



**UNIVERSAL DESIGN FOR
LEARNING IMPLEMENTATION
RESEARCH NETWORK**

**A BLUEPRINT FOR UDL:
CONSIDERING THE DESIGN OF IMPLEMENTATION**

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UNDERSTANDING UDL

The UDL framework is a collection of research findings from the learning sciences (e.g., education, educational psychology) and the brain sciences (e.g., cognitive science and neuroscience). Originally, it was organized into three main areas associated with the brain: the affective, recognition, and strategic networks (Rose & Meyer, 2002). Later, the three networks were renamed with educator-friendly terms that became known as the principles of UDL. For example, those pieces of learning related to emotion are linked to the affective networks. The researched practices related to those networks comprise the principle of Engagement. Learning that is related to how information is delivered to the student/learner is linked to the recognition networks. The researched practices related to those networks comprise the principle of Representation. And when students/learners are given the opportunity to manipulate information to demonstrate their comprehension, that action takes place within the strategic networks. The researched practices related to those networks comprise the principle of Action and Expression (Click here for the [UDL graphic organizer](#)).

As a framework, UDL is focused on supporting the variability of every learner. That is, it is clearly understood that while our collective brains function similarly, the actual networks that invoke what we delineate as understanding and actual learning are highly variable (Sporns, 2011). For instance, research based on simple tasks such as tapping a single finger have shown the significant difference in how different brains process that exact motion (Meyer & Rose, 2002). Additional research continues to clarify how differently each person's brain processes information. Defined as *variability*, these recognized differences point us toward designing more diversified opportunities for learning (Meyer, Rose, & Gordon, 2014). This variability comes to light when a teacher considers how to effectively engage and support learning for every learner. UDL is a framework that supports the design of a learning environment or classroom that both expects and accepts the variability of every learner. In addition, the framework emphasizes *context*. How the student emotionally connects to the topic, the setting, the mode of delivery, the person delivering the information, and how other learners can alter that student's acquisition of the information (Daley, Willett, & Fischer, 2014). Creating an environment where learners know they will be able to access and deliver information in a way that fits their momentary or constant needs allows them to approach learning in a more receptive state (Meyer, Rose, & Gordon, 2014).

With access to the necessary resources and supports, the person putting this framework and these research findings into action is the teacher. When teachers effectively implement UDL, their lesson and learning environment design choices awaken the affective, recognition, and strategic networks of students. This practice is carried out through a purposeful, iterative process very similar to the work of designers and engineers. In fact, after teachers have been implementing UDL for a while, they often talk about themselves as "learning engineers". They see themselves as a designer of solutions focused on overcoming barriers through a process of problem-solving and iterative design. As highlighted in Basham and Marino (2013), engineering



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design is an important concept to the implementation of UDL. Teachers who adopt UDL generally take on the engineering habits of mind that include: systems thinking, creativity, optimism, and attention to ethical considerations (Basham & Marino, 2013). When applied together, these habits and UDL drive the design and implementation of curriculum/instructional goals, instructional planning, the use of instructional methods, strategies, and materials, and progress monitoring that support all students. To achieve this level of support, though, often requires both systems level and teacher level change to be effectively and sustainably implemented. Some of these changes have been noted and are the basis of this document, or blueprint, for implementing UDL.

The first section of this blueprint offers a brief overview of the common misconceptions and realities of UDL. Next, the implementation stages model created by the National Implementation Research Network is introduced. Additionally, the characteristics associated with the roles of teacher, school and district, and state are examined relative to implementation. The paper concludes with ideas around families as a part of implementation and a brief discussion of a project recently led by CAST which supported the implementation of UDL across four districts.



IMPLEMENTING UDL

From a perspective of instructional practices, one way the process of implementing UDL can be broken down is into four critical elements. These include (1) The establishment of clear goals, (2) intentional planning for learner variability, (3), the use of flexible methods and materials, and (4) maintaining timely progress monitoring (IRN-UDL, 2011) (Click here for the [Critical Elements](#)).

As stated above, the UDL framework brings together and organizes researched practices and strategies. The framework is designed to emphasize the importance of planned options and purposeful access to learning opportunities. By using UDL, both options and access can be confidently built into the learning environment and into each day's lesson plan. Thus, the application of UDL into practice begins with lesson planning.

CLEAR GOALS

The genesis of any lesson plan is its goal. Constructed based on standards, which in most cases are the Common Core State Standards, the lesson goal is what guides the development of the lesson, the ensuing activities, and the related assessment(s). To activate the options and access emphasized within the UDL framework, the lesson goal must leave open the methods and materials used by the teacher and learners (Coyne, Pisha, Dalton, Zeph, & Smith, 2012). The lesson goal must also guide the lesson and students outcomes. Finally, the lesson goal must be understood by the students so they can articulate the outcomes they should reach at the end of that lesson.

INTENTIONAL PLANNING FOR LEARNER VARIABILITY

The heavy emphasis on options and access within the UDL framework are there to support learner variability. As cognitive and neuroscience continues to discover, the way individuals process information is more variable than we previously realized (Meyer, Rose, & Gordon, 2014). To limit the use of additional supports to students with IEPs, students who are English Language Learners, or those who are recognized as gifted and talented has become an outdated model. The UDL framework contains options teachers can build into their lessons and environments to attend to areas of variability such as: perceptual ability, language ability, background knowledge, cognitive strategies, and motivation (UDL-IRN, 2011). These are met through the planned and spontaneous use of methods and materials which maintain the rigor of the lesson.

FLEXIBLE METHODS AND MATERIALS

The flexible use of methods and materials can happen naturally when teachers use the UDL framework to plan their lessons and environment (Nelson, 2014). The framework consistently nudges them to consider options related to identified areas (e.g., recruiting interest, physical action, and comprehension), leading to the creation of opportunities which guide students to become resourceful, strategic, and purposeful learners. Students are also given the opportunity to demonstrate their knowledge in a variety of ways.



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TIMELY PROGRESS MONITORING

UDL guides us to respond to the variable nature of our students by providing multiple options and opportunities for them to demonstrate their knowledge. We want to assess the students' skills and knowledge frequently and pointedly through formative assessments so instruction can remain fluid and address mis-steps or inaccuracies. Summative assessments should also be varied in their design for variable learners. With the information that comes from these frequent assessments, teachers can reflect on how they are offering information, whether their students are grasping the information or skills, and what supports might need to be added in for future growth.



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COMMON MISCONCEPTIONS AND REALITIES OF UDL

Throughout education there are many misconceptions about UDL that lead it to be mischaracterized and sometimes criticized. This section provides a basic summary of some these misconceptions.

IT'S ABOUT TECHNOLOGY

Because UDL emphasizes flexible methods and materials, and technology seemingly provides that additional level of flexibility, some jump to the assumption that by using technology, teachers are automatically utilizing UDL. There are two falsehoods which underlie this assumption. First, technology is only as good as its defined use. Allowing a student to use a smartphone or tablet during class brings no value if its use is not directly linked to the goal of the lesson. The use of the technology must be purposeful; otherwise, the technology can become another barrier. Second, some technologies (primarily programs and applications) are marketed as having been designed either utilizing UDL or that they help a teacher implement UDL. While a technology that has been designed utilizing the UDL framework will likely provide more flexibility in comparison to similar products, it is how the technology is used that decides whether or not it supports the implementation of UDL. For example, the company Knovention develops its products utilizing UDL. They fully understand, though, that it is through the product's use that UDL truly comes to life. For example, one school system in Indiana implementing UDL has used a product created by Knovention and has seen positive outcomes at the high school level. It isn't the product alone that led to the outcomes; instead, they believe it is the combination of UDL and the product that led to the positive outcomes (Nelson, Arthur, Van Horn, Jensen & Garrity, 2010).

IT'S ONLY FOR KIDS WITH DISABILITIES.

Though the foundational ideas behind UDL came from CAST's work with students who had disabilities, CAST soon recognized that the supports they offered to students with disabilities would provide better access to learning for all students (CAST, 2012). From there, the idea continued to grow as they identified supporting research from the fields of education and brain science. Research, more specifically focused on brain research, continues to support the concept that we are highly variable in how we learn; the way we learn is as unique as a fingerprint (Meyer, Rose, & Gordon, 2013). To meet that variability, it is key that instructional leaders and learning engineers utilize the guidelines and checkpoints within the UDL framework to ensure all students have access to the information and are provided the opportunity to demonstrate their acquisition of that knowledge or skill.

IT IS AN INSTRUCTIONAL STRATEGY

An instructional strategy is a planned set of activities focused on producing a specific outcome. Teachers have strategies for supporting things such as comprehension, understanding concepts, as well as strategies for helping students learning vocabulary. In academic circles, we often hear "UDL is not an evidence-based strategy"; this is correct. UDL is not a strategy. UDL is a scientifically based framework, supported by both



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foundational and field-based evidence. Different from a strategy, as a framework, UDL guides the design of all aspects of the learning environment including curriculum, materials, instructional design, instruction, and assessment. So, while UDL is not a strategy, various strategies can be integrated into the design and implementation of a UDL-based learning environment.

IT'S WHAT GOOD TEACHERS ALREADY DO

Fellow educators, students, and parents celebrate good teachers, but there is no specific measurement that clearly identifies a good teacher. For example, the academic success of students is preferred, but there are teachers whose students do not achieve academically. However, some of those teachers provide an environment that supports positive social or emotional outcomes for students who typically struggle in those areas. Would the teachers whose students were not academically successful but were socially or emotionally successful be considered good teachers? Questions like these continue to be debated because there is no clear definition for a “good teacher.”

Instead of hinging success on the question of “good teaching,” educators can utilize the UDL framework. It guides the use of instructional strategies, resources, and tools, all of which can lead to strong student outcomes. The framework, though, must be used in its entirety to ensure the variable needs of all learners are being met. While every option mentioned within the framework will not be used in every lesson, these options can be quickly reviewed against the lesson goal, helping the teacher make quality instructional decisions.

IT'S THE SAME AS DIFFERENTIATION

Differentiation is an important component within any classroom. Acknowledging student needs and creating scaffolding around those needs is an unquestionable support. Differentiation effectively responds to the needs of students who have demonstrated an academic or emotional disconnect to the topic or skill being taught.

UDL is a framework that is used to design a lesson and learning environment. Using the options suggested within the framework, teachers can establish structures and supports to meet the variable learning needs of their students. The intent of UDL is to design, from the beginning, a lesson or learning environment that can be accessed by all students. There will be times, though, when the needs of all students are not met through the design of the lesson or learning environment. At these times, differentiation should be applied.

IT CAN ONLY BE DONE FOR SMALL GROUPS OF KIDS

The UDL framework was organized to support teachers in their design of lessons and learning environments. Its intent is to help teachers meet the variable needs of the learners within a designed environment. The number of learners within the environment is not emphasized nor is the type of classroom set up (whole class versus small groups); rather, the way activities are designed (e.g., the size of groups) should always reflect the lesson's goal.



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IT'S ONLY FOR CERTAIN TYPES OF TEACHERS

While UDL does not lend itself to a certain type of teacher, there are certain mindsets that enhance the implementation of UDL. First, teachers must intentionally design lessons and environments that support all students. This includes learners who are typically viewed as “in the margins” (Rose & Meyer, 2002). In most cases, these are students who have a diagnosed disability or are considered gifted and talented. Interestingly, research shows us that there is no average learner; there are no margins (Rose & Meyer, 1999). All learners are variable and learn best in an environment designed with that variability in mind. Thus, teachers truly become designers and engineers when implementing UDL. Second, teachers must reflect on why they are choosing particular strategies, resources, or tools as they relate to the UDL framework and the outcomes experienced by the students (Nelson, 2014). Third, the UDL framework encourages teachers to move beyond the style with which they are most comfortable (e.g., lecture) and incorporate additional learning designs (e.g., collaborative grouping) (Nelson, 2014).

IT'S FOR SPECIFIC SUBJECT AREAS

UDL is inherently designed for all subjects. It is a compilation of options to establish variable learning experiences for all students regardless of the topic. Some subjects may have been taught in certain ways by certain teachers, but the UDL framework (and the research behind it) provides the platform necessary to shatter the myths that hold those teachers to those teaching practices (Nelson, Arthur, Van Horn, Jensen, and Garrity, 2010).

IF I'M USING A “UDL PRODUCT” I'M DOING UDL

There are a variety of digital products on the market that state they either used UDL in the product's design or the product helps teachers implement UDL. In fact, the National Center on UDL links each checkpoint to information about digital products that can help a teacher implement UDL (<http://www.udlcenter.org/implementation/examples>, 2013). There is a disclaimer for this section, though, that also addresses this myth - even though a product is recognized as a tool that might support a particular checkpoint or guideline within the UDL framework, how that tool is used and whether it's used in conjunction with the lesson's goal determine whether it supports the implementation of UDL. The tool is just a tool; how that tool is utilized to engage learners, offer a different representation of information, or allow learners to express their knowledge is the path to UDL implementation.

THERE IS NO RESEARCH BEHIND IT

UDL is based on over 1,000 studies from the learning and brain sciences. This research ranges from direct classroom implementation studies to studies investigating the impact certain stimuli have on learning. While UDL has been examined as a structure to improve lesson design in relation to incorporated options and information access (Ayala, Brace & Stahl, 2012; Dalton & Smith, 2012; McGhie-Richmond and Sung, 2013;



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Spooner et. al, 2007) , a recent study demonstrated positive student outcomes linked to lessons and environments designed with UDL (Rappolt-Schlichtmann, Daley, Lim, Lapinski, Robinson, and Johnson, 2013). More studies like the latter are in process which will provide the field with additional guidance and information.



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UNDERSTANDING THE DIFFERENT ROLES WITHIN UDL IMPLEMENTATION

In moving toward implementation, UDL necessitates investment at different levels of the education system. The intent of this section is to provide a basic understanding of the characteristics associated with UDL within and across these different levels. Finally, the authors make initial recommendations for moving toward implementation within each of the levels.

UDL AND STAGES OF IMPLEMENTATION

UDL is a framework with significant depth. While there are structures like the Instructional Planning Process and the Critical Elements developed by the UDL-Implementation and Research Network which can offer support for teachers, schools, districts, and states can still find themselves in need of additional support during widespread implementation (Click here for the [Instructional Planning Process](#)). The implementation stages model created by the National Implementation Research Network (NIRN) offers a structure that is beneficial when investigating the widespread implementation of any system like UDL. The analysis of each stage can help schools, districts, and states investigate how they are utilizing particular structures and what functions are in place. In relation to UDL:

- The *Explore Stage* investigates current attitudes, system capacity, and needs related to those identified with the UDL framework and the Critical Elements which support or create barriers to the implementation of UDL.
- The *Prepare Stage* investigates the programs, initiatives, resources, and processes in place that relate to the UDL framework and the Critical Elements.
- The *Launch Stage* investigates the movement schools, districts, or states have taken in their adoption of the UDL framework and the Critical Elements as related to curriculum selection, development, assessment and resource selection, development, and assessment.
- The *Expand/Sustain Stage* investigates the monitoring and feedback systems related to instructional design, instructional delivery, and student outcomes.



WHAT DOES UDL MEAN FOR A TEACHER?

As within any educational practice, teachers are the lifeblood of implementation. Different from other top-down or prescriptive models within education, UDL is not something that can be sustainably done on the backs of teachers without providing some organizational support. While individual teachers can implement UDL without support, our work has demonstrated that this practice is not sustainable, effectively scaled, or consistently implemented. It is highly suggested, teachers interested in implementing UDL receive the support of building (and ideally district) leadership prior to and during implementation. Upon effective implementation of UDL the authors have recognized that teachers generally have the following characteristics:

- **Have a shared understanding of praxis.** (Click here to understand [praxis](#))
 - Are learner centered and realize the design of learning directly impacts learner outcomes.
 - Have a foundational understanding of UDL, instructional strategy and design, and instructional technology.
 - Have a foundational understanding of the neurocognitive process of learning.
 - Have an applied understanding of environmental design to support proactive behavior supports.
 - Support self-regulated and self-determined learning environments.
 - Have a recognized understanding of both their individual and distributed expertise (pedagogical, content, etc.) across the faculty that is utilized when designing and implementing a UDL-based learning environment.
 - Have a shared vision for what learning looks like and means within their school.
- **Are data-driven problem solvers, critical thinkers, and active designers.**
 - View instructional design and teaching as an iterative process influenced by learner variability and performance.
 - Are encouraged and given the authority as well as mental and physical tools to iteratively design for all learners.
 - Are able to actively move through the design process.
 - Recognize that they think differently about lesson design and may even talk about becoming engineers or designers of learning.
- **Are collaborators who actively communicate.**
 - Actively seek collaboration and actively communicate about what works as well as issues they are having within their learning environments.
 - Work together sharing unit/lesson ideas or developing solutions to found problems within a learning design.
 - Often design models of instruction that make use of both their individual as well as their colleagues' expertise. Examples of these models include: co-teaching, focusing on individual subject preferences in all grades, etc.
- **Are responsible for ALL learners.**
 - View all learners as their learners, regardless of their assigned classroom, performance levels, and label.
 - Are able to identify when something is not working and needs to be redesigned.
 - View themselves as having the knowledge and skills to be an active team member within greater context of the learning environment.



- Rely on their own work as well as the work of others to facilitate success for all learners within the environment.

SUGGESTIONS FOR TEACHERS TO MOVE TOWARD IMPLEMENTATION.

- Become familiar with the three principles of UDL and how they are defined.
- Become familiar with the four Critical Elements of UDL and how they present during a lesson.
- Become familiar with the guidelines, choosing one guideline at a time, and begin implementing them within your lessons.
- Become familiar with the 5-step Instructional Planning Process that makes use of backwards design.
- Connect with other teachers who are using UDL to plan lessons and structure the classroom.
- Perform resource mapping to identify personally owned and school owned resources.
- Take other action steps that move you toward the aforementioned characteristics.



WHAT DOES UDL MEAN FOR A SCHOOL AND A DISTRICT?

The implementation and sustainability of UDL at the classroom level is influenced by both school and district level support. The structures and supports put in place can aid teachers as they gain confidence in their implementation of UDL. Importantly, UDL is not another or separate layer within the complex puzzle of pre-existing and ever-changing school and district wide initiatives. In our experience, if it is viewed as another layer or within silo or simply something done during instruction, its implementation will provide for minimal success and sustainability. As a framework, UDL implementation should interweave with curriculum design, assessment, instructional technology, professional development, infrastructure development, and instructional resource procurement. Being a design framework, UDL easily integrates into initiatives such as Common Core, STEM education, differentiation, blended learning, and various other initiatives. The authors' work has shown that the following characteristics are associated with districts that have implemented UDL.

- **Shared understanding and support of praxis.**
 - Establish a common language around the implementation of UDL so new knowledge, the application of that new knowledge, and the thinking behind new ideas can be effectively shared across the school and/or district.
 - All personnel have a shared vision for what education is and most importantly what learning looks like and means across the school and district.
- **Centralized focus across the system.**
 - Establish a clear focus for instruction as it relates to UDL.
 - Share this vision with all district personnel as well as the community at large.
 - Establish 3-5 key outcomes that will clearly identify the implementation of UDL throughout the district.
 - Recognize the importance of UDL as a common design framework across other instructional and learning environment initiatives.
- **Connect instructional resources and technology infrastructure.**
 - View technology simply as another tool or resource for supporting teaching and learning.
 - Measure usefulness of resources or technology around the impact or potential impact on teaching and learning.
 - Continually investigate how resource/technology policy and infrastructure supports learner use and outcomes.
 - Continually investigate whether policy and infrastructure inadvertently create barriers to use and outcomes.
 - Continually investigate and clarify how the current technology infrastructure are relative to the needs of users and the learning environments.
 - Identify whether infrastructure provides opportunities for exploration around individualized technology, enhanced learning, or assistive technology options.
- **Establish instructional exchange.**
 - Establish a supported culture of idea and resource exchange among schools and teachers.
 - Provide mechanisms (such as digital portals), times for collaborative planning, or working professional development days to design UDL aligned instruction.
- **Empower teachers.**
 - By recognizing the role they play in information exchange and idea creation.



- By demonstrating that their voices are heard and responded to when implementing new programs, curricula, and ideas.
- By providing the flexibility necessary for their personal growth timetables.
- By encouraging teachers to innovate and iteratively design around barriers to learning.
- By providing training and support that models UDL.
- By providing timely feedback to support their growth in UDL implementation.
- By providing clear measurable evaluations that align with UDL.

SUGGESTIONS FOR MOVING TOWARD SCHOOL AND DISTRICT IMPLEMENTATION.

- **Contact known entities or individuals skilled in UDL implementation who are able to consult or support implementation initiatives.**
- **Designate individuals to lead implementation efforts.**
 - Measure potential willingness for UDL implementation within schools.
 - Establish a UDL point person or small team of early adopters at the building level.
 - Establish a UDL point person or small team at the district level.
- **Provide training and support for those individuals.**
 - Provide the UDL point person/small team with access to training and support specific to UDL implementation.
 - Provide instructional coaches for teachers moving through the process of implementation.
- **Connect those individuals with others in the field focused on UDL implementation.**
 - Establish time for school wide and district wide personnel to plan and share successes and challenges to UDL implementation.
 - Utilize existing digital platforms or establish a digital platform structured for resource development, resource sharing, and idea sharing.
- **Establish regular check-ins with designated individuals.**
 - Celebrate successes at school and district level.
 - Create a schedule for check-in's.
 - Define the purpose and steps involved in a check-in.
- **Identify instructional resources and technology.**
 - Conduct UDL building level surveys of instructional resources and technology infrastructure.
 - Identify potential design limitations and barriers to UDL implementation.
 - Catalogue district supported and currently utilized instructional resources.
 - Identify whether instructional resources are being used and how.
 - Investigate how the use of instructional resources relates to the UDL framework and whether some resources could be used differently to enhance learning.
 - Identify solutions to infrastructure limitations for supporting UDL implementation.
- **Defined strategies that fits the culture of individual schools.**
 - Clearly identify then define the culture of each school within the district.
 - Use that definition to design supports and a UDL implementation plan within each school. Plans should integrate measurable goals and behaviors for reaching these goals.
- **Define data collection and desired outcomes.**
 - Identify the purpose behind the data use
 - Investigate data based on purpose
 - Establish plan of action based on those data reports
 - Identify actual behaviors and support actions that move toward achieving desired outcomes.



WHAT DOES UDL MEAN FOR A STATE?

States that choose to support the implementation of UDL across their districts play a critical and influential role. By establishing a vision that asserts the value of UDL, states demonstrate an understanding that learner variability exists across all learners. While very few state education agencies have publically adopted UDL across all education practices, various state level agencies have implemented UDL in a number of state initiatives. In fact, a recent policy study by the National Center on UDL (2012) demonstrated that all 50 states had some level of UDL implementation. Some states have implemented UDL with other initiatives such as the Common Core, STEM education, and online education. Below are characteristics associated and potential suggestions for initial state level implementation of UDL.

- **Shared understanding and support of praxis across districts.**
 - Establish a common language around the implementation of UDL so new knowledge, the application of that new knowledge, and the thinking behind new ideas can be effectively shared.
- **Support statewide collaboratives/networks for UDL implementation and personnel preparation.**
 - Establish state level UDL implementation network or team comprised of district and building level personnel going through the implementation process.
 - Provide opportunities at state led conferences and meetings for districts involved in UDL implementation to network, share successes, and brainstorm solutions around challenges.
 - Provide a platform/utilize an existing platform specifically designed for networking to discuss UDL.
- **Movement toward using multiple means for expression to demonstrate success in meeting state learning standards.**
 - Explore opportunities to gather data on student success using a variety of measures including non-standardized examples.
- **Development of LEA focused support materials for implementing UDL.**
 - Provide examples and guidance documents to districts outlining suggested structures that should be in place for UDL implementation at the district level.
- **Alignment of infrastructure that provide leadership and oversight for technology, curriculum, and special education.**
 - Provide examples and guiding documents to districts on how to align technology and curriculum.
 - Provide examples and guiding documents to districts on how to align technology infrastructure and use with special education supports and services.
- **Empower district leadership to create innovative solutions and environments for meeting the needs of all students.**
 - Establish district leadership professional development as well as district level resources for implementation.
 - Create RFPs utilizing UDL as a framework for curriculum selection and/or instructional model implementation.



SUGGESTIONS FOR MOVING TOWARD STATE LEVEL IMPLEMENTATION.

- **Contact known entities or individuals skilled in UDL implementation who are able to consult or support implementation initiatives.**
- **Identify district-level leaders with a desire to implement UDL.**
 - Share introductory information about the state's approval of UDL as an instructional design.
 - Invite interested district leaders to contact a designated state employee.
- **Establish resources for supporting the statewide implementation of UDL.**
 - Adopt/develop tools such as UDL building infrastructure surveys to help schools and buildings in implementation.
 - Adopt/develop planning templates for schools/districts to develop UDL implementation plans.
 - Adopt/develop instructional walkthrough tools that support greater reflective practice and alignment to UDL.
 - Adopt/develop tools such as digital portals and resource exchanges for encouraging statewide implementation initiatives.
- **Provide networking opportunities for those individuals or individuals they choose.**
 - Establish regional hubs and consortia for facilitating implementation.
 - Establish regional demonstration schools to encourage implementation.
 - Establish meetings and/or conferences that provide district leaders involved in the implementation of UDL a time to share success and challenges.
 - Support the establishment of instructional support models such as instructional coaching and professional learning communities.
 - Encourage teams or schools of early adopters by providing establishing competitive grants that provide of time, resources, and supports.



HOW FAMILIES ARE PART OF UDL IMPLEMENTATION

As witnessed by the authors, schools and districts that adopt the UDL framework can also set the tone for increased positive interaction with families. By developing a learning culture that accepts and purposefully designs for variability, teachers and administrators can experience more positive interactions with parents and other community members. Overall, schools become a core structure within the community. An example could be a UDL based school night, where parents get to explore and understand how curriculum, strategies, and tools come together to support a truly engaging environment that's preparing their learners for the future. We have also seen that schools carry the notion of variability into thinking about families. For example, they develop family communications that considers things such as alternative languages and adult illiteracy and encourage teachers to use engaging activities such as video to communicate student achievement. Schools have adopted new family practices such as hosting "Parent and Community Technology Nights" where parents learn technology skills or learn how free technology tools can be used to support their busy daily lives. We have also seen schools open their doors on evenings and weekends to allow students more time to work on projects as well as provide family members a place to get online to hunt for jobs, prepare resumes, and learn to edit home videos.



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CONCLUSION

As UDL becomes more familiar to more educators across the world, some are recognizing the impact it can have on systems at the local and state levels. For example, a recent project at CAST funded by the Gates Family Foundation looked closely at the process of UDL implementation across four districts. This work, which included one of the authors, exemplified the complexity of educational systems but also the positives that can occur on behalf of students when professionals begin working with one another within a framework. UDL continues to provide the guidance these districts seek to ensure each student is provided with the educational opportunities necessary for success (see <http://www.udlcenter.org/implementation>).

This paper seeks to further the conversations around roles within UDL implementation. Just as UDL is built on the concept of variability, the authors recognize that each individual, setting, and structure involved with UDL implementation will vary; however, if global characteristics can be identified and researched, this could help more educational systems adopt UDL. Ultimately, the authors hope to support the momentum which continues to build around UDL implementation.



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