

Literature Guide

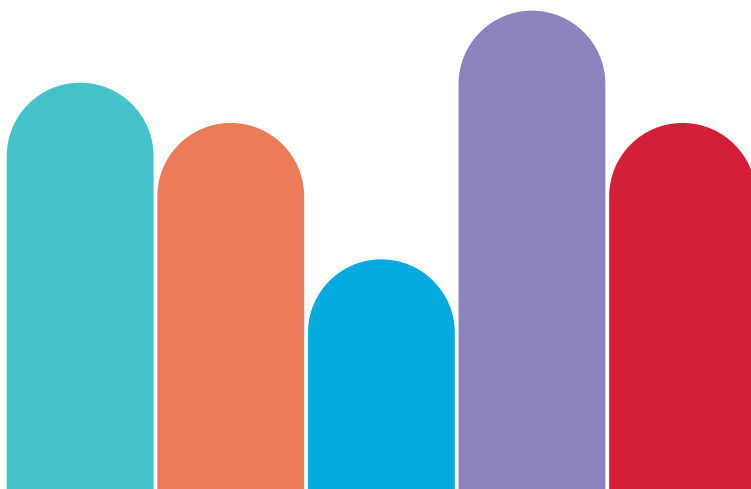
THE TRANSFORMATIVE POTENTIAL OF LEARNER-CENTERED EDUCATION:

A Research Review of Outcomes and Impact for Learners

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Introduction

This literature guide emerges at a critical moment for learner-centered education. While interest in the approach is growing among educators, families, and policymakers, two key barriers appear to hinder its wider adoption: 1) limited research clearly documenting the approach's impact, and 2) limited investment in systems change and ecosystem development. This guide begins to address the first barrier by providing detailed evidence that can inform strategic decisions related to the second.

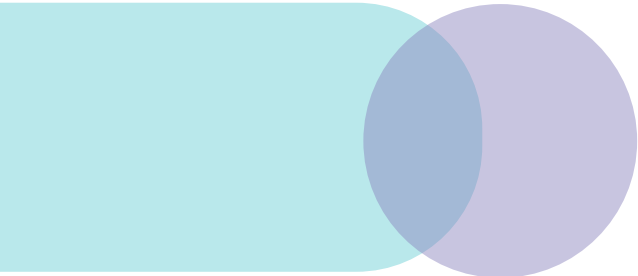
Important Note: This review examines approaches that align with learner-centered education, but most of the research does not involve the direct study of learner-centered environments. As such, findings from the review are suggestive of the learner-centered approach's potential, as opposed to definitive proof of its impact.

This literature guide serves as a comprehensive companion to *The Transformative Potential of Learner-Centered Education* report. It provides annotated summaries of 93 selected studies from 22 bodies of research that align with the five key elements of learner-centered education: 1) Learner Agency; 2) Socially-Embedded; 3) Personalized, Relevant, and Contextualized; 4) Open-Walled; and 5) Competency-Based.

For each key element, the aligned research areas are defined and presented with literature summaries for each of the studies selected within those fields of study. The summaries include a brief description of each study's methodology, participant demographics, and key findings. Collectively, the reviewed literature represents a range of research types from meta-analyses and controlled trials to qualitative investigations, offering evidence from diverse educational contexts and learner populations.

This guide provides educators, researchers, philanthropic leaders, and other stakeholders with evidence-based support for learner-centered education. The research contained in it can be used to inform program design, advocacy efforts, grant applications, and strategic decisions while helping readers identify promising practices for their own contexts.

Together with the full report, this resource offers a research foundation for advancing learner-centered education and supporting young people as lifelong learners and engaged community members.



Learner Agency: Aligned Areas of Research

Agentic Engagement & Autonomy Support

Agentic engagement refers to how proactively and constructively learners try to contribute their learning and instruction to better support their own motivation and make learning activities more interesting, personal, and need-satisfying (Patall & Zambrano, 2019; Reeve, 2013). Autonomy is defined as a form of voluntary action, stemming from a person's interest and with no external pressure (Núñez & León, 2015).

- A total of 322 adolescents from Denmark, South Korea, and the United States completed surveys about their school and life satisfaction, as well as autonomy support from parents and teachers. The findings revealed that when adolescents feel understood by teachers and are given choices, it leads to improved self-esteem, energy, life satisfaction, and well-being. (Ferguson et al., 2011).
- A theoretical review on the motivational impact of choice in learning showed that when learners are given relevant, meaningful, and competence-enhancing choices in the right amount, it can boost their intrinsic motivation and foster deep, meaningful engagement in learning (Evans & Boucher, 2015).
- A review of autonomy support research revealed that when teachers support autonomy, learners perform better academically; are more creative, better adjusted, and more engaged in school; and experience less stress (Núñez & León, 2015).
- An application of person-oriented analysis of experience sampling data was employed to study learner engagement in high school science classrooms. The findings show that student choice is generally linked to more positive engagement profiles, and particular choices—such as those around framing the task—have more positive impacts on engagement than others like choosing who to work with or how much time to take to complete a task (Schmidt et al., 2018).
- A meta-analysis of interventions designed to promote self-determination and related skills in students with disabilities showed that these interventions are effective across different grade levels, disability types, and educational settings, suggesting that learners with disabilities who are more self-determined are more likely to achieve their education-related goals (Burke et al., 2020).
- Results from a meta-analysis examining motivation types in 344 samples (223,209 participants) and their relationship to 26 student outcomes (e.g., performance, well-being, goal orientation, and persistence) show that intrinsic motivation is linked to success and well-being, while personal value is strongly associated with persistence (Howard et al., 2021).
- The findings from 51 autonomy-supportive teaching interventions (including 38 randomized control trials) collectively show that autonomy-supportive teaching leads to an increase in learners' autonomy satisfaction, intrinsic motivation, and internalization, resulting in increased classroom engagement, agency and initiative, self-regulated learning, task absorption, course-specific skill development, academic achievement, course grades, positive emotions, vitality and well-being, and positive self-concept (Reeve & Cheon, 2021).

Self-Regulated Learning

Self-regulated learning is a process through which individuals self-generate thoughts and actions that are planned, monitored, and refined as they pursue personal goals (Cleary, 2015).

- A review of literature indicated a positive relationship between self-regulation and academic achievement; young people with better personal skills and learning resources are more likely to succeed academically (Duckworth et al., 2009).
- Meta-analytic findings from 369 studies on self-regulated learning reveal that self-regulation constructs are interconnected. Most self-regulatory processes positively impact learning, and goal-setting, persistence, effort, and self-efficacy were the strongest predictors of success (Sitzmann & Ely, 2011).
- A synthesis of outcome research on self-regulated interventions for children at risk for or diagnosed with ADHD found that, overall, the interventions led to improvements in academic performance, on-task behavior, hyperactivity, and appropriate verbalizations and behaviors (Reddy et al., 2015).
- Findings from a research study of 40 children (aged 6–12) in a randomized controlled trial showed that, in comparison to an activity-based intervention, self-regulated learning significantly reduced concerning behaviors and enhanced the

school-related function for children with autism spectrum disorders (Wan Yunus et al., 2021).

- A review of three studies that looked at university students' mindsets about self-regulated learning and intelligence indicated that having a Self-Regulated Learning–Theory mindset is associated with setting mastery goals, using more learning strategies, having higher metacognitive knowledge, and feeling more confident, motivated, and satisfied with their studies (Hertel et al., 2024).

Student Voice

Student voice encompasses the variety of ways that young people can make an impact on decisions concerning their education, their schools, their lives, and the lives of others (Benner et al., 2019; Kahne et al., 2022; Mitra et al., 2014).

- In a case study of six fifth-grade girls engaged in student voice activities at an elementary school, researchers compared their developmental outcomes to findings from previous research on secondary school students. They found that student voice initiatives can promote agency, belonging, competence, as well as civic efficacy and the ability to engage in diverse discourse while working toward a common goal at the elementary-school level (Mitra & Serriere, 2012).
- In a study of adolescents' interpretations of instructional interactions, 28 urban youth of color were recruited from two urban high schools in Pittsburgh and two youth development programs in Saint Paul and Minneapolis. Emergent findings suggest that feeling heard in class, going all in, and being taken seriously by teachers may help promote learner engagement in urban schools (Wallace & Chhuon, 2014).
- The Australian Research Council (ARC) funded a mixed-method study to evaluate the link between learner participation and well-being in New South Wales. The ARC discovered that learners who reported having more opportunities to work together, having a say, having voice, and having choice and influence on decision making reported significantly greater well-being at school (Anderson, 2018).
- Research on 67 urban high schools in the Philadelphia School District showed that learners in schools with higher levels of engagement reported significantly more teacher care and student voice. This suggests that genuinely listening to students can be a simple but effective way to make school more engaging, encourage consistent effort, and help learners find more meaning in their work (Conner et al., 2022).
- To study how responsiveness to student voice may promote academic goals, researchers analyzed panel data of students in the Chicago Public Schools. They found that, when learners feel that their school is responsive to their feedback, they tend to have better grades, higher attendance, and lower rates of chronic absenteeism (Kahne et al., 2022).

Socially-Embedded: Aligned Areas of Research

School Belonging and Connectedness

School belonging, also called school connectedness, represents the psychological membership and extent to which students feel personally accepted, respected, included, and supported by others socially in a learning environment (Goodenow, 1993).

- A meta-analysis of 51 studies with over 67,000 participants found that most factors, except for race/ethnicity and extracurricular activities, were strongly linked to school belonging. Personal traits like conscientiousness, optimism, and self-esteem, along with teacher support, had the largest effects. Having a strong sense of school belonging is associated with better academic outcomes, including higher motivation, better grades, lower absenteeism, and fewer behavioral issues. It also promotes happiness, self-esteem, and psychological well-being while reducing negative behaviors like fighting, bullying, and substance use (Allen et al., 2018).
- Multivariable analyses of data from 14,800 participants in the National Longitudinal Study of Adolescent to Adult Health revealed that school connectedness in adolescence independently reduced emotional distress and the likelihood of suicidal ideation, physical violence victimization and perpetration, multiple sex partners, STI diagnosis, prescription drug misuse, and illicit drug use in adulthood (Steiner et al., 2019).
- Results from a meta-analysis of 82 studies published between 2000 and 2018 showed that learners who feel accepted, respected, included, and supported in their school environment tend to perform better academically and have more positive motivational, social-emotional, and behavioral outcomes (Korpershoek et al., 2020).
- A randomized controlled trial with 162 learners transitioning from middle school to high school found that those in a social belonging intervention group had fewer unexcused absences (46% less), fewer tardies (36% less), and made more friends compared to the control group. The intervention was especially effective for racially minoritized students, who had fewer failed classes, higher grades, and 82% fewer disciplinary citations, suggesting that social belonging interventions can help reduce racial equity gaps in secondary education (Williams et al., 2020).
- A study using data from 1,568 adults in the Australian Temperament Project (ATP) found that higher levels of school belonging were linked to fewer mental health symptoms in young adulthood. These findings illustrate the long-term importance of school belonging, particularly feeling socially valued, as a protective factor against depression, anxiety, and stress later in life (Allen et al., 2024).
- A meta-analysis of 90 studies published between 2009 and 2019 examined the link between school connectedness and key health issues in adolescence. The study found that school connectedness had a protective effect across all these areas, with significant relationships to reduced substance use, improved mental health, less violence, better sexual health, and lower co-occurring risks (Rose et al., 2024).

Social Capital and Network Development

Social capital refers to the networks and group memberships that, through shared exchanges, obligations, and identities, offer actual or potential support and access to opportunity (Bourdieu, 1993; Fisher, 2022).

- In a review of programs from the Cooperative Extension, researchers highlighted how building social capital can lead to positive outcomes like improved coping skills, self-esteem, job acquisition, career success, and a smoother transition to adulthood. These programs offer protective benefits for vulnerable youth, including those in transition (e.g., youth aging out of foster care or the juvenile justice system), youth living in poverty, and immigrant youth (Williams & Le Menestrel, 2013).
- A study involved in-depth interviews focused on the experiences of students from low-income backgrounds who achieved upward mobility. Findings suggest that both personal drive and a supportive social environment may be key factors to overcoming barriers to academic and career success for learners from low-income backgrounds who achieve significant upward mobility (Kundu, 2017).
- An ethnographic study explored how network-based social capital supports urban Black and Latinx youth at a youth-serving organization in East Oakland, California. Researchers found that adult staff connected with youth and served as trusted role models outside by offering loving accountability and guidance. The adults also leveraged social connections to provide the youth with educational and professional opportunities, boosted their self-esteem, and helped them

envision positive futures (Dill & Ozer, 2019).

- Researchers analyzed data from the Youth Social Capital and College Knowledge Survey, which was administered to 140 students in grades 9–12 in an urban school district, to measure social capital's impact on postsecondary transitions. The study found that both network structure and content were positively linked to participants' GPA, attendance, and plans to enroll in a four-year college (Ryan & Junker, 2019).

Developmental Relationships

Developmental relationships are close connections that help young people explore who they are, develop abilities to shape their own lives, and learn how to engage with and contribute to the world around them (Houlberg et al., 2023).

- In a professional handbook of evidence-based interventions for school practitioners, researchers emphasized that learners' relationships with educators are fundamental to their success in school. Strong, supportive relationships help learners feel safer, more secure, and competent in the school environment, foster positive peer connections, and contribute to greater academic achievement (Hamre & Pianta, 2006).
- A meta-analysis of 119 studies involving 355,325 students found that person-centered teacher variables are strongly linked to positive student outcomes. Specifically, these approaches lead to greater student participation, satisfaction, and motivation. They also improve self-esteem, social skills, and relationships, while reducing dropout rates, disruptive behavior, and absences (Cornelius-White, 2007).
- Researchers synthesized knowledge on the role of relationships and key macro- and micro-contexts in supporting and/or undermining the healthy development of youth. Positive developmental relationships with teachers are essential for learner motivation, learning, and behavior, especially for at-risk students. They foster trust, emotional support, and high expectations, driving academic success. These relationships also promote self-regulation, social competence, and classroom engagement, helping young people build confidence and manage challenges. Additionally, they can buffer stress, reduce stereotype threats, and support overall student success by integrating emotional, social, and cognitive processes (Osher et al., 2020).
- In an evidence-based playbook based on the science of learning, researchers asserted that positive developmental relationships can help children and adolescents manage stress, boost brain activity, and build the skills needed for learning and engagement. These connections can also promote well-being, support positive identity development, and strengthen students' belief in their abilities (Darling-Hammond et al., 2021).
- A survey of low-income youth of color, ages 14 to 24, in six work readiness programs in a Midwestern state showed how developmental relationships with staff boosted self-awareness and appreciation for learning, and predicted improved work readiness. These results suggest that social capital from developmental relationships and increased learning opportunities can help opportunity youth enhance their work readiness (Boat et al., 2021).
- A study of 633 adolescents and parents (50% low-income), including 176 from high-stress families, examined the impact of parent-youth developmental relationships on 15 psychological and social-emotional outcomes. The findings showed that youth from high-stress families with strong developmental relationships were 7 to 33 times more likely to report positive outcomes, highlighting how these relationships can mitigate the negative effects of childhood adversity and family stress on youth development (Scales et al., 2023).

Personalized, Relevant, and Contextualized: Aligned Areas of Research

Culturally Sustaining Pedagogy

Culturally Sustaining Pedagogy is an asset-based educational approach that seeks to perpetuate, foster, and sustain linguistic, literate, and cultural pluralism as part of the democratic project of schooling (Paris & Alim, 2014).

- A work highlighting the advantages and contributions of the Phenomenological Variant of Ecological Systems Theory showed how learners can potentially profit from supportive conceptual scaffolding provided by educators who recognize and respect the unique cultural traditions of diverse students. In turn, this can help young people develop their sense of identity within their socio-cultural context and see themselves as engaged citizens who are catalysts for change (Spencer, 2007).
- Researchers explored how Culturally Sustaining and Revitalizing Pedagogy can address the sociohistorical and contemporary contexts of Native American schooling. Findings from case studies on Native American Community Academy (NACA) and Puente de Hózhó reveal how this pedagogy has the potential to transform expressions of Indigenous longing into powerful resources for language reclamations, thereby helping learners connect in meaningful ways with their cultural communities (McCarty & Lee, 2014).
- A synthesis of over 40 research studies found that Culturally Relevant Education (CRE) consistently leads to positive learner outcomes across content areas. In the affective domains, CRE increases learner motivation, interest in content, engagement in academic discourse, self-perception as capable learners, and confidence in standardized testing. The research also showed that CRE promotes cultural competence, helping learners connect academic and home cultures, fostering pride in both. Additionally, incorporating learners' extracurricular lives into the classroom was linked to improved academic skills, critical reflection, and cultural competence (Aronson & Laughter, 2016).
- An exploration of collaborative research showed how socially just, Culturally Sustaining Pedagogy can help immigrant youth challenge social injustices by building on their evolving identities and equipping them with tools to critique harmful practices, raise awareness, and challenge dominant ideas. In addition, building on learners' cultural and linguistic strengths can foster belonging, boost academic confidence, and promote cultural diversity. On a larger scale, Culturally Sustaining Pedagogy can help immigrant youth become active, justice-oriented citizens both in the U.S. and globally (Lee & Walsh, 2017).
- A study shared two empirical examples showing how teaching and learning are influenced by students' and their families' experiences and cultures. In doing so, the authors demonstrate how incorporating a pedagogy of cultural and identity sustainability into school practice would normalize diversity and diversify normality, thereby maintaining learners' cultural diversity while also allowing for the construction of hybrid and transcultural identities (Esteban-Guitart et al., 2019).

Differentiated Instruction

Differentiated instruction refers to the practice of tailoring lessons, assessments, and learning activities to meet diverse needs of every learner, regardless of their learning style, ability, or background (Tomlinson, 2014).

- A quasi-experimental study involving 24 teachers and 479 fourth graders assessed the impact of differentiated instruction on students' learning in mixed-ability classrooms. The results showed that learners in classrooms using differentiated instruction made more progress than those in classrooms that did not. The study also found that socioeconomic status did not affect students' achievement, but the quality of differentiated teaching was linked to better student outcomes (Valiandes, 2015).
- A review and analysis of over 20 years of literacy research examined the impact of Tier 1 differentiation, provided by general education teachers, on literacy outcomes. The analysis of 18 studies with 25 cohorts showed that differentiated literacy instruction is an effective practice at the elementary level. When teachers are supported in differentiating instruction, students achieve significantly higher literacy scores, especially in letter-word recognition and writing (Puzio et al., 2020).

- A quasi-experimental study of 54 tenth-grade students examined the impact of differentiated instruction on reading comprehension in mixed-ability classrooms. Learners were divided into an experimental group, which received differentiated strategies, and a control group, which followed a standard approach. Findings showed that the experimental group had statistically significant improvements in reading comprehension and illuminated how differentiated instruction helps educators both honor learners' needs and challenge them to exceed their limits (Magableh & Abdullah, 2021).
- Expert opinions and previous research were reviewed to offer a thorough overview of the benefits and challenges of implementing differentiated instruction. The findings indicated that differentiated instruction can motivate low-achieving students; enhance participation, interaction, and cooperation; and strengthen teacher-student relationships (Mirawati et al., 2022).
- A review of 49 studies from 2000 to 2019 examined the impact of differentiated instruction on high-achieving students in mixed-ability classrooms. The findings showed that differentiated instruction positively impacted the academic achievement and motivational-affective characteristics of advanced learners in mixed-ability classrooms (Ziernwald et al., 2022).

Experiential Learning

Experiential learning is a process-oriented educational approach that involves “learning by doing,” with learners gaining knowledge, skills, or insights through interactions and reflections on their direct experiences (Burch et al., 2019; Kolb, 1984).

- Survey data from former university students formally assessed the long-term impact of participating in experiential learning programs. The results show that these programs help learners apply knowledge to real-world situations while developing their writing, communication, and critical thinking skills—key abilities needed in a wide variety of careers (Bradberry & De Maio, 2018).
- A meta-analysis examined randomized controlled trials of learning programs for typically developing youth ages 8 to 25. Findings from the 20 selected studies revealed that experiential learning programs appear to be more effective than nonexperiential learning programs in improving adolescents' empathy and subjective well-being (Chan et al., 2021).
- A conceptual analysis of the role of experiential learning in students' classroom engagement and motivation shows that this approach encourages learners to go beyond memorization. It helps them evaluate and apply knowledge thoughtfully, reflecting on how learning can be used in real-world situations. Additionally, experiential learning promotes logical thinking, problem solving, and taking appropriate action in relevant contexts (Kong, 2021).
- A rapid evidence assessment was conducted to investigate the impact of the effect of experiential learning on children aged 4–14. Findings indicate that experiential learning pedagogies can positively impact children's academic achievement, including improvements in science, memory, vocabulary, and overall academic skills, while also boosting motivation, engagement, and well-being (Ranken et al., 2024).
- An analysis of secondary data from various sources investigated the outcomes and implications of experiential learning. The results suggest that experiential learning enhances educational outcomes by improving cognitive skills like critical thinking and problem solving, while also fostering emotional, social, and practical skills such as empathy, leadership, teamwork, adaptability, and communication (U-senYang, 2024).

Universal Design for Learning

Universal Design for Learning (UDL) is an educational framework that takes into consideration the variability of all learners by offering flexible methods of representation, expression, and engagement (Hall et al., 2012; D. H. Rose & Meyer, 2006).

- A meta-analysis of 18 peer-reviewed empirical studies (2013–2016) evaluated the effectiveness of Universal Design for Learning. The findings suggest that teaching practices based on UDL can enhance learning for all students by increasing intrinsic motivation, reducing stress, boosting confidence, and shifting perceptions of learning. The use of technology and multiple instructional modalities can also empower learners to take greater ownership of their learning (Capp, 2017).
- A systematic review of research on Universal Design for Learning in pre-K–12 classrooms found that UDL instruction has the potential to increase engagement and access to general education curriculum for learners with disabilities and improve learners' academic and social outcomes (Ok et al., 2017).

- A meta-analysis examined learners' academic achievement in Universal Design for Learning environments compared to those in non-UDL for Learning environments. Twenty studies with participants ranging in age from preschoolers to adult learners were analyzed. Findings show that practices based on UDL may positively impact learners' achievement and provide flexibility and multiple options that can leverage learners' strengths, capacities, and backgrounds (King-Sears et al., 2023).
- A research study examined the relationship between teachers' use of Universal Design for Learning in math and English/language arts instruction and student performance on state standardized tests. Participants included teachers and their students in grades 3–8, including those with disabilities, from a U.S. district where UDL had been adopted system-wide. Results showed a positive correlation: students of teachers with higher UDL implementation scores performed better on standardized tests than those whose teachers had lower scores. This positive relationship suggests that engaging students in authentic, meaningful learning with appropriate support may benefit all learners—not just those with disabilities (Craig et al., 2024).

Open-Walled: Aligned Areas of Research

Community-Based Learning & Service Learning

Community-based learning connects academic instruction with surrounding communities through various instructional methods (Alsbury et al., 2020). Service-learning is a specific form of this learning that involves organized service experiences that meet community needs while integrating academic curriculum and structured reflection (Alliance for Service-Learning in Education Reform, 1993).

- A survey of 55 Hawaiian Studies Program (HSP) students and 29 comparison peers found that HSP students reported feeling significantly more connected to their community and school. These students demonstrated higher scores on community contribution, responsibility, pride, and action-taking, with service-learning contributing to these outcomes by connecting school and community life while exposing students to diverse career opportunities (Yamauchi et al., 2006).
- A meta-analysis of 62 studies with 11,837 students found that those in service-learning programs demonstrated significant gains in their attitudes toward self, attitudes toward school and learning, civic engagement, social skills, and academic performance (Celio et al., 2011).
- An exploration of case studies of 4-H and Future Farmers of America programs showed that community service-learning can foster social capital by building strong connections between rural youth and adults. By employing a community development approach to service learning, youth have opportunities to work alongside adult leaders, earn respect as problem solvers, and tackle local issues (Hennessy et al., 2013).
- A literature review on the impact of service learning on student success illustrated how service learning can lead to increased awareness and empathy, improved personal effectiveness, higher academic engagement, significant personal growth, better academic performance, more positive attitudes toward school, increased professionalism, and clearer career goals, as well as a higher likelihood of employment after graduation (Smith et al., 2019).
- A quasi-experimental design was used to assess the impact of a student support intervention on the math and reading achievement of 667 first-generation immigrant children (average age 11) in high-poverty urban elementary schools. The study found that connecting first-generation immigrant children to community and school supports that build on their strengths and address learning barriers can improve their achievement, especially for those who are not fluent in English (Dearing et al., 2016).
- A literature review of community-based learning research found that students consistently demonstrated growth in social and cultural competency across studies, and service-learning led to improved civic awareness and enhanced test scores in math, language, science, and social studies. However, outcomes varied significantly based on program design, implementation quality, and teacher-student mentor relationships (Alsbury et al., 2020).

Out-of-School Time

Out-of-school time is an umbrella term that refers to a set of coordinated academic and youth development opportunities outside of school hours (Baldridge et al., 2024).

- A research study had two main goals: 1) to examine how different out-of-school activities affect adolescents' behavior and well-being, and 2) to track these activities and their development from age 15 to the end of high school using a long-term design. Surveys were given to 747 adolescents. The results suggest that certain features of out-of-school time can influence the development of positive youth identities. Specifically, during high school, paid work was linked to a stronger work orientation, and organized activities were linked to a more positive self-identity (Lee et al., 2018).
- In a longitudinal study, researchers looked at how early childcare and K-5 out-of-school-time activities affected academic achievement and behavior in a group of 958 U.S. adolescents. The results showed that higher-quality early childcare and more time in K-5 organized activities were linked to better reading and math skills at age 15. Adolescents' vocabulary was also linked to their out-of-school-time experiences during middle childhood (but not early childcare). Regarding behavioral outcomes, K-5 out-of-school-time activities were connected to greater social confidence. Specifically, more organized activities and supervised informal care during middle childhood were linked to higher self-reports of confidence in social situations like speaking in groups or meeting new people (Vandell et al., 2020).

- A study explored how 194 alumni (ages 15–30) viewed the benefits of a three-year Weekendschool out-of-school-time program they attended in the Netherlands between ages 10 and 14. Findings showed that the program had an overall positive impact on their social and emotional development, with learners who lived in disadvantaged urban areas experiencing the greatest growth in their self-management, self-awareness, and future outlook. The study also found that alumni who attended the most practical level of secondary education (preparatory vocational) reported greater long-term benefits from the program, including exerting more effort to use their talents and a stronger investment in personal interests compared to peers in more academic tracks (Helms et al., 2021).
- Researchers interviewed out-of-school-time leaders, youth workers, policy influencers, and young people to explore how to create, sustain, and protect more liberatory and humanizing practices. The study showed that racism and deficit-based thinking still influence program practices and youth experiences. It also found that programs emphasizing youth voice, healing justice, and whole-child approaches to youth development offer better opportunities for connection and belonging (Baldrige et al., 2024).
- A meta-analysis of quantitative studies examined how informal science education experiences (like after-school programs and enrichment activities) affect students' attitudes and interest in STEM fields. Although there were few relevant studies over the past 30 years (1992–2022), the findings still showed a positive link between these programs and increased learner interest in STEM (Xia et al., 2024; Young et al., 2017).

Place-Based Learning & Land-Based Learning

In place-based education, the local community and environment serve as the starting point to teach interdisciplinary concepts across the curriculum through hands-on, real-world learning experiences (Sobel, 2004). Expanding upon the notion of learning within a specific context, land-based learning is a powerful decolonizing tool that centers and honors Indigenous relationships with the land and all of creation (Bowra et al., 2021).

- A long-term research collaboration between a settler PhD student, a Chisasibi iiyiyiu community advocate, and a Chisasibi iiyiyiu cultural resource and elder explored the connection between autonomy and well-being in a land-based healing program developed by the Cree Nation of Chisasibi in Canada. The study found that land-based healing can foster decolonization by empowering individuals and communities to reshape and transform the Indigenous-State relationship (Radu et al., 2014, p. 97).
- In a research article, a Mississauga Nishnaabeg academic from Canada used Nishnaabeg stories to explore land reclamation as a form of pedagogy. The stories were shown to serve as both a process and a context for nurturing Nishnaabeg intelligence, aiming to raise a generation of Indigenous peoples equipped with the skills, knowledge, and values needed to rebuild their nation based on Nishnaabeg worldviews and cultural values.
- In a theoretical article, a Michi Saagiig Nishnaabeg scholar from Canada maintains that land as pedagogy can open opportunities for Indigenous peoples to grow up intimately and strongly connected to their homelands; immersed in their languages and spiritualities; and embodied in traditions of agency, leadership, decision making, and diplomacy (Simpson, 2014).
- A qualitative case study was conducted to explore how students in a school district experienced an outdoor learning program, focusing on four learners. Data were collected through interviews with the students, their parents, and educators, along with observations and documents from a three-day culminating event. The findings indicated that the outdoor learning program, which combined place-based and environmental education, had lasting impacts on the four student participants, fostering stronger connections to nature and a greater advocacy for the sustainability of their local environment (Keller, 2017).
- A case study explored the outcomes of Outdoor Kindergarten as an emergent approach to place-based and land-based learning. The study demonstrates how Outdoor Kindergarten concepts align with Canadian curriculum outcomes, promote cultural education, inspire land-based inquiries, and foster a strong sense of self, place, and community, particularly for First Nations, Métis, and Inuit children, by connecting them to their culture and environment through place-based learning (Card & Burke, 2021).
- A systematic review of international research published between 2000 and 2020 examined the socio-emotional and academic benefits of nature-based outdoor learning in schools. The findings from 147 studies indicate that learning in natural outdoor settings can lead to increased student engagement and ownership of learning, some academic improvements, development of social and collaborative skills, and enhanced self-concept (Mann et al., 2022).

Work-Based Learning

Work-Based Learning uses the workplace to teach young people essential knowledge and skills by pairing learners with mentors who help them solve real-world problems, develop professional skills, take on adult responsibilities, build workplace relationships, and make informed decisions about careers and college (*Work-Based Learning, n.d.*; *Work-Based Learning Experiences, n.d.*).

- A research study examined the impact of a workforce development program in a health focused on risk behaviors, as well as educational and employment outcomes, among inner-city males aged 16 to 28. The program offered medical care, job readiness training, and activities focused on personal and social competency. Key findings suggest that comprehensive workforce development can lead to reduced risk behaviors and improvements in education and employment outcomes for young males (Smith et al., 2014).
- Data from the National Longitudinal Survey of Youth 1997 was analyzed to understand how employment, education, and training experiences affect the quality of jobs young people from disadvantaged backgrounds get by their late 20s. The findings showed that Work-Based Learning in high school, like internships and apprenticeships with supportive adult relationships, helps young people of color and those from low-income backgrounds secure better jobs by age 30 and improve job quality in the long run (Ross et al., 2018).
- Drawing from scholarly literature, researchers established a context and framework for developing Work-Based Learning in local schools and communities, specifically for youth with disabilities. They demonstrated how Work-Based Learning offers these youth valuable hands-on experiences and exposure to the realities of the workforce (Lindstrom et al., 2020).
- Researchers gathered data from interviews and literature to explore Work-Based Learning in education, youth development, and workforce development. Findings show that supportive adult relationships help young people develop self-regulation, social skills, and resilience. These relationships also provide access to valuable resources, exposure to the adult world, and opportunities to learn job-specific and employability skills that are hard to gain in the classroom alone (Ross et al., 2020).
- A qualitative study with Black youth aged 14 to 22 in rural southeastern U.S. counties explored how community-based career exploration and asset mapping impact public health workforce development. The findings revealed that youth involved in asset mapping work experiences reported a broader understanding of community resources and greater increases in self-efficacy compared to those who only participated in career exploration (Frerichs et al., 2023).

Competency-Based: Aligned Areas of Research

Authentic Assessment & Performance Assessment

Authentic assessment tasks replicate real-world challenges and performance standards commonly encountered by experts or professionals in their respective fields (Koh, 2017). Performance assessment requires learners to directly demonstrate what they know and are able to do through open-ended tasks or the generation of products (Maier et al., 2020). While authentic assessments tend to involve performance-based tasks, performance-based assessments are not necessarily authentic (Meyer, 1992).

- An empirical study of the effects of outcomes-driven authentic assessment on classroom quality in Head Start preschool classrooms found that an authentic assessment approach, which includes performance assessments embedded within the curriculum, has a positive impact on the language and literacy environment (Hallam et al., 2007).
- A report by the Stanford Center for Opportunity Policy in Education suggested that performance assessments that explicitly focus on developing learners' abilities to think critically, solve problems, collaborate, and communicate across various formats and technologies can prepare learners for 21st-century careers (Darling-Hammond et al., 2013).
- A review of international research aimed at improving assessment practices in European education systems revealed that peer- and self-assessments are especially effective in developing nontraditional competencies (e.g., initiative, entrepreneurship, learning to learn, and social skills), as well as transversal skills (e.g., critical thinking, creativity, problem solving, risk assessment, decision making, and emotional regulation) (Siarova et al., 2017).
- A literature review drawing from 12 years of research in peer-reviewed journals found that performance-based assessments in primary grades, particularly in science reasoning and conceptual understanding, are linked to academic success. These assessments also promote formative use of results by educators and learners, encourage metacognitive engagement, and allow learners to actively apply their existing knowledge (Bland & Gareis, 2018).
- In a multiple case study of three districts involved in the California Performance Assessment Collaborative, learners and educators self-reported that performance assessments can help develop deeper learning competencies (e.g., critical thinking, metacognition, and public speaking) and can be particularly beneficial for English learners. In addition, performance assessments may enhance communication and presentation skills, college and career readiness, learner-educator relationships, and social-emotional skills, including perseverance, creative problem solving, and a growth mindset (Maier et al., 2020).
- A synthesis of peer-reviewed research revealed that authentic assessments can enhance learner engagement, critical thinking, knowledge application, and promote equity and inclusion (Hansen, 2024).

Competency-Based Education & Mastery Learning

With Competency-Based Education, learners progress through the curriculum and earn their credentials based on their mastery of the competencies, as opposed to the amount of time spent on the materials (i.e., seat time) (Council of Regional Accrediting Commissions, 2015). Likewise, mastery learning requires learners to comprehend a defined proficiency completely, regardless of the time and resources needed, before moving to the next level (Chargois, 2013). While often used interchangeably, Competency-Based Education focuses on demonstrable skills and knowledge, while Mastery Learning emphasizes the thorough understanding of specific content.

- A meta-analysis of findings from 108 controlled evaluations indicated that mastery learning programs have positive effects on the final examination performance of learners in colleges, high schools, and upper grades in elementary schools. The effects of mastery programs were also stronger for lower-performing students and varied based on mastery procedures, study designs, and course content, with positive impacts on learners' attitudes but potentially increased time spent on tasks and reduced completion rates in college classes (Kulik et al., 1990).
- Ninth-grade learners, teachers, and administrators in high schools implementing Competency-Based-Education CBE and comparison schools not engaging in CBE were surveyed in three states. The study found significant variation in the implementation of CBE practices both across and within schools, regardless of their CBE status. The analysis also indicated positive associations between learners' experiences with specific CBE practices and their learning capacities, including clearer sense of learning targets, favorable changes in intrinsic motivation and self-efficacy, and the perceived utility of mathematics (Haynes et al., 2016).

- The Education Development Center partnered with 10 rural Maine districts to study learners' exposure to proficiency-based education and its impact on academic performance and engagement. The study revealed a positive relationship between exposure to proficiency-based education practices and increased student engagement and a negative association with SAT scores (Shakman et al., 2018).
- Researchers synthesized multiple scientific disciplines on human development and found that by focusing on key drivers of positive outcomes, the developmental range, performance, success, and potential of all children can be optimized. Identified key drivers include attuned relational supports; buffering of stress; intentional, sequenced development of integrated habits, skills, and mindsets; rigorous, mastery-oriented pedagogy; and culturally responsive instructional and curricular design (Cantor et al., 2019).
- Mastery learning interventions via iReady, a personalized computer-based tool, were examined in relation to learners' math anxiety. Results showed a statistically significant reduction in math anxiety levels for the 127 participating eighth-grade students in a rural middle school who experienced the intervention (Scrivner, 2024). In another study, the implementation of the My Math Academy PMLE with nearly 1000 prekindergarteners at a high-need school district resulted in significant mathematical learning gains, including gains beyond grade level, despite large learner variability in the students' prior knowledge and learning progress (Thai et al., 2022).
- A study that reviewed academic research on post-secondary Competency-Based Education CBE programs found that, while evidence is limited, there were generally positive findings related to learners' intellectual development, career and financial outcomes, and student satisfaction. Findings also suggest that CBE programs may be better for many students for whom traditional education is not a viable path (Specht-Boardman, 2024).

Social and Emotional Learning

Social and emotional learning is the process by which individuals of all ages develop and apply the knowledge, attitudes, and skills needed to understand and manage emotions, set and achieve goals, empathize with others, build and maintain positive relationships, and make responsible decisions (2013 CASEL Guide, 2012).

- A meta-analysis of 213 controlled studies of Social and Emotional Learning (SEL) programs represented over 270,000 K–12 learners from urban, suburban, and rural schools. The study found that, in comparison to the controls, learners who experienced SEL programs had significant improvements in social and emotional skills, attitudes, behavior, and academic performance that reflected an 11-percentile-point gain in achievement (Durlak et al., 2011).
- Researchers examined three diverse urban high schools organized to develop socially and emotionally competent learners and discovered that each of the schools had stronger persistence, academic outcomes, and graduation rates than other schools serving similar students in their districts. Learners in the Social and Emotional Learning schools also had more positive educational experiences; stronger school connections; higher levels of psychological and emotional support, engagement, and empowerment; and were more socially engaged than those in comparison schools (Hamedani & Darling-Hammond, 2015).
- A longitudinal study of racially diverse, low-income students in rural and urban communities across four states analyzed kindergarten teachers' ratings of children's prosocial skills to predict key outcomes in adolescence and adulthood, assessed 13–19 years later. The analysis found significant links between kindergarten social-emotional skills and key young adult outcomes related to education, employment, crime, substance use, and mental health. The results suggest that early social competence is a marker for important long-term outcomes and may influence other developmental factors, highlighting the importance of developing social and emotional skills in early childhood (Jones et al., 2015).
- A meta-analysis of 82 school-based Social and Emotional Learning interventions with 97,406 kindergarten to high school learners found that SEL significantly improved skills, attitudes, prosocial behavior, and academic performance, while also serving as a protective factor (e.g., preventing conduct problems, emotional distress, and drug use). Follow-up outcomes, ranging from 6 months to 18 years post-intervention, showed lasting positive effects across all demographic groups, including improved social relationships, higher graduation and college attendance rates, and reduced negative outcomes like arrests and clinical disorders (Taylor et al., 2017).

- A review of findings from 12 meta-analyses of school-based Social and Emotional Learning programs showed consistent positive effects on learners' social, emotional, behavioral, and academic outcomes from pre-K to 12th grade. These programs appear to enhance social-emotional skills, academic engagement, positive behaviors, and reduce behavior problems and psychological distress, benefiting students across gender, ethnicity, race, income, and other demographics (Greenberg, 2023).
- An analysis of 90 school-based Social and Emotional Learning studies published between 2008 and 2020 reflected 47 programs and 20,626 K–12 learners in the U.S. Findings indicated that learners in universal school-based SEL programs have significant improvements in academic achievement, school performance, social and emotional skills, attitudes, behaviors, and perceptions of school climate and safety. The SEL programs were equally effective for boys and girls, and the review revealed limited but promising preliminary evidence suggesting differential and positive effects for learners with marginalized racial and ethnic identities (Cipriano et al., 2024).

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