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Using a Universal Design for Learning Framework to Enhance Engagement in the Early Childhood Classroom

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In order to meet the needs of young children, the National Association for the Education of Young Children (NAEYC) recommends teachers utilize developmentally appropriate practice, DAP. For young children with disabilities, teachers must also utilize the Division of Early Childhood (DEC) Recommended practices, evidence-based teaching practices aimed at enhancing learning outcomes for children and their families (DEC, 2014) that pair well with the NAEYC developmentally appropriate practices. Both NAEYC's DAP and DEC's Recommended Practices align with the concept of Universal Design for Learning (UDL). UDL is a framework for proactively addressing the needs of diverse and exceptional learners by ensuring all children have access to the curriculum. UDL includes the use of multiple means of engagement, multiple means of representation, and multiple means of expression. This article provides a brief overview of evidence-based UDL practices, with a specific focus on the use of engagement strategies for young children.

Keywords: early childhood, evidence-based instruction, preschool, Universal Design for Learning

In order to meet the needs of young children, the National Association for the Education of Young Children (NAEYC) recommends that teachers utilize developmentally appropriate practice, DAP (NAEYC, 2009) to meet the unique developmental and learning needs of preschool children. For preschoolers with disabilities, teachers must also utilize the Division of Early Childhood (DEC) Recommended Practices, which are

evidence-based teaching practices aimed at enhancing learning outcomes for young children and their families (DEC, 2014). The DEC Recommended Practices align with the NAEYC Developmentally Appropriate Practices. Both NAEYC's Developmentally Appropriate Practice (DAP) and DEC's Recommended Practices align with the concept of Universal Design for Learning (UDL). In 2009, NAEYC and DEC released a joint position statement that outlines a

common definition of early childhood inclusion; this definition explains that inclusion involves providing access to learning for all students through the use of UDL (DEC/NAEYC, 2009).

UDL is a framework for intentionally, proactively, and reflectively addressing the learning needs of diverse and exceptional learners in the classroom (CAST, 2018). UDL is designed to prepare children to become expert learners by ensuring the curriculum

is easily accessible to all. An expert learner is aware of his/her own learning needs and is able to seek out ways to ensure those needs are met. UDL includes the use of a variety of flexible curriculum and materials used to help students achieve challenging goals (Hitchcock, Meyer, Rose, & Jackson, 2002; Rose & Strangman, 2007; Rose, Gravel, & Domings, 2010). UDL includes strategies in three different learning networks as outlined in Table 1.

Table 1 *UDL Network*

UDL Principle	Network Name	Network Description	Evidence-Based
Multiple means of representation	Recognition	How students acquire curriculum content “the learning experience”	Glass, Meyer, & Rose, 2013; Rose & Strangman, 2007
Multiple means of expression	Strategic	How students demonstrate knowledge of curriculum	Glass, Meyer, & Rose, 2013; Meyer & Rose, 2005; National Center on Universal Design for Learning, 2014
Multiple means of engagement	Affective	Student motivation and engagement with curriculum	Glass, Meyer, & Rose, 2013; Rose & Strangman, 2007

The UDL framework is well aligned with NAEYC’s Developmentally Appropriate Practice (DAP) and with the DEC Recommended Practices. DAP is a framework for ensuring that early childhood classrooms are designed using evidence-based practices to meet the unique needs of children in a classroom. Within a DAP framework, teachers consider the developmental, cultural, and social-emotional needs of the children in the classroom when designing instruction. There are five guidelines for DAP: (a) creating a caring community of learners, (b) teaching to enhance development and learning, (c) planning curriculum to achieve

important goals, (d) assessing children’s development and learning, and (e) establishing reciprocal relationships with families (Copple & Bredekamp, 2008).

The DEC Recommended Practices are validated by stakeholders as being important for the development of preschool children (McLean, Snyder, Smith, & Sandall, 2002; Sandall, McClean, & Smith, 2000). There are seven practice topic areas that work together to address the overall learning and developmental needs of young children: (a) assessment, (b) environment, (c) family, (d) instruction, (e) interaction, (f) teaming and collaboration, and (g) transition (DEC, 2014). Within the DEC

Recommended Practices, UDL is specifically mentioned once in Environment Practice 2 (E2): Practitioners consider Universal Design for Learning Principles to create accessible environments (DEC, 2014). In addition to this explicit mention of UDL, the concepts outlined in the UDL framework are closely aligned with other DEC Recommended Practices aimed at increasing learner engagement in the early childhood classroom, as outlined in Figure 1. However, early childhood practitioners may be unsure of how to implement these practices. This article discusses several strategies for implementing a UDL framework and targeting child engagement within preschool classrooms serving children with and without disabilities.

Increasing Motivation and Engagement in the Preschool Classroom

It is critical for preschool teachers to pique the curiosity and motivation of young children; a UDL framework can aid teachers in accomplishing this through multiple means of engagement (Stockall, Dennis, & Miller, 2012). Based on current research literature on effective engagement strategies in the PK-12 classroom, we recommend a variety of strategies for motivating preschool learners. First, teachers should allow students to choose assignment format (Abell, Jung, & Taylor, 2011; Dalton & Proctor, 2007; Ralabate,

Currie-Rubin, Boucher, & Bartecchi, 2014). While preschool students do not complete traditional assignments, teachers should offer choices in activities, especially during free play and center time. Secondly, student motivation for learning is increased when children are responsible for self-monitoring both their own behaviors and learning and keeping track of their own understanding of key learning concepts (Dalton & Proctor, 2007; Ralabate et al., 2014; Rose et al., 2010). Thirdly, the literature identifies the benefits of problem-based learning (Abell et al., 2011; Can, Yildiz-Demirtas, & Altun, 2017; Hovey & Ferguson, 2014), which provides students with realistic opportunities to learn new concepts (Hovey & Ferguson, 2014; Scogin, Kruger, Jekkals, & Steinfeldt, 2017); this hands-on approach to learning leads to deeper conceptual understanding for preschool children (Can et al., 2017; Levy, 2013). Additionally, teachers should ensure that classrooms include learning materials that reflect both student cultures (Hudiburg, Mascher, Sagehorn, & Stidham, 2015; Schrodte, Fain & Hasty, 2015) and student interests (Andiema, 2016). Finally, the literature notes that student motivation is enhanced when teachers take the time to build relationships with students (Davis, 2003).

Engagement Strategy	Aligned DEC Recommended Practices	Aligned NAEYC DAP Guideline
Choice in assignment format (Dyer, Dunlap, & Winterling, 1990; Jolivet, Peck Stitche, Sibilsky, Scott, & Ridgley, 2002; Shogren, Faggella-Luby, Bae, & Wehmeyer,	<ul style="list-style-type: none"> • INS1. Practitioners, with the family, identify each child's strengths, preferences, and interests to engage the child in active learning. • INS4. Practitioners plan for and provide the level of 	<ul style="list-style-type: none"> • 2E2. Teachers present children with opportunities to make meaningful choices, especially in child-choice activity periods. They assist and guide children who are not yet able to enjoy and

2004	<p>support, accommodations, and adaptations needed for the child to access, participate, and learn within and across activities and routines.</p> <ul style="list-style-type: none"> • INS10. Practitioners implement the frequency, intensity, and duration of instruction needed to address the child's phase and pace of learning or the level of support needed by the family to achieve the child's outcomes or goals. 	<p>make good use of such periods.</p> <ul style="list-style-type: none"> • 2F1. To help children develop initiative, teachers encourage them to choose and plan their own learning activities.
Problem-based learning (Hovey & Ferguson, 2014; Scogin et al., 2017)	<ul style="list-style-type: none"> • INS8. Practitioners use peer-mediated intervention to teach skills and to promote child engagement and learning. 	<ul style="list-style-type: none"> • 2E1. Teachers arrange firsthand, meaningful experiences that are intellectually and creatively stimulating, invite exploration and investigation, and engage children's active sustained involvement. • 2F2. To stimulate children's thinking and extend their learning, teachers pose problems, ask questions, and make comments and suggestions. • 2F3. To extend the range of children's interests and the scope of their thought, teachers present novel experiences and introduce stimulating ideas, problems, experiences, or hypotheses.
Self-monitoring and self-evaluations (Perels, Merget-Kullman, Wende, Schmitz, & Buchbinder, 2009)	<ul style="list-style-type: none"> • A3. Practitioners use assessment materials and strategies that are appropriate for the child's age and level of development 	<ul style="list-style-type: none"> • 4F. In addition to this assessment by teachers, input from families as well as children's own evaluations of their work are part of the

	<p>and accommodate the child’s sensory, physical, communication, cultural, linguistic, social, and emotional characteristics.</p>	<p>program’s overall assessment strategy.</p>
<p>Classroom materials that reflect student culture (Gay, 2013)</p>	<ul style="list-style-type: none"> • F1. Practitioners build trusting and respectful partnerships with the family through interactions that are sensitive and responsive to cultural, linguistic, and socioeconomic diversity. 	<ul style="list-style-type: none"> • 1E4. Children hear and see their home language and culture reflected in the daily interactions and activities of the classroom. • 2J2. Teachers bring each child’s home culture and language into the shared culture of the learning community so that the unique contributions of that home culture and language can be recognized and valued by the other community members, and the child’s connection with family and home is supported.
<p>Classroom materials that reflect student interests (Ainley, 2006)</p>	<ul style="list-style-type: none"> • INS1. Practitioners, with the family, identify each child's strengths, preferences, and interests to engage the child in active learning. • INS13. Practitioners use coaching or consultation strategies with primary caregivers or other adults to facilitate positive adult-child interactions and instruction intentionally designed to promote child learning and development. 	<ul style="list-style-type: none"> • 2J1. Teachers incorporate a wide variety of experiences, materials and equipment, and teaching strategies to accommodate the range of children’s individual differences in development, skills and abilities, prior experiences, needs, and interests. • 3D2. Teachers plan curriculum experiences to draw on children’s own interests and introduce children to things likely to interest them, in recognition that developing and extending children’s interests is particularly important during the preschool years, when children’s ability to

		focus their attention is in its early stages.
Building relationships with students (Davis, 2003; Maulana, Opdenakker, & Bosker, 2014)	<ul style="list-style-type: none"> • F1. Practitioners build trusting and respectful partnerships with the family through interactions that are sensitive and responsive to cultural, linguistic, and socioeconomic diversity. 	<ul style="list-style-type: none"> • 2B1. Teachers establish positive, personal relationships with each child and with each child's family to better understand that child's individual needs, interests, and abilities and that family's goals, values, expectations, and childrearing practices.

Figure 1 *Engagement in Preschool & Alignment with DEC Practices and NAEYC Guidelines*

Choice in Assignment Format

Miss Suzie's preschool class is painting pictures for Mother's Day. Miss Suzie gives students the option to paint while standing at the easel or to paint while seated at the table. In addition, Miss Suzie provides a variety of paintbrushes and paint color choices. She also includes the option for finger painting, for children who are interesting in exploring the tactile feeling of paint. One child in her class, Jin, loves to play with vehicles. Miss Suzie includes a small bin of cars and trucks from the block area, and encourages Jin and his peers to run the wheels through the paint, as well. With the inclusion of several different painting tools (e.g. a variety of brushes, car and trucks, or the option of using their fingers), children are excited to begin the activity and remain engaged for some time.

Children enjoy being given choices and having some control over their own learning; by providing choices, teachers can increase children's motivation for participation in classroom activities and complying with directions (Jolivet, Peck Sticher, Sibilsky, Scott, & Ridgley, 2002). Furthermore, providing choice is a well-researched topic in the area of supporting

children with more significant disabilities or those who may engage in challenging behavior (Dyer, Dunlap, & Winterling, 1990; Shogren, Faggella-Luby, Bae, & Wehmeyer, 2004). It is important to note, however, that some children with disabilities are unsure of how to make appropriate choices; these children will need explicit instruction and guidance to learn the skills needed for appropriate choice making (Carta, 1995).

While preschool children do not complete "assignments" in the same sense that older students do, they are still engaged in meaningful activities and routines throughout the day where child choice can easily be embedded. As illustrated in the vignette above, the daily routines and activities in a preschool classroom provide opportunities for children to make many small choices throughout the day. Other simple choices that teachers can provide include the child selecting (a) pencil or marker for written work, (b) a specific center during free play time, (c) where to sit during circle time, (d) working alone or with a partner, (e) listening to the teacher read a book or listening to a book on tape, (f) using teddy bears or beans to practice counting and

grouping, and (g) writing or using a computer app for practicing handwriting.

Self-monitoring and Self-evaluations

Ms. Maria has just taught her students a lesson on counting to 10. Once the lesson is over, the children are given the option of going to the table to independently create cereal necklaces with 10 pieces of each kind of cereal, or staying at the learning table to complete the task with Ms. Maria’s assistance. The finished product will be the same, but students are provided the option to choose the level of support necessary for their own success. Some children move to other areas of the classroom to work on their necklaces independently, while others remain at the table with Ms. Maria. She is able to support a smaller group by continuing to model counting with one-to-one correspondence and providing feedback for children who need some extra support.

As mentioned in the previous section, young children should have some control over their own learning. As teachers, we can put students in control by teaching

them to monitor and evaluate their own learning and behavior. Even young children are able to do this successfully with proper support from teachers (Perels, Merget-Kullman, Wende, Schmitz, & Buchbinder, 2009). Ideas for doing this include (a) having a class-wide monitoring system, (b) having students check their answers against an answer key, (c) having students put their thumbs up or down to indicate whether they understand the concept, and (d) having students keep a log of their learning (example in Table 3). In the preschool classroom, previous studies have indicated that children can successfully self-monitor (a) their own on-task behavior (deHaas Warner, 1992; Kartal & Ozkan, 2015), (b) speech skills (Harper, 2000), and (c) social interactions (Shearer, Kohler, Buchan, & McCullough, 1996). The example in Figure 2 can be used to help students become more independent at self-care skills. The children would be asked to complete the self-evaluation each time they use the toilet.

Learning Goal	Do I understand it?	I would like teacher help	I can teach this to others
Getting to toilet on time	☺ ☹	☺ ☹	☺ ☹
Wiping after using the toilet	☺ ☹	☺ ☹	☺ ☹
Flushing the toilet	☺ ☹	☺ ☹	☺ ☹
Washing hands	☺ ☹	☺ ☹	☺ ☹
Throwing away paper towel	☺ ☹	☺ ☹	☺ ☹

Figure 2 *Self-care goals self-monitoring sheet*

Problem-based Learning

Mr. Steve has noticed that the table is always quite messy after snacks and lunch, with spills on the table and trash on the floor. He explains the problem to the class

during circle time and asks them to come up with a solution. The students work together and decide to create a “chore chart” for cleaning up the table. Students list the jobs required and each student selects a task to

complete, as Mr. Steve writes them on a white board. After school, he creates a visual of each chore (e.g. cleaning up the cups, disposing the napkins, etc.) and prints the class "chore chart" out. During snack, the children are excited to check off each step. Teachers notice the table is completely clean as they transition to the next activity.

Problem-based learning is an instructional method in which students identify a problem and use their knowledge and skills to design and implement a solution to the problem (Hovey & Ferguson, 2014; Scogin et al., 2017). Whenever possible, the specific problem should be personal to the students (Glynn & Winter, 2004). The vignette above describes a practical way to incorporate problem-based learning in the classroom; the teacher has identified a problem in the classroom and has asked the students to come up with a workable solution. Based on personal experiences and the research literature, the authors recommend a few ideas for using problem-based learning to increase students' conceptual understandings: (a) creating a system for ensuring toys are all cleaned up after center time, (b) teaching other classes about recycling, (c) building a water pipe system to better understand the physical concepts of water flow (Levy, 2013), and (d) growing plants in a school garden to sell at a Farmer's Market (Selmer, Rye, Malone, Fernandez, & Trebino, 2014). Problem-based learning can be especially useful for teaching science concepts (Can et al., 2017) but can also be used to explore social studies (Duke, Halvorson, & Strachan, 2016) and math (Selmer et al., 2014).

Classroom Materials that Reflect Student Culture

Mr. Mike's class includes students from various religious backgrounds. During the month of December, there are important

religious holidays for many of his students and Mr. Mike wants to acknowledge each one, so every Friday, his class celebrates with a special party. The first Friday is a Kwanzaa celebration, followed by Hanukkah the second Friday and Christmas during the third week. The families from each respective religion work together to plan the celebration and teach the class about their special traditions. There are several other families who will be celebrating Chinese New Year in February, and others celebrating Eid al-Fitr in June; these families will be coming in to lead celebrates with the class during those months.

Today's classroom is incredibly diverse with students from a variety of cultural and linguistic backgrounds. Culturally and linguistically diverse (CLD) students account for approximately 44% of students enrolled in U. S. public schools and dual language learners (DLL) are 21% of the K-12 population (National Center for Education Statistics, 2015). The percentage of DLL students is steadily increasing and by the year 2030, it is estimated that DLL students will comprise 40% of the student body (Guglielmi, 2008, Watkins & Lindahl, 2010). With diversity in mind, we recommend preschool teachers take a culturally responsive approach to teaching (Gay, 2013). As illustrated with Mr. Mike's class, teachers can enhance engagement of students by incorporating cultural activities into the curriculum. In addition to celebrating holidays, the authors recommend (a) classroom library books in a variety of languages, (b) posters and other classroom decorations that show aspects of the varying cultures represented in the classroom, (c) having parents teach the class about their culture, (d) asking students to share about their family traditions during circle time, and (e) encouraging DLL

students to teach the class a few words from their native language.

Classroom Materials that Reflect Student Interests

In Mrs. Janice's classroom, there are three little boys who are very interested in dinosaurs. During free play time, these boys almost always choose to play with the toy dinosaurs and often come to school wearing dinosaur t-shirts and carrying dinosaur lunch boxes. To capitalize on their interest, Mrs. Janice includes dinosaurs in her lessons – the class has been counting dinosaurs, assembling dinosaur art projects, playing with dinosaurs and sand in the sensory table, and listening to stories about dinosaurs during circle time and in the Listening Center.

Like Mrs. Janice, we can enhance student motivation for learning by connecting classroom activities to students' interests since students achieve more when they are interested in the learning (Ainley, 2006). Teacher can connect the classroom learning concepts to student interests in a variety of ways (a) including books on topics of interest to students in the classroom library, (b) having students' favorite activities available during free play time, (c) designing art projects that align with student interests, and (d) asking for student input into monthly learning themes.

Building Relationships with Students

When children walk into Mr. Marcus' classroom every morning, he greets them with a special "hello" that is just for them and is connected to their interests and hobbies. He makes an effort to learn basic greetings in families' home languages, and use those each morning, as well. When Johnny walks in the door, he gives him a fist bump and says, "Cowabunga, Dude." When Sally arrives a few minutes later, Mr.

Marcus spins her in a circle like a ballerina and says, "Good morning, Pretty Dancer."

It is critical for teachers to develop individual relationships with each student in the classroom (Davis, 2003) as those relationships lead to long-term motivation for student learning and participation in the classroom (Maulana, Opdenakker, & Bosker, 2014). Essentially, when preschool teachers take time to build relationships with students, it often has a lifelong impact on student motivation for learning. Teachers can build these relationships in a variety of ways, but we suggest the following activities: (a) greeting each student and parent as they arrive in the classroom, (b) knowing student likes and dislikes and having conversations with them about their interests, (c) asking students about their weekends, and (d) celebrating every birthday and other special days important to the students in the classroom.

Conclusion

In today's preschool classroom, teachers must meet a variety of learning needs, from children with a variety of cultural and linguistic backgrounds, while adhering to the guidelines outlined by NAYEC (n.d.) and DEC (2014). Doing so may seem daunting at first, but can be accomplished through the use of a UDL framework as outlined in this article. We recommend teachers provide choice in assignment format, use self-monitoring and self-evaluation for students to track learning, use problem-based learning projects, include learning materials that reflect both student cultures and student interests, and take the time to build relationships with each student in the classroom. By dedicating time to increasing student motivation for learning and class participation, student participation, engagement, access to materials, and

ultimately, learning, will be greatly enhanced.

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