

# Promoting inclusive education: social and emotional learning through the Lens of Universal Design for Learning

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## Abstract

The academic, social, and emotional needs of children in schools continue to grow. Research indicates that the implications of trauma on learning and social development are significant and suggests focusing on resilience through social and emotional learning (SEL) and the development of executive function skills. In this article, we highlight SEL as an inclusionary tool to address the impact of trauma in schools. We examine SEL through a Universal Design for Learning (UDL) lens to promote intentional lesson design for learner variability. This article encourages teachers to re-evaluate traditional models of teaching and learning and provides insight into ways to develop executive functioning skills of all students, using SEL and UDL as socially responsible frameworks.

*Keywords:* social-emotional learning, Universal Design for Learning, trauma

## Introduction

Consider Mrs. Tamm's classroom. Mrs. Tamm, a third-grade teacher, has an average class size of 21 students. Mrs. Tamm attends to students' daily needs, which means she supports the needs of four students who exhibit characteristics of dyslexia, seven emerging bilinguals, and several students who exhibit low self-esteem. At least one-third of Mrs. Tamm's students need help developing executive functioning skills, which may have been a result of traumatic experiences. In addition, Mrs. Tamm's students' academic achievements reflect a wide range of abilities. Some students have been identified with learning disabilities or speech deficits, while some students lag behind for various other reasons, including excessive absences, learning loss due to the COVID-19

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pandemic, or a lack of resources. Some third graders excel at learning, which requires Mrs. Tamm to provide challenges that further facilitate their academic careers.

This classroom scenario could reflect any instructional setting in (post-pandemic), as classrooms across the globe are increasingly diverse. We based Mrs. Tamm's students on available data. For example, Shaywitz (2020) reports that approximately 20% of the population exhibits characteristics of dyslexia. The Organisation for Economic Co-operation and Development (OECD) (2009) reports average classroom sizes of approximately 21 students across the countries participating in their analyses. The Centers for Disease Control and Prevention (CDC) (2015) reported that more than 50% of children experienced adverse childhood events before the age of 18. A McKinsey report found that students in 2021 were about four months behind in reading compared with the non-pandemic years (Dorn et al., 2020). How does Mrs. Tamm meet the needs of her students?

Addressing diversity and acknowledging the trauma experienced by children presents a challenge for educators who seek to provide learning opportunities that are inclusive and effective for all students (Ralabate, 2011). Planning for learner variability has long been a part of a teacher's role; however, we now know that attention to the social and emotional learning needs of students is key. According to Collaborative for Academic, Social, and Emotional Learning (CASEL), SEL is "the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions" (CASEL, 2022, para. 1). Research support for the implementation of SEL competencies in the classroom is extensive. In this article, we highlight SEL as an inclusionary tool to address the impact of trauma in schools. We examine SEL through a Universal Design for Learning (UDL) lens to promote intentional lesson design for learner variability. A primary goal of this article is to provide insight into ways to develop executive functioning skills of all students, using SEL and UDL as socially responsible frameworks.

## Impact of trauma in schools

Educators have acknowledged trauma as a barrier to academic success. The causes of trauma vary, including but are not limited to, Adverse Childhood Experiences (ACE), chronic stress due to housing and food insecurity, and refugee resettlement, to name a few. In addition, students, including refugee children, enter the classroom having had or are dealing with traumatic

experiences. These experiences were exacerbated by the COVID-19 pandemic, leaving no one untouched. The totality of these traumatic experiences calls for inclusive practices that support the complexities of all learners.

### Adverse childhood experiences

The mental health of children, especially those impacted by trauma, has become a public health issue (Vostanis, 2017). As early as 2013, the significant number of children impacted by trauma began reaching epidemic levels (Blaustein, 2013). So, what is trauma? Defined, “Trauma is simply a term to describe the aftermath or impact of an event, whether real or perceived, that interrupts a person’s ability to maintain a sense of psychological and/or physical safety and well-being” (Berardi & Morton, 2019, p. 14). As mentioned previously, before COVID-19, the CDC (2015) reported that more than 50% of children experienced adverse childhood events before the age of 18.

While mental health providers know about the significance of traumatic events, knowledge of the Adverse Childhood Experiences (ACEs) survey is new to the field of education. It was only in the last five years that educators began to learn about the ACE survey. The ACE survey was created by a group of researchers led by Felitti and Anda (Felitti et al., 1998). The survey is a ten-item instrument used to evaluate childhood trauma in five particular areas of childhood trauma, including physical abuse, verbal abuse, sexual abuse, physical neglect, and emotional neglect. The survey was intentionally limited to adverse experiences that may or may not have occurred in the home, except for one question about sexual abuse that may or may not involve a family member. What was found from this survey research was that the higher a person’s score, the more likely they would face greater challenges throughout their life cycle, including biological, emotional, cognitive, and social impacts (Felitti et al., 1998). Even though teachers knew there were connections between home and school outcomes long before the ACE survey, they lacked evidence regarding trauma’s role in academic and social functioning.

### Refugee students

Traumatic events in today’s world include the displacement of individuals due to war, violence, persecution, or human rights abuses, as in the case of refugees. We would be remiss not to acknowledge the impact that Russia’s invasion of Ukraine has had on millions of children. Prior to the invasion, the UN Refugee Agency reported that individuals displaced by war, violence, persecution, or human rights abuses rose to 89.3 million (United Nations High Commissioner for Refugees, 2021). Since 2021, Russia’s invasion of Ukraine has resulted in one

of the largest forced displacement crises since World War II (United Nations High Commissioner for Refugees, 2022). SEL is critical for this particular population of students due to their experiences leading up to resettlement and the dysregulation occurring as they acclimatize to a new language, country, culture, and customs. Schools serve as a primary socialization hub for all students. Teachers are instrumental in facilitating socialization for refugee students by attuning to their social-emotional needs as they interact with peers and school professionals. However, just because refugees have relocated away from a dangerous situation does not mean they are no longer experiencing psychological effects. For example, immigrants and refugees may experience additional stress from cultural changes, language barriers, social alienation, and acculturation (Birman, 2002). Consider Ukrainian children. “Every one of Ukraine’s 5.7 million children have trauma,” (para. 5) said Murat Sahin, who represents the United Nations children’s agency, UNICEF, in Ukraine. “I wouldn’t say that 10 percent or 50 percent of them are OK – everyone is experiencing it, and it takes years to heal” (Ducke, 2022, para. 5).

### Trauma and the brain

The implications of trauma on learning and social development are significant. Trauma damages the brain (Berardi & Morton, 2019; Morton, 2018). This results in disrupted neurodevelopment, including social, emotional, and cognitive impairment, adoption of health-risk behaviors, disease, disability, social problems, and early death (Feletti et al., 1998). As a student attempts to engage in the K-12 learning environment, the consistent production of norepinephrine, due to heightened anxiety, triggers a fight-flight-freeze response (Everly & Lating, 2012; van der Kolk, 2014; Vermetten & Bremner, 2002). The student encounters triggering situations and events during the school day, resulting in heightened awareness of their surroundings. This encounter causes the student to engage in an ongoing safety assessment for signs or sounds of danger, resulting in an inability to focus on academic material or to engage in self-regulation. Flight-fight-freeze responses can prompt unpredictable, impulsive, or otherwise inappropriate behaviors (Carrion & Wong, 2012; Perry, 2006; Souers & Hall, 2016). The fields of traumatology and neurobiology continue to advance our understanding of the impact of trauma. In connection with the ACE survey, we have confirmation of the detrimental impact of stress and trauma on both psychosocial and physical health (Berardi & Morton, 2019). It is expected that attitudes and dispositions, coming from a response to trauma, would manifest in the classroom. Therefore, a focus on supporting resilience through social and emotional learning and developing executive function skills serves all students well.

## Executive function

Trauma-informed practices target areas of the brain affected by traumatic events, including executive functions. For students to be successful in school, they need to develop and access the higher-order executive functioning centers of the prefrontal cortex. “Research has suggested that executive functioning is more important for school readiness than IQ and predicts later academic success and other later life outcomes, including career success and health status” (Diamond & Lee, 2011, p. 959). Toxic stress negatively impacts executive functioning. Students who fall behind their peers in executive functioning development receive less instructional time and have been found to have fewer interactions with their teachers and peers than their counterparts with more developed executive functions (Williford et al., 2013).

“The captain of the cognitive ship” (Blaustein & Kinniburgh, 2018, p. 259), executive functioning refers to a series of cognitive skills we employ to meet day-to-day expectations and challenges. These skills provide self-regulation and self-direction. Kaufman (2010) describes executive functions as both the “stop and the think parts of that wonderful habit teachers try to develop in the children with whom they work: to pause (even briefly!) and review options before leaping into action” (p. 2). Executive skills include two strands: a metacognitive strand and a social and emotional regulation strand. The metacognitive strand includes “goal setting, planning/strategizing, sequencing, organization of materials, time management, task initiation, executive/goal-directed attention, task persistence, working memory, and set shifting” (Kaufman, 2010, p. 4). The metacognitive strand represents the cognitive and academic strand of executive skills. The social and emotional regulation strand includes “response inhibition (also known as impulse control), emotional control, and adaptability” (p. 4). Executive functioning includes academic and social skill competencies such as reading and comprehension, writing and language arts, memorization, and problem-solving (Blaustein & Kinniburgh, 2019; Craig, 2016; Siegel, 2012). See Table 1 Executive Functions.

A student overwhelmed by unmitigated stress and trauma will experience changes in brain structure, impairing executive functioning. Examples of impaired executive functioning include an inability to predict the consequences of their actions or choices, slow reaction time to situations or stimuli, cognitive inflexibility, impaired capacity to encode memories, and inability to track and follow complex and multifaceted instructions (Cozolino, 2013; Craig, 2017; Everly & Lating, 2012; Siegel, 2012).

**Table 1.** Executive functions

Strand	Executive function	Explanation
Metacognitive	Goal setting	The ability to create a plan to reach a goal or accomplish a task.
	Planning / strategizing	Creating a plan or selecting a strategy to achieve goals or accomplish a task
	Sequencing / ordering	Ability to properly sequence information that enters and exits the mind.
	Organization of materials	Ability to organize materials needed for a task.
	Time management	Ability to manage time is among the most essential of the metacognitive executive functions.
	Task initiation	Ability to organize thinking and make decisions about how and where to begin.
	Task persistence	Ability to stick to it, to stay on track and complete a task or goal.
	Executive (goal-directed) attention	Ability to develop a reasonable capacity to engage their attention selectively, sustain their focus independently on important activities for required time periods, and divide their attention as necessary between different elements of the learning contexts.
	Self-monitoring	Ability to monitor self at all times. Students frequently gauge the quality of their attention, comprehension, and production in learning situations and make adjustments as necessary.
	Working memory	It is the place in our conscious cognition in which people hold things before thinking about and acting on them. You are not just holding memory, but doing something with it.
Social and Emotional	Set shifting	Ability to move within tasks and between steps within the task
	Response inhibition / impulse control	Ability to check impulses in order to live amicably with others and achieve goals.
	Emotional control	Ability to control one’s emotions. May not prevent you from becoming angry, but will determine how you deal with that anger.
	Adaptability	Ease at which the individual can transition within and between tasks.

Source: Kaufman (2010).

Trauma-informed knowledge of brain functioning calls for educators to re-evaluate classroom pedagogy and school culture to respond to the needs of children. Research tells us that:

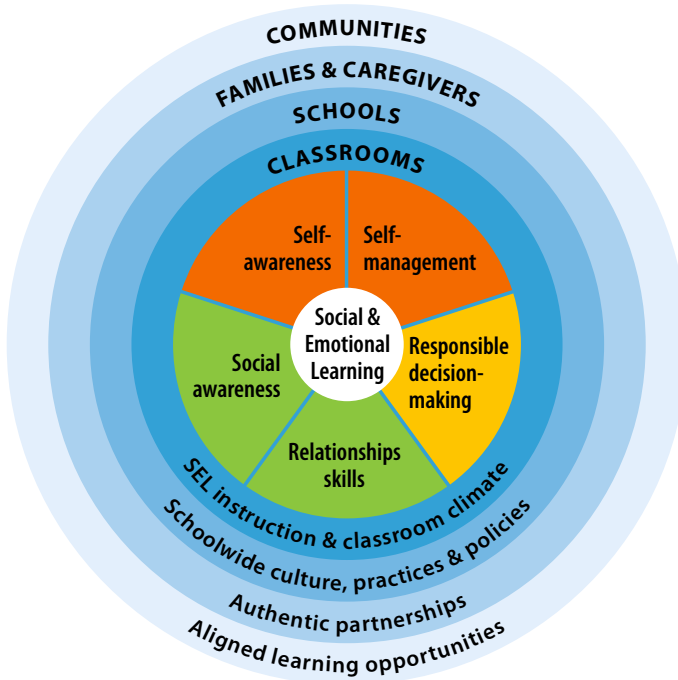
“Trauma can impact learning in ways that can be seen and hidden in the classroom. Given that the educational system is based on the ability to regulate behavior and the ability to take in and recall previous information and learning, students with trauma histories are at a marked disadvantage for academic achievement, through no fault of their own.” (Morton, 2018, p. 75)

Given the significant needs of children in schools and the impact on executive functioning skills on their development, where do we go from here? Research suggests a link between social and emotional competencies and academic achievement, which extends beyond academic achievement to include a positive impact on other concerns, such as conduct, drug use, and violence (U. S. Department of Education, 2016). Social and emotional learning, referred to in the literature as SEL, has gained traction across the globe as an important way to strengthen students’ abilities to regulate emotions, thoughts, and behaviors to interact successfully with others (McBrien, 2022). SEL promotes the education of the “whole child” (McBrien, 2022, p. 17). Darling-Hammond and Cook-Harvey (2018) define the whole-child approach as one that includes a wholistic look at the needs of the child, from food, housing, and relationships to education. They advocate for multi-tiered supports and “learning opportunities designed to challenge and engage students while supporting their motivation and self-confidence to preserve and succeed” (p. 2).

## Social and emotional learning

SEL promotes equity by providing authentic partnerships across all stakeholders, including schools, families, and communities, to create safe, healthy, and just experiences (CASEL, 2022). CASEL defines social and emotional learning (SEL) as an integral part of education and human development and addresses five SEL competencies. The CASEL 5 framework, a well-known development framework (Denham, 2018), includes self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2022). Self-awareness has to do with who we are and what we feel. In other words, what are my values and beliefs? Self-management involves how one behaves and perseverance in the face of barriers. Social awareness relates to an understanding of how others think and feel. This awareness may include the ability to understand body language and social norms. Relationship skills

involve how well one communicates with others. Responsible decision-making aligns with the ability to solve problems and make ethical choices. Responsible decision-making leads to responsible citizenship (CASEL, 2022). As seen in Figure 1, these competencies can take place across many settings, including classrooms, schools, homes (families and caregivers), and communities. The skills may be a part of explicit instruction as well as implicit instruction.



**Figure 1.** The CASEL 5 SEL framework: The CASEL wheel.

Adapted from the Collaborative for Academic, Social, and Emotional Learning and used with permission.

Federal policy in the United States plays a key role in creating supportive conditions to support the statewide and districtwide implementation of SEL (CASEL, 2022). The 2020 Coronavirus Aid, Relief, and Economic Security (CARES) Act provided \$13.2 billion to schools and districts to address COVID-19's impact (Aperture Education, 2022). The American Rescue Plan (ARP) Act of 2021 initiated an investment in SEL of \$123 billion for K-12 education, 800 million of which was intended for children in homeless situations (Aperture Education, 2022). In addition, the U.S. Every Student Succeeds Act (2015) is widely seen as the primary funding source for social, emotional, academic, and civic/career efforts. Humphrey (2013) contended that SEL is a dominant force in education



around the globe as well. In his book, he presented case studies of just some of the countries implementing SEL, including the USA, England, Northern Ireland, Australia, Sweden, and Singapore. He made a key point that the shape SEL takes is influenced by cultural, political, and social factors. Most importantly, he emphasized that SEL is not a fad. In 2022, the Organisation for Economic Co-operation and Development (OECD) published a report examining how SEL policies and practices aided newcomers and refugee students in OECD countries (McBrien, 2022). SEL reflects an inclusive educational practice that recognizes the diversity and ensures that all learners can “access educational content and participate fully in their learning” (Collier, 2019, para 3).

As schools across the globe work to embed SEL frameworks, a “universal” approach to inclusive lesson design may be helpful in terms of inclusive design and intentional planning for learner variability. The Universal Design for Learning framework supports efforts to create comprehensive access to educational curricula and environments for all students, especially those with barriers to learning. *Universal* implies consideration for multiple access points to learning goals so that all students, regardless of their individual needs, can attain the same learning goal (Rose & Meyer, 2006). *Design* refers to intentional planning for multiple ways to access content and processes as well as multiple ways to represent understanding while addressing ways to engage learners (Meyer, Rose, & Gordon, 2014). A look at UDL may provide insight into ways to support all students.

## Universal design for learning: Principles and guidelines

With global uncertainties and unknowns, the need to support students with social and emotional learning is critical. “We have to acknowledge that our students witness and experience hate, discrimination, marginalization, and apathy based on race, sexual and gender identity, homelessness, religion, socio-economic status, immigration, language, and disability both inside and outside our schools. These experiences affect their readiness to learn when we implement traditional, one-size-fits-all curriculum and pedagogy.” (Chardin & Novak, 2021, p. 7). Therefore, an inclusive approach to teaching and learning is essential.

Universal Design for Learning (UDL) is an inclusive framework that considers learning variability, including those with social and emotional needs. Inspired and influenced by the Universal Design (UD) thinking of architectural access, UDL supports diversity and learner variability by providing a framework for designing instruction that benefits all learners, including students some

refer to as “in the margins.” The UD movement, prompted by the Architectural Barriers Act in 1968 (United States Access Board, n.d.) and the Americans with Disabilities Act in 1990 (Americans with Disabilities Act, 1990), allowed ease of access to buildings based on architectural design. With access for all in mind, ADA prohibited the exclusion of individuals with disabilities from access to transportation, employment, public buildings, schools, goods and services, and other basic, everyday activities people without disabilities use (ADA, 1990). Similarly, UDL’s goal is to design access for students to curricular goals, learning standards, and the learning environment. Integrating UDL principles into lesson design and instructional practice optimizes teaching and learning for all students.

Learner variability is a term used to describe how unique individuals are in how they learn, and “the goal of education should not be just the mastery of knowledge but the mastery of learning” (Houston, 2018, p. 96). Just as the purpose of UD is to design for access to the physical environment, the purpose of Universal Design for Learning (UDL) is to design for access to curricular goals and learning standards, enabling increased opportunities to reach all children. UDL promotes flexibility in the curriculum and the learning environment in order to address diverse needs (Rose & Meyer, 2002). The focus of instruction optimizes teaching and learning, which includes the “learning goals, the means of assessment, the teaching methods, and the materials” (Meyer, Rose, & Gordon, 2014, p. 3).

### UDL across the globe

The concept of UDL originated in the U.S. with David Rose and Ann Meyers, founders of the Center for Assistive Special Technology (CAST) (CAST, 2018). UDL has the attention of U.S. policymakers (Lisenbee et al., 2020), and it is referenced in the Every Student Succeeds Act (ESSA) (2015), which encourages states to adopt technology that aligns with UDL. The concept of UDL has spread globally. For example, UNESCO’s Global Education Monitoring Report (2021) “strongly recommends the adoption of UDL at government level so that it becomes an integral part of countries’ inclusive education policies” (McKenzie et al., 2021, p. 6). A 2013 study conducted by the Special Educational Needs Network (SENnet) concluded that UDL is relatively unknown in Europe. In Europe, UDL principles are, to a great extent, not explicit but embedded in principles of inclusion, recognizing equity in access to education and life in society for all, including people with disability and disadvantaged minority groups. The country reports and case studies show how UDL principles are being applied in policy and practice to a varying extent depending on countries, but implicitly rather than explicitly (Panzavolta et al., 2013, para 3).

## UDL principles

Supporting the needs of all learners sounds like a simple and common-sense goal. However, the question for educators is how to design instruction for a diverse classroom of students, especially when, for many children, trauma is a barrier to learning. When the instructional design includes the needs of students struggling with traumatic events, all children benefit from intentional lesson design. In other words, intentional lesson design within the UDL Framework provides increased access to successful learning opportunities. UDL embraces the idea of learner variability as an asset when thinking about students and the curriculum. Integrating UDL principles into lesson design and instructional practice optimizes teaching and learning for all students. UDL includes three principles: Multiple Means of Engagement, Multiple Means of Expression, and Multiple Means of Representation. Multiple Means of Engagement, the *why* of learning, is the affective network that signifies ways interest and purpose engage and motivate learners (CAST, 2018). Multiple Means of Representation, the *what* of learning, is the recognition network that explains how content is represented and how information is processed by learners (CAST, 2018). Multiple Means of Expression, the *how* of learning, is the strategic network involving how learners monitor progress and demonstrate learning (CAST, 2018). UDL provides a framework of support and access for all learners to become self-directed and independent. We focus on the affective and strategic networks as we examine the SEL and UDL frameworks more closely.

### Multiple means of engagement

One goal of UDL is to alleviate barriers to learning, leading to better outcomes. Educators understand that social and emotional issues may initiate barriers to learning. By integrating Universal Design for Learning (UDL) and Social and Emotional Learning (SEL) practices into their day-to-day teaching, educators can better support students and teach them how to work more productively with their peers. The Engagement Principle of UDL has a particularly strong connection to SEL (Ohio Department of Education, 2022) and the affective domain. The affective domain involves the manner in which we deal with emotions, feelings, values, appreciation, enthusiasms, motivations, and attitudes and represents an important element of learning (Richardson et al., 2012).

CAST (2018) provides three guidelines to consider when it comes to engagement for all learners (Table 1): Recruiting interest, sustaining effort and persistence, and self-regulation. UDL guidelines also offer a set of concrete

suggestions, called checkpoints, that can be applied to any discipline or domain to ensure access for all. Table 2 presents the guidelines and checkpoints for Multiple Means of Engagement.

**Table 2.** Multiple means of engagement

UDL guidelines	UDL teaching strategy checkpoints	Align with SEL CASEL 5
Recruiting interest	<ul style="list-style-type: none"> <li>• Optimize individual choice and autonomy</li> <li>• Optimize relevance, value, and authenticity</li> <li>• Minimize threats and distractions</li> </ul>	Self-management
Sustaining effort and persistence	<ul style="list-style-type: none"> <li>• Heighten salience of goals and objectives</li> <li>• Vary demands and resources to optimize challenge</li> <li>• Foster collaboration and community</li> <li>• Increase mastery-oriented feedback</li> </ul>	Social-awareness relationship skills
Self-regulation	<ul style="list-style-type: none"> <li>• Promote expectations and beliefs that optimize motivation</li> <li>• Facilitate personal coping skills and strategies</li> <li>• Develop self-assessment and reflection</li> </ul>	Self-awareness self-management

Source: CAST (2018). Adapted from Universal Design for Learning Guidelines version 2.2. <http://udlguidelines.cast.org>

### Multiple means of action and expression

The UDL framework also includes a principle that provides for multiple means of action and expression. Although this principle includes three checkpoints – physical action, expression and communication, and executive functions – we focus on executive functions and their alignment to trauma and SEL. Multiple means of action and expression acknowledge ways learners differ in terms of navigating a learning environment and expressing what they know (CAST, 2018). For example, learners who struggle with strategic and organizational abilities due to executive function disorders benefit from options for action and expression (CAST, 2018). This guideline details how to develop and act on plans to make the most out of learning. CAST’s four checkpoints include suggestions on how teachers can guide goal-setting, support planning, and strategic development, facilitate managing information and resources and enhance capacity for monitoring progress. Table 3 presents the checkpoints related to executive functions.

**Table 3.** Multiple means of action and expression: Executive functions

UDL checkpoint	UDL teaching strategy checkpoints	Align with SEL CASEL 5
Guide appropriate goal-setting	<ul style="list-style-type: none"> <li>• Provide prompts and scaffolds to estimate effort, resources, and difficulty</li> <li>• Provide models or examples of the process and product of goal-setting</li> <li>• Provide guides and checklists for scaffolding goal-setting</li> <li>• Post goals, objectives, and schedules in an obvious place</li> </ul>	Self-management Self-awareness Responsible decision-making
Support planning and strategy development	<ul style="list-style-type: none"> <li>• Embed prompts to “stop and think” before acting as well as adequate space</li> <li>• Embed prompts to “show and explain your work” (e.g., portfolio review, art critiques)</li> <li>• Provide checklists and project planning templates for understanding the problem, setting up prioritization, sequences, and schedules of steps</li> <li>• Embed coaches or mentors that model think-aloud of the process</li> <li>• Provide guides for breaking long-term goals into reachable short-term objectives</li> </ul>	Self-management Self-awareness Responsible decision-making
Facilitate managing information and resources	<ul style="list-style-type: none"> <li>• Provide graphic organizers and templates for data collection and organizing information</li> <li>• Embed prompts for categorizing and systematizing</li> <li>• Provide checklists and guides for note-taking</li> </ul>	Self-management Self-awareness Responsible decision-making
Enhance capacity for monitoring progress	<ul style="list-style-type: none"> <li>• Promote expectations and beliefs that optimize motivation</li> <li>• Facilitate personal coping skills and strategies</li> <li>• Develop self-assessment and reflection</li> </ul>	Self-Management Self-Awareness Responsible decision-making

Source: CAST (2018). Adapted from Universal Design for Learning Guidelines version 2.2. <http://udlguidelines.cast.org>.

## Intersections of UDL and SEL

Both UDL and SEL consider brain research and the need to remove barriers to learning. UDL refers to the three networks of the brain, which align geographically with parts of the brain. According to CAST (2018b), sensory information from the environment, including what we see and hear, is received in the back of the brain, including the occipital and temporal lobes of the brain (recognition network). The information is processed and transmitted for meaning in the

center of the brain (affective networks) and is organized in the frontal lobes for action/reactions (strategic networks). We focused on the affective and strategic network in this manuscript because of their connections to social and emotional behaviors. The third column in Tables 2 and 3 demonstrate how the CASEL 5 align with the UDL Principles and Guidelines.

Novak Education (n.d.) acknowledges the overlap between CASEL's Core Competencies (CCC) and UDL's Principles. For example, CCC of Self-Awareness relates to UDL checkpoints 7.1, 7.2, 8.1, 8.4, and 9.1. According to Novak Education, the big connection between the two is that students must know themselves in order to have agency over their learning. They must understand their interests, goals, strengths, and weaknesses so they can make appropriate learning decisions. CCC of Self-Management is related to checkpoints 7.3, 9.2, 9.3. Here, the big connection is that "if students can't self-regulate, they can't self-manage, which means learning can't occur because their Amygdala has been hijacked and the survival mode kicks in (fight, flight or freeze)" (para. 3). Social Awareness is aligned with checkpoints 8.3 and 8.4, and the big connection is that students need to understand the feelings and beliefs of others in order to successfully collaborate during learning. Relationship skills aligned with checkpoints 8.3, 8.4, and the big connection shared is that "relationships are the cornerstone of the community and without relationship skills, students will struggle with collaboration" (para 5). Finally, Responsible decision-making aligns with Engagement checkpoint 7.2, suggesting that "we must support student executive functions to ensure they can make responsible decisions about their learning and futures" (para. 6).

Both frameworks focus on the diverse needs of learners and acknowledge that there is no one-size-fits-all solution. SEL, through the UDL lens, considers "learner variability" and the need to plan for the needs of all. UDL first looks at the standard and what learners need to know. Then teachers design lessons so that all students can succeed. UDL promotes flexibility in the curriculum and the learning environment so that diverse students gain access and opportunities to learn (Rose & Meyer, 2002). Lisenbee et al. (2020) compare teachers to architects, suggesting that just as modern architects design building access for varying needs and abilities, teachers design lessons to provide access to learning for children of varying needs, abilities, and interests. Architects also consider aesthetic design (Lisenbee et al., 2020) as teachers consider their students' engagement to create lessons that capitalize on their curiosity, interests, and social and emotional needs. Below, we describe Johanna in order to demonstrate how the UDL framework can support the SEL needs of all learners through intentional lesson design.

## Johanna

Johanna is a foster child in a third-grade classroom. She had been removed from her home and placed into foster care with a family. Johanna is a quiet student and often sleeps in class. She performs just below grade level academically due to excessive absences. Johanna has had problems focusing on projects, schoolwork, and conversation. However, Johanna likes her classroom and her teacher. In one instance, she became clearly agitated when she found the classroom desks had been rearranged. This is typical of foster children. To this child, her classroom, her desk, and the school supplies on that desk provide safety and stability. Johanna counts on the consistency of her classroom, while her home situation is anything but consistent (Morton, 2018).

### *Designing for multiple means of engagement*

Since the purpose of Multiple Means of Engagement is to motivate learners, Johanna's teacher would need to understand and address her needs with intentional lesson design. First and foremost, Johanna needs a safe space. "When learners have to focus their attention on having basic needs met or avoiding a negative experience, they cannot concentrate on the learning process . . . what is threatening or potentially distracting depends on learners' individual needs and background" (CAST, 2018, para. 1). Johanna needed consistency to feel safe. Now that Johanna's desk and school supplies are in a consistent location, the classroom is once again perceived as a safe place, and Johanna can now engage in learning activities.

Foster children like Johanna, as well as other children in the classroom, are often disengaged at school. Since Johanna often sleeps in class, it is necessary to teach Johanna self-monitoring skills in order to regulate her attention to the task. One way to teach self-monitoring is to use technology applications like 30/30 (<https://apps.apple.com/us/app/30-30/id505863977>), which help to keep learners organized. The app includes times that can assist learners in task completion. Checklists or charts may also help learners in Johanna's third-grade classroom learn to develop self-monitoring skills (Raymond, 2012).

### *Designing for multiple means of action and expression*

Children with SEL often need to build their executive function skills. We know Johanna is dealing with trauma and that the trauma has caused her brain to overdevelop in hypervigilance and underdeveloped executive function skills, including self-regulation. Students must feel safe before we can mentor, before

we can teach them how to self-regulate, and before we can teach academic content. One way for us to do this in our classrooms is by posting the daily schedule so that all students know what their day will look like. We can also provide information about upcoming changes to the typical schedule. For example, when we know about a school assembly or if we will have a guest in our classroom, giving students prior notice allows them to process the information prior to the event, eliminating surprises as much as possible. This includes warning students about potentially dysregulating events, such as the loud, startling sound of the fire alarm when the school practices a fire drill. To support Johanna, we must establish safety and consistency, which will support her self-regulation and allow her to engage in learning activities.

## Summary

As the needs of students change, so must educational recommendations based on best practices. We know through research that Social and Emotional Learning has been found to support students in the classroom environment. We also know that Universal Design for Learning is beneficial for all students, including those identified as having learning difficulties. We have also learned in recent years about the impact of trauma, leading schools to pursue trauma-informed practices. However, as authors of this article, we could not find literature connecting SEL and UDL as trauma-informed approaches that can improve executive functioning. Trauma-informed approaches are methods and strategies that create a safe and inclusive environment for all students. Understanding that trauma has damaged the brain and that executive functions have been impaired, it is critical to design inclusive instruction that enhances executive function skills, including the social-emotional strand. Students impacted by trauma are often sitting in classrooms in a state of hypervigilance, scanning for any signs of danger. It is common for students to misread social interactions with peers, leading to fragmented relationships and isolation. SEL instruction can help students repair these relationships, fully join the classroom community, participate in group activities, and engage more fully in the academic environment. Teachers that use UDL honor student strengths by offering multiple means of action and expression and multiple means of engagement. The UDL principles are tightly aligned with SEL and develop executive function skills.

The needs of students and the complexities in classrooms continue to grow. To best serve our students and communities, it is clear that becoming knowledgeable about the impact of trauma and implementing SEL and UDL in our classrooms can support all learners. Our best practice recommendations



must align with current student needs and must result in inclusive classrooms. With the knowledge of the impact of trauma and an understanding of the students we serve, educators must re-assess and re-evaluate the traditional model of teaching in learning in schools, as it is not effective in meeting the needs of the overwhelming majority of students in today's K-12 classrooms (Berardi & Morton, 2019). Creating an inclusive environment requires practices that support emotional and social learning (McBrien, 2005) and executive skills. To transform our practice to UDL, we need to “identify and acknowledge all of the potential barriers that stand in the way of teaching and learning being universally accessible and engaging so that we can design environments, lessons, units, curricula, and learning experiences that ensure that all of the learners in our classrooms have authentic access despite ability and/or language” (Chardin & Novak, 2021, p. 9). UDL and SEL work together to support the diverse learning needs of students in classrooms, creating strong, inclusive environments.

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