://doi.org/10.1177/13623613231158959
- National Center for Education Statistics. (2024). Students with disabilities. In *The condition of education*. U.S. Department of Education, Institute of Education Sciences. https://nces.ed.gov/programs/coe/indicator/cgg/students-with-disabilities
- Passarello, N., Tarantino, V., Chirico, A., Menghini, D., Costanzo, F., Sorrentino, P., Fucà, E., Gigliotta, O., Alivernini, F., Oliveri, M., Lucidi, F., Vicari, S., Mandolesi, L., & Turriziani, P. (2022). Sensory processing disorders in children and adolescents: Taking stock of assessment and novel therapeutic tools. *Brain Sciences*, *12*(11), Article 1478. https://doi.org/10.3390/brainsci12111478
- Patrick, A. (2015). The dyspraxic learner: Strategies for success. Jessica Kingsley Publishers.
- Pianta, R. C., Hamre, B. K., & Allen, J. P. (2012). Teacher-student relationships and engagement: Conceptualizing, measuring, and improving the capacity of classroom interactions. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of Research on Student Engagement* (pp. 365–386). Springer. https://doi.org/10.1007/978-1-4614-2018-7_17

- Reeve, J., & Tseng, C.-M. (2011). Agency as a fourth aspect of students' engagement during learning activities. *Contemporary Educational Psychology*, 36(4), 257–267. https://doi.org/10.1016/j.cedpsych.2011.05.002
- Roitsch, J., & Watson, S. (2019). An overview of dyslexia: Definition, characteristics, assessment, identification, and intervention. *Science Journal of Education*, 7(4), 81–86. https://doi.org/10.11648/j.sjedu.20190704.11
- Ruesch, J. M., & Sarvary, M. A. (2024). Structure and flexibility: Systemic and explicit assignment extensions foster an inclusive learning environment. *Frontiers in Education*, 9, Article 1324506. https://doi.org/10.3389/feduc.2024.1324506
- Thomas, C. N., Peeples, K. N., Kennedy, M. J., & Decker, M. (2019). Riding the special education technology wave: Policy, obstacles, recommendations, actionable ideas, and resources. *Intervention in School and Clinic*, *54*(5), 295–303. https://doi.org/10.1177/1053451218819201
- Thomas, R., Sanders, S., Doust, J., Beller, E., & Glasziou, P. (2015). Prevalence of attention-deficit/hyperactivity disorder: A systematic review and meta-analysis. *Pediatrics*, *135*(4), e994–e1001. https://doi.org/10.1542/peds.2014-3482
- Tomchek, S. D., & Dunn, W. (2007). Sensory processing in children with and without autism: A comparative study using the short sensory profile. *The American Journal of Occupational Therapy*, *61*(2), 190–200. https://doi.org/10.5014/ajot.61.2.190
- Tomlinson, C. A. (2014). *The differentiated classroom: Responding to the needs of all learners* (2nd ed.). ASCD.
- Wilschut, T., Sense, F., & van Rijn, H. (2025). Modality matters: Evidence for the benefits of speech-based adaptive retrieval practice in learners with dyslexia. *Topics in Cognitive Science, 17*(1), 57–72. https://doi.org/10.1111/tops.12769
- Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., Brock, M. E., Plavnick, J. B., Fleury, V. P., & Schultz, T. R. (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. *Journal of Autism and Developmental Disorders*, 45(7), 1951–1966. https://doi.org/10.1007/s10803-014-2351-z
- Zuppardo, L., Serrano, F., Pirrone, C., & Rodriguez-Fuentes, A. (2023). More than words: Anxiety, self-esteem, and behavioral problems in children and adolescents with dyslexia. *Learning Disability Quarterly: Journal of the Division for Children with Learning Disabilities, 46*(2), 77–91. https://doi.org/10.1177/0731948721104110
- Zwicker, J. G., Missiuna, C., Harris, S. R., & Boyd, L. A. (2012). Developmental coordination disorder: A review and update. *European Journal of Paediatric Neurology*, *16*(6), 573–581. https://doi.org/10.1016/j.ejpn.2012.05.005