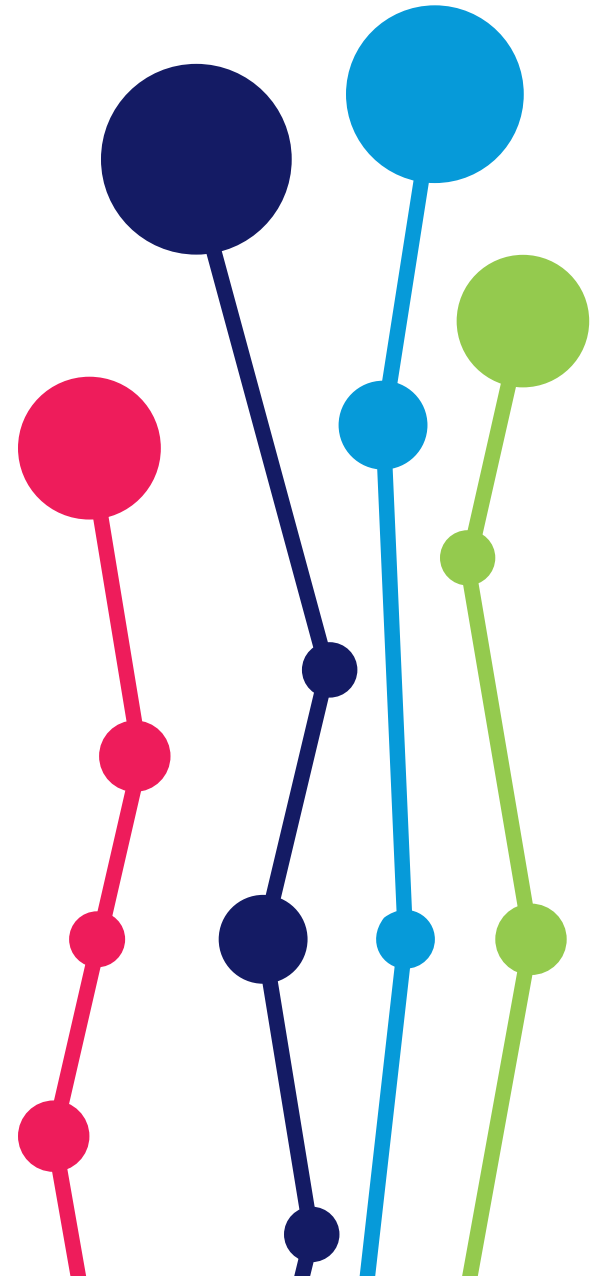


The Shifting Paradigm of Teaching

Personalized Learning According to Teachers

Contents

Introduction.....	3
Shifting the Paradigm of Teaching	6
Vision, Culture and Transparency in a Personalized Classroom	10
Personalized Learning in the Classroom: District Conditions Alignment	13
Curriculum	13
Instruction.....	14
Comprehensive Assessment System	16
Learning Environments	17
Student Supports	19
Professional Development.....	20
Leadership Development	21
Technology Policy.....	23
Comprehensive Data Systems	24
Partnerships.....	25
Conclusion.....	26
Endnotes and Acknowledgements.....	27



Introduction

Why Personalized Learning? As today's high schoolers graduate from high school and continue on to community college, a four year college, a certification program, or a new career, they will be preparing for a workplace that continues to change dramatically due to rapid advances in technology and innovation cycles. However, their schools remain largely the same, with teachers being the sole drivers of curriculum delivery and differentiated supports and interventions.

Even as workplace changes require adaptability and deep inter- and intrapersonal skills, the goal of education has continued to be the accumulation of content knowledge. Today's students cannot be prepared for the competitive jobs of the future if they do not actively participate in the creation of their own learning and build skills that will translate into the flexibility needed for success in the workforce. In today's economy, content knowledge alone is not the critical commodity. The true assets in today's workplaces also include the knowledge, skills, and dispositions to respond effectively to changes and to problem solve. Students entering this first phase of adulthood need to be able to communicate with clarity, be creative in their approach to problem-solving, understand how to find and utilize information, and motivate themselves to engage in work that will lead to the ability to thrive in an employment landscape that is constantly shifting.

The structure and expectations of the current education system make it nearly impossible for teachers to equip students with the knowledge, skills, and dispositions to be prepared for and continue to adapt to new employment opportunities. However, across the country, teachers, schools, and districts recognize that we cannot accept this as a continuing reality and have initiated fundamental shifts in their practice by personalizing instruction for each student. Personalized learning requires a different school and learning design than what exists in most traditional classrooms as well as a teacher-led paradigm shift for their profession.

In pursuit of this transformed system, in 2014, KnowledgeWorks conducted research for *District Conditions for Scale: A Practical Guide to Scaling Personalized Learning*,¹ including interviews with more than 30 district leaders to understand what was, and continues to be, foundational to the successful implementation of personalized learning. The final paper reflected the reality of district-level implementation and set the groundwork for recommendations to identify and remove policy barriers to personalized learning, published in KnowledgeWorks *A State Policy Framework for Personalized Learning*.²

In addition to aligning district and state policies to enable the scaling of personalized learning, the system must shift to support this new approach to teaching. To this end, the National Commission on Teaching and America's Future's (NCTAF) Great Teaching Initiative³ seeks to identify the systemic conditions that support great teaching; to create recommendations based on research; to bring light to the need for a shift to personalized learning; to align policy to the reality of classroom practice; and to encourage and model practices for states, districts, schools, and communities to implement to support learning that is personalized and relevant to each and every learner. To expand the reach of systems that place learners at the center, successful practices and their enabling factors should be shared to equip teachers and school and district leaders to begin the shift to personalized learning.

KnowledgeWorks and NCTAF believe that the most effective policies are informed by the experiences of professionals working in schools and school districts. In order to both explore what makes personalized learning successful and to share examples, our organizations have partnered to research how the shift to personalized learning impacts teachers and how classroom practice can align to district policy to ensure personalized learning for every student.

Personalized Learning

ALIGNMENT – CUSTOMIZATION – PACE – DATA – ACCESS

Personalized learning includes the following elements:

- **Instruction is aligned** to rigorous college- and career-ready standards and the social and emotional skills students need to be successful in college and career.
- **Instruction is customized**, allowing each student to design learning experiences aligned to his or her interests.
- The **pace of instruction is varied** based on individual student needs, allowing students to accelerate or take additional time based on their level of mastery.
- **Educators use data** from formative assessments and student feedback in real-time to differentiate instruction and provide robust supports and interventions so that every student remains on track to graduation.
- **Students and parents have access** to clear, transferable learning objectives and assessment results so they understand what is expected for mastery and advancement.



Methodology

To understand how classroom practice aligns to district and state personalized learning policies, KnowledgeWorks and NCTAF interviewed teachers, instructional coaches, and principals who lead personalized learning implementation in their communities across the country.

We began outreach to educators in August 2015 and narrowed the focus of our discussions to three topics:

- How has daily work changed as a result of personalized learning?
- What does and doesn't work in the classroom, and during planning time, when implementing personalized learning?
- How does classroom implementation align to the ten district conditions and to the meta themes from *District Conditions for Scale: A Practical Guide to Scaling Personalized Learning*?

This paper is the result of interviews with individuals from more than 30 schools in 19 districts across the country. Of the 77 people with whom we spoke, 48 are teachers currently implementing personalized learning in their classrooms, and the remaining 29 work closely with teachers to support their work.



48

teachers implementing
personalized learning
in their classrooms



30⁺

schools



19

districts

Structure of this Paper

The four sections of this paper include:

- 1 **An exploration of what drives teachers to implement personalized learning**, framing a paradigm shift for the teaching profession. In a system that, for so long, has valued standardized curriculum and instruction leading to standard outputs, the drivers support a collective understanding that teaching is moving from an industrial, standardized profession—transmitting knowledge and assigning meaning—to a profession allowing students to pursue knowledge and make meaning based on their individual contexts and needs.
- 2 **Reflections from three teachers** on how the three meta themes from *District Conditions for Scale: A Practical Guide to Scaling Personalized Learning*—vision, culture, and transparency—have impacted personalized learning implementation in their contexts.
- 3 **Alignment of the findings** from teacher interviews with the ten conditions to illustrate how those conditions play out uniquely in the classroom. While the interviews were not explicitly framed around the district conditions, the conditions provide context to the successes and challenges inherent in the shift to personalized learning. The definitions and descriptions of the conditions are based on the research done for *District Conditions for Scale: A Practical Guide to Scaling Personalized Learning*.
- 4 **Excerpts from the interviews with educators**. Throughout the paper, we've included pieces of our conversations with educators. While these accurately reflect the ideas of those we interviewed, they are not direct quotes.

Shifting the Paradigm of Teaching

In order to allow teachers to deepen their personalized learning practice and to scale personalized learning across schools and districts, the foundation of the teaching profession must shift from practice-based to knowledge-based.

Traditional, practice-based education—often referred to as the industrial or factory model—values standardizing inputs for standardized outputs from which students are sorted into careers. In today’s workforce, where a high school diploma alone is no guarantee of a sustaining income, standardized inputs no longer provide the necessary knowledge, skills, and dispositions for career success. Instead, students need support tailored to their individual strengths, needs, and interests so that they are able to gain those knowledge, skills, and dispositions that are vital for future stability. When the work of teachers is knowledge-based, they can move from being constrained by curricular materials and pacing guides to making use of their critical thinking, problem solving skills, and creativity to effectively meet each student’s needs.

Aligned with the findings in NCTAF’s recent paper, *How Deeper Learning Can Create a New Vision for Teaching*,⁴ in a personalized learning environment, teachers are no longer the keepers of knowledge, basing instruction on standardized curriculum at one level. Instead, a teacher’s role is to manage the resources and supports that students need, when they need them, in order to reach mastery. In personalized learning classrooms, teachers adjust instruction daily—sometimes even more frequently—based on identified individual needs instead of creating highly structured lesson plans days in advance.

This sort of classroom environment requires a shift in student and teacher roles. A student’s responsibility becomes understanding progress towards mastery and using existing and new resources

to reach mastery. Teachers must facilitate the transition to student ownership through projects and activities that help students understand and assess metacognitive skills, standards, and learning targets. They also guide students to the appropriate resources and continually monitor and respond to students’ data.

This new approach to instruction provides students with the skills to select how to apply what they have learned across different content areas. For teachers to provide this type of instruction to students, school and district leaders must create a culture that promotes innovation, allowing teachers to try new things and take risks.

To effectively implement personalized learning, school leaders should recognize classroom leaders who are eager to undertake the fundamental shifts in instruction and give them the opportunity to lead the transition. The interviews illuminated that while all teachers should be given support to create personalized learning environments, it may not be the right fit for all teachers. School leaders must be intentional when choosing a personalized learning team for their school by recruiting teachers inclined towards personalized learning and nurturing collaboration.

“[My students] had minimal expectations of what school was ‘supposed to be.’ This afforded me the opportunity to build the culture that I wanted from scratch and share my vision of what school ‘should be about,’ the notion of students in the driver’s seat of their own learning.”

Natalie Matthews, Charlotte-Mecklenburg Schools

As the teachers interviewed described the shifts in their practice that create the new paradigm of teaching, several drivers emerged. These drivers demonstrate the specific actions that allow for this paradigm shift and that enable the implementation and scaling of personalized learning. They include:

- Leaders provide clear expectations and parameters.
- Teachers lead implementation.
- Success depends on continuous improvement mindsets.
- Schools adapt best practices to their own context.

While each driver has its own distinct value in personalized learning implementation, they should all align to enable teachers to be successful in a transition to personalized learning. The four drivers create an environment in which teachers are able to thrive in the new paradigm of teaching.

Leaders provide clear expectations and parameters

According to many teachers interviewed, effective implementation of personalized learning depends on leaders committing to a vision of personalized learning and setting clear expectations and parameters, while allowing teachers flexibility in how to meet those expectations. Although our research showed that this level of alignment is not required for personalized learning practices to thrive in a classroom, alignment with a district's personalized learning vision is essential for scaling personalized learning beyond a classroom or school pilot.

When leaders provide high-level parameters, teachers have the space to innovate and use their professional judgment to best meet their students' needs. Parameters provide flexibility on the how—selected instructional strategies, resources available to students, use of technology, etc.—and clarity on the what—student-centered instruction, student choice and voice, progression based on mastery, etc. In many interviews, teachers

asserted that changes of this magnitude require that school teams take any action, however small, to move towards personalized learning, allowing for a grassroots, not top-down, shift. Several educators repeated that in their experience, the mindset shift may only follow initial action. This shift for teachers allows the flexibility to work with students as individuals, collaborating on the best way to demonstrate mastery. Consequently, the culture of operating with flexibility, within parameters, applies to students' roles in their classrooms as well as teachers' roles. Students are expected to meet standards with resources available to them and are allowed the flexibility to create their paths towards mastery.

Interview Excerpt

It's harder to shift the mindset than the practice. You have to believe it will happen. Look for pockets where it's working and help people develop strategies to use. See progress then use it throughout the system to show we can and are doing it. Then systematize the practice. We're still on a path. We're seeing great results I've never seen before. We know the structure and framework that makes it successful, and we're diving into what has had the greatest impact.

“Project-based learning for many teachers and school leaders is a fundamental shift in actions. It takes time, especially in the beginning, for teachers to figure out how it will look in their classrooms.”

Ashley Winnen, Eagle County School District

Teachers lead implementation

More than any other level of the school system, teachers must take the lead to implement personalized learning in their classrooms. In many cases, teacher leaders' passion for the transformation that results from personalized learning attracts fellow teachers—even those who initially were more resistant to change—to apply student-centered elements to their classrooms. Several teachers involved in the research for this paper credited the success of personalized learning in their district to the fact that they were empowered by school and district leaders. Empowerment requires districts and school leaders to trust teachers to use their skills and judgment in responding to data, to ensure transparency at all levels of the system, and to guide teachers' improvement. As a result of this trust and transparency, data-driven, classroom-level decision-making becomes the norm.

Pushing instructional decision-making close to the student allows the role of school leaders to shift from ensuring compliance to giving support. A principal's primary job becomes working with teachers to identify and remove barriers to this new style of teaching and learning, advocating for teachers to district administration, and providing targeted professional development and coaching to support teachers and enhance their performance. Empowering teachers to lead their classrooms and reducing top-down implementation provides an opportunity for classroom-level changes to spread and enables school- and district-wide shifts in teaching and learning.

“In the early stages of implementing personalized learning it was important that I knew it was ok if an idea failed as long as I was taking steps to move forward in personalizing students' learning. The administration at my school built a culture in which teachers felt comfortable trying new things without fear of failure.”

Natalie Matthews, Charlotte-Mecklenburg Schools

Interview Excerpt

As the school leader, it's hard to expect a teacher to implement personalized learning if I'm not aligned with teachers in the building. I need to know them as individuals. My teachers work very hard in this setting to do the best they can do for our students. Because of that, I want to know about them personally, what's going on, how I can help, who's being given trouble. I don't want there to be distractions to the work they're here to do. They don't have to worry a whole lot about disruptions in the classroom: we handle them. They don't have to worry about not having resources. They don't have to worry about not being able to find real world application.

Success depends on continuous improvement mindsets

Teachers participating in the interviews underscored the reality that shifting from a traditional to a personalized learning environment is hard work. There will be fits and starts, good times and bad, failures and successes. In many cases, districts' goals around personalized learning are far removed from the reality of classrooms and will take a significant amount of time to reach. Aligned with the parameters, flexibility, and support set by school and district leaders, teachers—and the school community as a whole—must shift to a continuous improvement mindset that allows risk taking and making mistakes to learn and improve.

A culture of continuous improvement requires teachers to regularly monitor data. Data collection should lead to reflecting and sharing results across grades and content areas to better understand what works and what needs improvement. This type of collaboration is especially important when teachers approach personalized learning with different levels of understanding and aversion to risk. A collaborative culture of continuous improvement allows more risk-averse teachers to move at their

own pace while empowering teacher leaders to encourage and to hold their colleagues accountable for adjusting their practice to fit a more personalized environment.

Continuous improvement is also valuable for other members of the education community. School and district leaders should use school-wide and district-wide data to drive decisions and create opportunities for accepting and implementing feedback. Additionally, in a classroom that values continuous improvement, teachers support students to work through mistakes using temporary failure as an opportunity to reflect and make improvements.

Schools adapt best practices to their own context

Transitioning from a traditional education system to a system focused on the needs of each student is difficult work, and this transition cannot happen without accepting and working through the challenge. The very act of participating in this struggle builds the commitment of teachers who are so passionate about personalized learning. One teacher said in an interview that recreating the wheel can actually be beneficial. As individual schools work to put their own stamp on their personalized learning environments, schools and classrooms might look different from one another. There are many different “hows” that can be used to achieve the “whats” as teachers align personalized learning with their local contexts.

In many cases, teachers spend independent time researching best practices in preparation for delivering personalized instruction. Teachers then collaborate to create a locally-relevant version of personalized learning that considers the resources they have at their disposal. In addition to the individual research and school-wide collaboration, teachers also work with parent advocates, business and community partners, and other advisory groups to create a system that meets the needs of the greater community.

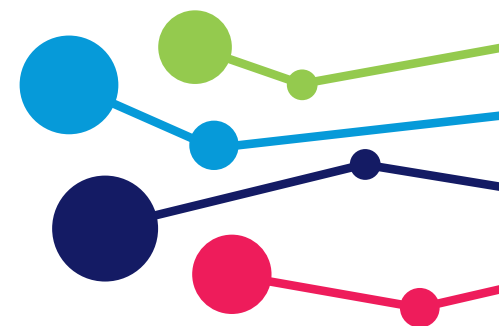
Finally, in order to support the shift to personalized learning, teachers benefit greatly from working with school leadership and administrators to create personalized professional development. This personalized professional development is aligned to the school’s priorities and addresses individual needs and interests of the teachers.

Interview Excerpt

Children are flexible. They adapted to the environment. They’re part of the collaboration. What do they need to be successful? What do they want to see in the classroom? They became part of the learning environment. They know they helped create the space.

“Transparency is key. We need to not only educate the youth that come into our classrooms each and every day, but we also need to educate the families, communities, and district partnerships tied to the school. True growth and success in education requires a relationship built with a solid foundation of mutual support, trust, and collaboration. This happens best when classrooms are opened up, shared, and celebrated.”

Angela Patterson, Elmbrook School District



Vision, Culture and Transparency in a Personalized Classroom

The overall premise of shifting the teaching profession from a practice-based to a knowledge-based profession and the four drivers align closely with the meta themes identified in *District Conditions for Scale: A Practical Guide to Scaling Personalized Learning*. These meta themes include creating a district-wide vision for personalized teaching and learning, establishing a culture of innovation, and ensuring transparency at all levels of the system. Based on the research conducted for this publication, the meta themes and the drivers both must be present for educators to collaboratively build a successful personalized learning system.

After the interviews were conducted, to explore how the meta themes enable the drivers to create a shift to personalized learning, we asked three teachers to discuss how vision, culture, and transparency took form in their classrooms and shaped their work with students, parents, and other educators. During the interviews with these teachers, it was clear that vision, culture, and transparency were underlying factors leading to success. The following three profiles were written directly by teachers reflecting on their practice.

VISION

From my experiences, having a school (or district) vision that supports project-based learning strengthens the practice. Project-based learning for many teachers and school leaders is a fundamental shift in actions. It takes time, especially in the beginning, for teachers to figure out how it will look in their classrooms. One of the most important pieces is to allow teachers the opportunity to support each other through conversations, feedback, and reflection. When I worked at a school without a project-based learning vision, there were only a handful of teachers using the practice. While we would support each other, I felt isolated. I didn't always have the opportunity to speak to those teachers and have the conversations I professionally craved to help me create my ideal learning situations for my students. Now, teaching in a school where the vision of project-based learning

*is reinforced by the actions of the school leadership team, I feel professional development, student expectations, and grading practices are clear and aligned. In this environment, where all teachers practice project-based learning, I find we speak a common language that has allowed me to be more creative and productive. It is motivating to work with teachers who share the same beliefs, and that energy helps sustain the practice. Project-based learning can take a lot of energy from the teachers—it can be a drain or it can reignite a passion for teaching. **In my opinion, when school leaders create a vision of a project-based learning program, the process will continue to inspire teachers to create valuable learning opportunities for students.***

Ashley N. Winnen, Eagle County School District

CULTURE

*In implementing personalized learning, I quickly learned the significance of culture. **The classroom culture is important, but I found that sustained success with personalized learning for my students stemmed from the condition of the school culture.** My administrators built a strong school culture, one in which the mindset of first doing what's best for kids and second with the mindset that failure is okay. They rooted this from all stakeholders having a growth mindset. In the early stages of implementing personalized learning, it was important that I knew it was okay if an idea failed as long as I was taking steps to move forward in personalizing students' learning. The administration at my school built a culture in which teachers felt comfortable trying new things without fear of failure. The school culture built by my administration, where teachers felt comfortable trying new things without fear of failure, trickled down to the individual classroom level. Here it was my job to envision how personalized learning, this shift in my approach to teaching and learning, would be successful in my kindergarten classroom. After the school wide culture was built, it made its way down into the classroom.*

Implementing this culture shift became my top priority for student ownership and success. I wanted to create the same learning experience for my students that I felt when I first began exploring personalized learning. From the beginning, I communicated with my students that we were in this together and that we were going to try a lot of new things this year. I explained to them that if it didn't work, that's fine we would continue to change and adapt it

*until we got it just right. I was at a bit of advantage compared to other teachers for the fact of I teach kindergarten, and the majority of my students have never been in a school environment, so they had minimal expectations of what school was "supposed to be". This afforded me the opportunity to build the culture that I wanted from scratch and share my vision of what school "should be about," the notion of students in the driver's seat of their own learning. I was able to share these ideas around what we learn, how we learn, and why we are learning it through Morning Meetings. Each morning we sit together on the carpet and have conversations that revolve around the importance of how we are becoming lifelong learners and how everyone learns at a different pace. We talk about how to be good people, what makes people unique, and everything between. This first 30 minutes of every school day was vital to our success in building a strong classroom climate that allowed the teaching and learning in my classroom to be truly personal to each and every student. **Without building this culture, together with my students, they would have continued to be afraid to fail, they will not want to take risks, and students will continue to believe that all students should be doing the same assignments at the same time.** By building a strong classroom culture my students now feel comfortable working on different assignments, they feel comfortable talking about what they are working on and why and have started developing a growth mindset within them at the early age of five. This strong classroom culture has undoubtedly been a major contributing factor to the success of personalized learning.*

Natalie Matthews, Charlotte-Mecklenburg Schools

TRANSPARENCY

Historically, teachers have been somewhat isolated in their own classrooms. Shielded from the rest of the building, and even sometimes the outside world, by four walls and a door. The personalized learning movement has changed the way that we think about communication, both inside and outside the classroom.

Literal and figurative walls are being removed, letting in the outside world in new and amazing ways.

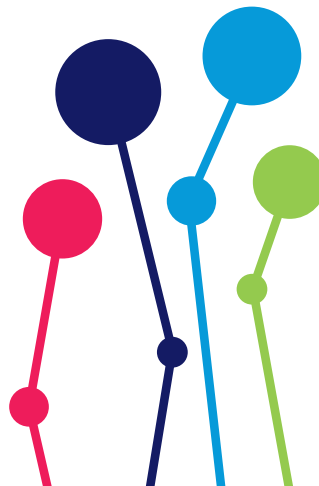
Personalized learning is not the same “status quo” of education that many of our current stakeholders are familiar with. Due to this, transparency is key. We need to not only educate the youth that come into our classrooms each and every day, but we also need to educate the families, communities, and district partnerships tied to the school. True growth and success in education requires a relationship built with a solid foundation of mutual support, trust, and collaboration. This happens best when classrooms are opened up, shared, and celebrated.

Five years ago, many teachers would have felt uncomfortable knowing that “outsiders” would be observing in their classroom environments, engaging with students, or watching their

instructional practices. In our district, it has become the new “normal.” So much so, that teachers and students are eager to share and explain what they are working on. These types of practices have opened up the world of education in a way it has not been exposed to before. Teachers are not just attending professional development sessions to be “spoken at” but are instead receiving far more powerful, authentic learning from each other. With the increase in social media, open door policies, and other technology use, families also have a much clearer picture of what their students are doing day in and day out. It is changing the dinner table conversation from “What did you do today” to “I saw you were working on....tell me more about that.”

Transparency has helped to solidify the commitment to student-first environments. *It ensures that each child in our school was truly “our student,” not just mine, yours, or theirs.*

Angela Patterson, Elmbrook School District



Personalized Learning in the Classroom: District Conditions Alignment

CURRICULUM

Curriculum must be aligned to the district’s vision for teaching and learning and should be reviewed regularly to ensure alignment. The standards and learning targets contained in the curriculum should be consistent and easily understood for every student, although the ways in which students meet those standards may differ in order to provide a personalized learning experience for each student. These multiple pathways to meeting standards should be informed by real-time data on student performance and engagement, students’ learning styles and interests, and the goals of the student and parents.

Examining the Condition

Interviews for *District Conditions for Scale: A Practical Guide to Scaling Personalized Learning* made it clear that a vibrant, engaging, student-centered curriculum is the foundation for scaling personalized learning at the district level. According to teachers, a curriculum centered on student needs is critical to the success of personalized learning in the classroom. For districts and classrooms transitioning to personalized learning, curriculum must be developed in collaboration with teachers and be flexible enough to allow teachers to make adjustments informed by actual student needs. Off the shelf, one-size-fits-all curriculum does not drive the districts and schools highlighted in this paper. In fact,

teachers interviewed reported that when shifting to personalized learning, they adapt their curriculum on a daily basis to ensure that student needs are met in real-time. Additionally, the curriculum must include rigorous, standards-aligned core academic subject matter as well as a wider set of learner dispositions. These dispositions have been called many things, from 21st Century Skills to Deeper Learning Skills to the 4C’s (critical thinking, communication, collaboration, and creativity). Regardless of the preferred lexicon, the fact remains that these dispositions are desirable for graduates and essential for success in a global, interconnected world.

Interview Excerpt

We have standards to hold students to, so we mapped out pathways for each quarter. By the end of the quarter, students have to be introduced to the material, but they can still work on earlier content. We have individualized playlists. In each playlist, there are assessment pieces and different playlists for each standard.

Implementing the Condition

In a personalized learning classroom, teachers bring the curriculum and aligned tools to life for their students. According to our interviews with teachers, the curriculum must be grounded in a personalized learning vision aligned at the school and district levels, and it must be flexible enough to meet the changing

needs of students. With a personalized approach, teachers are surrounded by data and must be able to identify what data to closely analyze and organize around. As a result, teachers are better able to develop, review, and adjust curricular materials in response to the real-time needs of their students. In a personalized system, teachers work with students to shape the curriculum, by identifying the path to mastery in the appropriate order with a focus on building both knowledge and skills. While there is no negotiation around which standards students need to meet, they are allowed flexibility—around time and demonstration of mastery—in how they engage with the curriculum, and students’ voices are involved in creating individual learning pathways.

Examples

- At **Boston Day and Evening Academy** in Boston Public Schools, teachers collaborate to develop courses tailored around a target set of benchmarks with spiraling curriculum that revisits core competencies. This foundation allows teachers and students to be creative and free to explore multiple pathways toward mastery.
- A school in **Eagle County Schools** in Colorado teaches character skills as a critical component to student proficiency within their traditional core courses. This commitment to infusing social-emotional skills into the curriculum equips students to excel on their way toward graduation and in college and career.

INSTRUCTION

Instructional practices must be aligned with the district’s vision for teaching and learning. Instruction should be focused on teaching students how to learn, shifting from a teacher-led to student-led model incorporating differentiated instruction (direct instruction, mastery learning, blended and project-based learning, flipped models, etc.). Finally, instruction should be rigorous and relevant to students’ needs and interests and progression should be based on mastery, avoiding the “mile-wide, inch-deep” phenomenon.

Examining the Condition

Aligned with a flexible student-centered curriculum, instruction is the application of curriculum that allows for student learning and performance. Instruction can include a number of practices aligned with personalized learning, including project-based learning, problem-based learning, inquiry-based learning, blended and online learning, and other experiential modalities, and often aligns with some use of traditional approaches like direct instruction or collaborative learning. Students’ needs and interests inform the planning and the implementation of learning activities, which are tailored to an appropriate rigor for students at various levels. A key component of instruction in a personalized learning environment is that instructional decisions are pushed to the classroom level, giving teachers autonomy over how to lead their students to mastery. By empowering teachers to make classroom-level instructional decisions, the district allows teachers to develop paths toward mastery that best fit the needs of their students and align to the broad vision for personalized learning.

Implementing the Condition

In a personalized learning environment, teachers have completely transformed instruction with a tremendous amount of focus, discipline, commitment, and support. In interviews, teachers consistently described the nature of their work as having shifted from being the “sage on the stage” to being the “guide on the side.” Teachers are not committed to one instructional style or approach. To meet the needs of all students, they must be flexible and offer variety. In fact, teachers often provide students with choices in how to achieve mastery. In some interviews, teachers said that student interests informed instructional practices to the extent that they drove the progression of units, with a focus on rigor and building deep knowledge. For example, two classrooms in the same grade in the same school could be working on a theme focused on the ecology of the rainforest, and one class may frame learning around how deforestation impacts animals while another may frame their learning on how animals have adapted to fit their ecosystem, demonstrating that instruction in a personalized learning classroom values student voice and rigor. In order to accomplish the massive shift this requires, teachers used a number of strategies, including co-teaching, grouping students based on need and interest, and relying on technology tools. Many teachers added that they haven’t yet found a perfect solution to make this sustainable, but they hope that collaboration and up-front time investment will pay off over time.

Interview Excerpt

There’s a lot in the traditional school that pulls you towards traditional practices, especially with a new teacher with so many kids and new content. It took me a few years before I was able to fully incorporate beyond just pockets. I observed other teachers one day for ideas since I didn’t have an education like that myself.

Examples

- **Pewaukee School District** in Wisconsin focuses on an instructional strategy that fuses standards-based grading and the inquiry process with students. Teachers support students to be drivers of their learning, investigation, and problem-solving through inquiry-based instructional practices. The standards-based—also known as mastery-based or competency-based—grading system is designed to enable students to build greater depth in their knowledge and skills. It also allows teachers to focus on precisely where students need supports and interventions to drive student learning and close achievement gaps.
- In the **Elmbrook School District**, also in Wisconsin, collaboration is a critical focus, both for students and educators, and is the foundation to instruction, equipping teachers to provide focused and aligned support for students as they drive their own investigations and move towards mastery.

COMPREHENSIVE ASSESSMENT SYSTEM

Each district should implement a comprehensive assessment system that is aligned with the district's vision for teaching and learning. Assessments should include formative, interim, and summative assessments. Instant feedback from ongoing embedded assessments—including, but not limited to, portfolios, capstone projects, performance-based assessments, curriculum-embedded assessments—should be used to monitor student progress and adjust day-to-day learning activities. Summative assessments should be offered multiple times a year, when students are ready to take the exam, and students should have multiple opportunities to show mastery of the assessment.

Examining the Condition

Recent discussion in our country has centered on the quality and quantity of assessments that our students take every year. Districts that are actively scaling personalized learning seek to implement a comprehensive assessment system that supports and drives student learning. By aligning an assessment system to a personalized learning vision, teachers are able to use assessment data strategically to support student learning. Federally required summative assessments serve an important role in determining the achievement level of learners and providing disaggregated subgroup data to create transparency around learning outcomes for individual populations of students, but they should be supplemented with locally relevant formative and interim assessments. A comprehensive assessment system also provides an opportunity to elevate social-emotional skills by including them in a system that is aligned to curriculum and instruction.

Interview Excerpt

After an assessment, students chart growth and set their own learning goal, what they will do to accomplish their goal, and what they need teachers to do. We've seen really good success with students setting their own goals because they're owning the growth. That takes the pressure off us as teachers because students are driving success.

Implementing the Condition

Although few interviews conducted for this paper directly referenced comprehensive assessment systems, many of the ideas that emerged from the interviews align directly to the value of assessment, whether formal or informal. All teachers emphasized that collecting and responding to data is central to personalizing instruction for their students. Teachers in a personalized environment must be comfortable with frequent, embedded student assessments that are closely aligned to instruction so that results can quickly translate into supports for students. In a system where the purpose of assessments is often unclear, connecting assessments and communicating the relevance of each one deepens understanding for parents and students. While end-of-year summative assessments can often be perceived as a threat to teachers and students, many teachers said that school and district leaders often serve as buffers by supporting classrooms that are committed to authentic personalized learning and de-emphasizing the punitive element of test scores and evaluation scores. In many of these classrooms, even though teachers now use embedded, formative assessments to drive instruction, instead of focusing solely on annual state-wide assessments, students perform better on these standardized, summative tests. Teachers prioritize formative, embedded assessments that support students as they achieve mastery, helping build and develop confidence and learner dispositions.

Examples

- Some teachers in **Janesville School District** in Wisconsin seek to make testing a positive experience by emphasizing the demonstration of acquired knowledge and mastery rather than the apparent punitive nature of some assessment systems. State evidence shows that this focus has paid dividends on both standardized summative assessments and teacher evaluations.
- In Ohio, **Marysville Early College High School** focuses on building a comprehensive assessment system that prioritizes measuring quality, not quantity of time tested.

LEARNING ENVIRONMENTS

Districts should cultivate learning environments, both inside and outside the school walls, that support high expectations for all students while fostering a culture of trust, support, equity, and inclusiveness. Continuous improvement should be embedded in the culture of the district and driven by student achievement data and other success indicators. Lastly, real efforts should be made to celebrate district and school successes.

Examining the Condition

Curriculum and instruction are implemented and come to life in personalized learning environments, including the physical space where learning occurs and the relationships between students and their teachers and peers. In districts committed to personalized learning, learning environments include in-school learning and out-of-school opportunities. Student-centered learning environments flexibly accommodate a variety of instructional approaches, including collaborative learning, individual learning, or even direct instruction. This flexibility should exist in traditional classrooms and in community learning environments, including libraries, businesses, non-profit organizations, or even virtual spaces. Additionally, learning environments should foster a culture that is focused not only on high expectations for all learners but also on trust, support, equity, inclusiveness, and continuous improvement. As more schools move toward flexibility and collaboration, education research is beginning to indicate that learning environments contribute to increases in both student achievement and engagement.⁵ Redesigning learning environments can contribute to more “brain-friendly learning” and thus more student-centered learning.

Implementing the Condition

Creating environments that allow for personalization to individual students was a central topic for the teachers we interviewed and was often the first step that teachers took in the transition to personalized learning. By focusing on fostering a culture of high expectations that includes trust, support, equity, inclusiveness, and continuous improvement, personalized learning creates a learning system that looks very different from traditional classrooms. In many cases, all levels of the district have shifted to create a learning organization that values inquiry and problem solving inside and outside of the classroom, for students and adults. A learning organization has five key features: systems thinking, personal mastery, mental models, shared vision, and team learning.⁶ These create a supportive environment for teachers, students, and parents and allow for continuous improvement, a foundational cultural norm that allows for the celebration of success and strategic planning around areas of weakness.

Interview Excerpt

We have the freedom to help the kids do what's best for them. When our administration walks in, they're on board with what we're doing even when it's different. Back in the day, in kindergarten, they'd think it was chaos if everyone was doing something different. We know that they're learning, even if it looks like chaos to the untrained eye. It doesn't feel like chaos anymore.

Examples

- In **Lindsay Unified School District** in California, the learning environment allows for transparency between students and teachers and openness to feedback. This cultural norm is aligned at all levels of the district, including parents, students, teachers, school leaders, and district leaders.
- **Yellow Springs Schools** in Ohio fosters independent learners by being firm on expectations and flexible on how to meet those expectations.
- **RSU 2**, a unified school district in Maine, has an aligned culture that is obvious in the treatment of teachers and students; both are trusted and encouraged to take risks, central tenets of continuous improvement.
- **Menomonee Falls School District** in Wisconsin focuses on a culture of improvement, not perfection.
- **Pewaukee School District**, also in Wisconsin, empowers its leaders and teachers to create supportive environments where students can learn from failure without loosening the expectations for student learning and ownership.

STUDENT SUPPORTS

Students should get the supports and interventions they need to be successful when they need them, not after they've taken a summative assessment at the end of the year. These supports should be informed by instant feedback based on frequent formative assessments and, to the extent possible, be embedded in learning. Schools should be given the flexibility to use the time in the school day/year as they see fit in order to provide these supports.

Examining the Condition

Traditionally, schools prioritize student supports for students who are below grade level or who have Individualized Education Plans (IEPs), an emphasis that is crucial to protect the most vulnerable learners. In a personalized learning system, each student receives customized support to remain engaged and challenged while mastering standards and aligned competencies. Based on real-time data, teachers make frequent adjustments and refine the supports to better meet the needs of each student. For student supports to be fully aligned to personalized learning, educators must be transparent with students and parents. Assessment data should be shared with parents and students so they understand what is required to achieve mastery. Personalized student supports allow for all students to be pushed to their potential, regardless of their current level.

Implementing the Condition

Personalized learning is a promising approach to education because it puts the student at the center of the system by providing customized supports for all students. Many of our interviews focused on the fact that providing better student supports is foundational to personalized learning. Because data is collected and acted on in real time, students receive the supports

they need immediately, whether those supports are to remediate or to deepen learning. In one school, the response to data enabled by personalized learning led to an authentic Response to Intervention System. Several teachers cited the school schedule as a barrier to a robust system of student supports. As a result, classroom learning environments are often adjusted to provide the flexibility for supports to be embedded in everyday activities.

Interview Excerpt

It's about analyzing data. We said we did it in a traditional setting, but we never looked at where every individual was. Now we can analyze, check and adjust. Back in traditional classrooms, we said we did centers, but now we rotate based on needs. In the small group setting, I'm meeting their needs at the center. It's individualized and targeted.

Examples

- **Menomonee Falls School District** in Wisconsin creates an individual student, rather than whole-class, improvement cycle. The district also involves students in creating supports and interventions, focusing on ability rather than disability and demonstrating that the varied strengths of all students should be supported, deepened, and accelerated.
- At **Boston Day and Evening Academy**, teachers regularly work with students to refine plans as new data and opportunities emerge, keeping students from getting stuck in a spiral without the right supports.
- **North Shore School District** in Illinois has untracked classes that offer many opportunities for regrouping based on the most recent data, allowing for quick adjustments to instruction to meet individual student needs.

PROFESSIONAL DEVELOPMENT

Each district should offer a job-embedded professional development program that aligns with the district's vision for teaching and learning and to student needs. The professional development program should foster a culture of collaboration and continuous improvement while leveraging technology that creates a customized experience for each teacher that is available at any place and time.

Examining the Condition

While research shows that teacher excellence leads to student success, teacher preparation programs seldom prepare teachers to teach in a personalized learning environment. As opposed to what many preparation programs offer, personalized learning requires a shift in understanding of curriculum development, differentiated instruction, classroom discipline, and data-driven analysis. Since few teacher preparation programs are even beginning to explore training that is aligned with personalized learning, local professional development offerings are essential for teachers in a student-centered classroom. High-quality professional development enables teachers to initiate a transition to personalized learning and to collaborate within their schools and districts to meet individual student needs.

Implementing the Condition

Professional development was the most discussed topic throughout the interviews. While most of the teachers who participated in interviews lead personalized learning implementation in their districts, none of them attended a preparation program specifically for personalized learning. Instead, many drove their own development by researching and visiting other schools and sharing their learnings with their

colleagues. Just as students receive customized supports, districts should provide personalized supports for their teachers and engage them in the creation of professional development opportunities. Districts and schools that are committed to personalized learning can take a variety of approaches to professional development for their teachers, including coaching, collaboration, and interest-based learning communities. Even teachers who are not fully bought into personalized learning can receive personalized professional development. Rather than expecting all teachers to perform at the same level, professional development should encourage continuous improvement by creating customized pathways aligned to the professional competencies that teachers need to excel in personalized learning environments.

Interview Excerpt

I did training this week, but it really just dawned on me that the teachers are treated like we're treating our students. We're trusted, able to try new things and take risks. We're very lucky.

Examples

- **RSU 2** in Maine offers professional development that targets teachers' needs; aligns with the personalized learning vision; and considers the needs of families, teachers, schools, and the district.
- In **North Shore School District** in Illinois, professional development is a school-level decision. Different buildings have unique strengths and challenges to achieve the goals for student learning and mastery. Professional development has a significant focus on creating parameters to deepen teachers' understanding and comfort with personalized learning. The district recognizes

that a shift to personalized learning can be just as intimidating for teachers as for students. As a result, professional development prioritizes readiness, supporting teachers in the transitions from traditional to more personalized environments.

- **Charlotte-Mecklenburg Schools** in North Carolina uses its size and resources to work towards providing a comprehensive, structured form of personalized professional development. The district's professional development involves active learning and includes the ability for teachers to earn personalized learning badges, to focus on their individual strengths to launch personalized learning in the classroom, and to chart growth based on personalized learning matrices.
- **Elmbrook School District** in Wisconsin embeds its personalized learning professional development in subject areas, borrowing from the traditional structure of aligned professional development to subject matter teams. The district's professional development also aligns to their culture by providing supports for teachers in the areas of rethinking and innovation.

LEADERSHIP DEVELOPMENT

A district should have a leadership development program that identifies and trains leaders at the classroom, school, and district level. This includes involving educators and other staff members in the visioning process, strategic planning, partnership cultivation, and curriculum review.

Examining the Condition

Fundamentally, leadership development is about sustainability. In a personalized learning system, the continued development of strong leaders is critical for the transformation to last. The first step in any leadership development plan is to identify potential leaders in whom the district should invest time and money to develop. With a focus on inclusion and engagement, some districts place leader identification at the school level, rather than the district level, to ensure that the new leader is compatible with the school and learning environments where they would be working. Strong leadership development ensures that teachers can be supported; nurtured; motivated; and provided leadership opportunities in the classroom, across teams, or even as school leaders or upper administration.

Implementing the Condition

While most of the interviews did not highlight specific approaches to leadership development, all interviews discussed characteristics of leaders, including the ability to empower teachers to drive student learning and to manage change. Interviewees also discussed opportunities for teacher leadership. In many districts, teachers become leaders by independently researching personalized learning, piloting it in their classrooms, and sharing best practices with the rest of the staff. Conversely, one school leader interviewed has specific criteria for identifying teacher leaders and prefers to select teachers rather than base leadership

positions solely on interest. While the first approach empowers and rewards risk-taking, the latter enables potential leaders to receive training based on skills that have been identified as leading to success. In general, teachers recognized that at the school and district level, strong leadership commitment to the vision translates to teacher commitment to the vision and contributes to the success and sustainability of implementation.

Interview Excerpt

Another big piece has been to flatten leadership. We're in this together and building leadership for every teacher.

Examples

- In **Charlotte-Mecklenburg Schools** in North Carolina, principal training focuses on change management.
- **RSU 2** in Maine includes school leaders in teacher trainings so they can become better instructional leaders with a common vernacular.
- **Metro Early College High School** in Ohio pushes the leadership down to the classroom level by giving autonomy to teachers to make decisions for students and by including teachers in the school's innovation cycle.
- Principals in the **School District of Waukesha** in Wisconsin act as both supporters of the teachers and buffers to administrative barriers that may exist in the upper layers of the system. However, as the district scales personalized learning, many of those barriers have been removed, and leadership is shared among principals and teachers.
- **Menomonee Falls School District**, also in Wisconsin, empowers its teachers by shifting decision making to the classroom. In doing so, the district has expanded who is considered a leader.
- **Casco Bay High School** in Maine includes teachers from each team on the leadership team to develop teachers and leaders for their current situation and for the future.
- Similarly, **Boston Day and Evening Academy** implements a cycle of feedback for leaders' new ideas, using teacher voices to refine the idea and potential implementation. The school also cultivates a teacher mentor group to develop future leaders.
- **Elmbrook School District** in Wisconsin supports anchor teachers as they lead and continue to build personalized learning implementation. Advanced teachers are encouraged to seek professional and leadership development outside of the district-based offerings.

TECHNOLOGY POLICY

Districts must have a technology policy that allows for ubiquitous, safe access to the internet at all times of the school day. Districts should also address deficiencies in infrastructure in order to support a more connected student population at scale.

Examining the Condition

Since technology is an integral aspect of our—and our students’—everyday lives, asking students to unplug is both impractical and unwise. Technology has the potential to be an accelerator of learning, a driver of relevance, and a tool to engage both students and parents. District policies should harness that potential. Many districts routinely identify technology infrastructure as one of the bigger barriers to an effective technology policy. Along with the increased demands of a more connected student population, districts have to deal with the bandwidth and hardware requirements brought on by technology-dependent assessment programs. This is a barrier especially apparent in underserved, low-income, and rural areas.

Interview Excerpt

Technology lends itself well to personalized learning. Without the technology, it would be hard to manage everything. It started with taking risks with technology.

Implementing the Condition

During the interviews, several teachers stated that personalization would be impossible without technology, confirming our past research that has shown that thoughtful technology policy enables personalized learning. Some districts pursued a shift to personalized learning because they had already implemented a one-to-one technology policy. However, since one-to-one policies can overemphasize the tool, they must be paired with robust personalized instructional methods as a means to increased student learning. In fact, teachers occasionally cited weak technology and infrastructure as obstacles in the way of better implementation and scaling of personalized learning.

Examples

- Teachers in **Howard-Suamico School District** in Wisconsin discussed that while technology is important, the devices are tools that are maximized when supporting a strong, innovative curriculum and aligned instruction.
- Teachers in **Pewaukee School District**, also in Wisconsin, felt that technology enabled personalized learning made it easier to implement the new approach, track student progress, and meet students where they were.
- Teachers at **Marysville Early College High School** in Ohio elevated issues with technology, which pose a substantial challenge, because their learning platform doesn’t currently complement personalized learning.
- **Boston Day and Evening Academy** faced a similar challenge and navigated it by creating their own software that helps track student knowledge and skills.

COMPREHENSIVE DATA SYSTEMS

Districts should maintain a comprehensive data system consisting of learning management, assessment, and student information systems. These systems should be able to track student achievement history, teacher comments, supports and interventions, and other indicators while protecting student-level privacy.

Examining the Condition

To truly personalized learning for all students, teachers must use data from assessments and other learning activities to construct personalized learning plans for each student. To do this effectively, educators (not to mention parents and students) should have continuous access to a comprehensive data system that includes a complete, longitudinal picture of a student's academic career. Comprehensive data systems are critical to implementing personalized learning approaches and connecting fragmented data systems currently in school districts. Additionally, the lack of common data standards and of professional development around data keep teachers from fully accessing the resources needed to design personalized learning environments for their students. Education Sector offered five design principles for data systems:

1. learners are at the center
2. information flows across institutions
3. usefulness and usability drive adoption
4. systems are common yet open, and
5. users can access the right data.⁷

Because teachers will use the systems most frequently to drive their daily work, their input and insights are instrumental.

Implementing the Condition

Comprehensive data systems are foundational to teachers' successful and complete transition to personalized learning. During the interviews, teachers mentioned that their learning management systems are often not sophisticated enough to handle their needs,

particularly around data collection and analysis. Personalizing instruction for each student's needs and interests requires a data system that can, among a number of other functions, track student performance, generate data trends, and create schedules.

Interview Excerpt

What's really been different is the level of collaboration and sorting. We use data to know which child is ready for what and when and to create the right environment. The time I use for planning now involves a lot of data. It's been awesome. It's really powerful to understand student learning on a minute by minute level. I was never faced with this before. It's a significant new component to our job.

Examples

- In North Carolina, **Charlotte-Mecklenburg Schools** has given instructional flexibility to teachers as long as data backs up the decisions, interventions, and supports.
- At a school in **Janesville School District** in Wisconsin, teachers have embraced data-driven decision making and teaching and use data to tell a story of the entire class and of each student.
- As **North Shore School District** in Illinois built a personalized system, the district knew that a new scheduling system would have to be aligned to the goals and vision of the system. By creating that alignment, the district has been able to separate language and content goals—which would not have been possible with the previous system—to focus more closely on areas where students need extra support.
- **Pewaukee School District** in Wisconsin ran into a barrier where the behavioral data and academic grades were housed separately, leading the districts to investigate options for pulling these important data sets together. This became the foundation for their comprehensive data system.

PARTNERSHIPS

Districts should cultivate partnerships with business, community, and higher education constituents in their communities (including local and county government, recreation, juvenile justice, faith-based, etc.). These entities should be involved in creating a district vision and strategic plan that is aligned with a broader economic and workforce development plan for the community. All aspects of teaching and learning within the district (curriculum, instruction, assessment, professional development, etc.) should be aligned to this vision. In addition, these partners should assist with creating various learning opportunities (internships, mentor programs, work-based experiences, service learning, etc.) and publish a list of these opportunities for all learners.

Examining the Condition

By connecting the power of the classroom with the power of the community, strong partnerships create learning connections, increase engagement, and drive life-long learning. Partnerships that are based on student interests and needs begin to narrow the divide between school and community, emphasizing the need for transparency and strong communication with all stakeholders. As districts build and sustain partnerships, commitment to the vision must be central. Partners should participate in developing, tracking success towards, and refining the vision over time.

Interview Excerpt

We're seeing folks from around the world who come and have great things to say. It's great to have the recognition and feedback, and it's a good way to look at learning differently. On the flip side, we still haven't arrived. We visit other sites quite often.

Implementing the Condition

Partnerships refine a personalized learning system as they link the community and its resources to the school district, deepen relevance and rigor of content, and open new opportunities for students. For many of the districts and schools who participated in the interviews, a fully formed system of partnerships and out-of-school learning opportunities, as discussed in many of KnowledgeWorks strategic foresight publications,⁸ has not yet been realized. In the transition to personalized learning, teachers prioritize building strong partnerships with parents, other educators, and, to some extent, the greater community. Some districts are working towards partnerships with higher education to infuse personalized learning approaches into teacher preparation. Other districts offer some opportunities for high school students to earn credit in placements in community organizations. While robust partnerships with the community allow for a well-rounded, sustainable system, many teachers are focusing on refining their practice before bringing in community partners. Many teachers discussed a powerful form of partnerships that allows them to advance their practice: classroom visits and convening with other teachers committed to personalized learning. By sharing best practices and reflecting on the work in other communities, teachers are able to offer and receive feedback thanks to those partnerships with teachers in other schools and other districts.

Examples

- From a teacher's perspective, partnerships help to drive the curriculum. For example, **Marysville Early College High School** in Ohio involves community interests to shape the curriculum and offer targeted training for students to engage in their local workforce.
- **West Allis West Milwaukee School District** in Wisconsin credits their focus on building relationships and valuing the community for the success of personalized learning in their district.
- At **RSU 2** in Maine, teachers reported that building strong community relationships takes a significant amount of time and thoughtfulness and that the community could always play a bigger role in the curriculum and the schools.
- **Janesville School District** in Wisconsin recognizes that prioritizing communication with their community is crucial to the success of personalized learning given that one of the district's obstacles has been a lack of understanding around what personalized learning is and why the transition is occurring.

Conclusion

With the passing of the Every Student Succeeds Act (ESSA), education systems have a unique opportunity to re-think accountability, assessment, school improvement, and the educator workforce.⁹

Included in this opportunity is space for states and districts to pursue policies that advance personalized learning and ensure that each student receives the support to be successful in the classroom and prepared for college, career, and civic life beyond graduation. However, as the education policy world has learned repeatedly, the best-intentioned policy will not be successful if classroom-level implementation is not aligned and if teachers are not driving innovative ideas in their classrooms.

The interviews for this paper demonstrate that the power to transform teaching and learning for students is first and foremost

in teachers' hands. When given parameters, flexibility, and individualized supports, teachers are able to create classrooms where all students thrive and have access to resources to help them learn and progress through their academic careers. Continuing to capitalize on the talents of teachers already undertaking this transformational work can result in an even greater impact across their schools and districts. As districts and states begin to create new systems with the opportunities allowed by ESSA, it is critical that they look to their teachers as experts in classroom innovation and as key voices in new systems that align a vision across levels and put students at the center.

Endnotes

- 1 Williams, M., Moyer, J., & Jenkins, S. (2014). District Conditions for Scale: A Practical Guide to Scaling Personalized Learning. KnowledgeWorks. Retrieved from <http://www.knowledgeworks.org/district-conditions-scale-practical-guide-scaling-personalized-learning>
- 2 KnowledgeWorks. (2014). A State Policy Framework for Scaling Personalized Learning. Retrieved from <https://knowledgeworks.org/state-policy-framework-scaling-personalized-learning>
- 3 NCTAF. Supporting Great Teaching Initiative. Retrieved from <http://nctaf.org/greatteaching/>
- 4 Martinez, M., McGrath, D., & Foster, E. (2016). How Deeper Learning Can Create a New Vision for Teaching. NCTAF & ConsultEd Strategists. Retrieved from http://nctaf.org/wp-content/uploads/2016/02/NCTAF-ConsultEd_How-Deeper-Learning-Can-Crete-a-New-Vision-for-Teaching.pdf
- 5 Devaney, L. (2014). Transforming learning with physical spaces. eSchool News. Retrieved from <http://www.eschoolnews.com/2014/09/24/transforming-learning-spaces-034/>
- 6 Senge, P.M. (1990). The Fifth Discipline: The art and practice of the learning organization. New York: Doubleday/Currency.
- 7 Tucker, B. (2010). Five Design Principles for Smarter Data Systems. Education Sector. Retrieved from <http://educationpolicy.air.org/edsector-archives/publications/five-design-principles-smarter-data-systems>
- 8 KnowledgeWorks. Future of Learning. Retrieved from <https://knowledgeworks.org/future-learning>
- 9 KnowledgeWorks. (2016). New Opportunities to Advance Personalized Learning in the Every Student Succeeds act (ESSA). Retrieved from <https://knowledgeworks.org/advance-personalized-learning>

Acknowledgements

KnowledgeWorks and NCTAF would like to thank the many educators who took time out of the busy first weeks of their school year to share their experiences with us. We would particularly like to thank Natalie Matthews of Charlotte-Mecklenburg Schools, Angela Patterson of Elmbrook School District, and Ashley Winnen of Eagle County Schools for digging deeper into how culture, transparency, and vision have shaped their classrooms.

We would also like to thank KnowledgeWorks staff members Nancy Arnold, Olivia Bruner, Cris Charbonneau, Virgel Hammonds, Mary Kenkel, Katie King, Anne Olson, Lillian Pace, Judy Peppler, and Katherine Prince for their support in the creation of this paper.

About the Authors

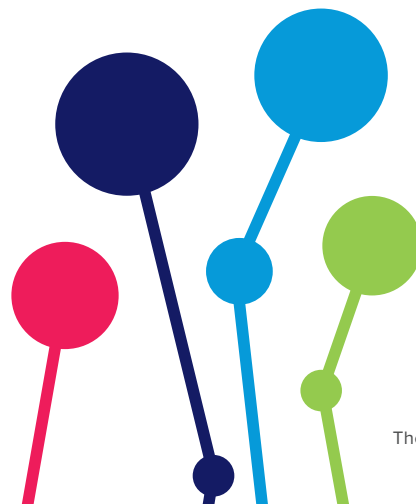
Sarah Jenkins is the Senior Manager of Research and Advocacy for KnowledgeWorks. Prior to her current role, Sarah worked on a variety of state education policy issues as a fellow at the Donnell-Kay Foundation in Denver, Colorado. She began her career in education as an elementary school teacher. Sarah holds a B.A. in French and in Arabic Studies from the University of Michigan.

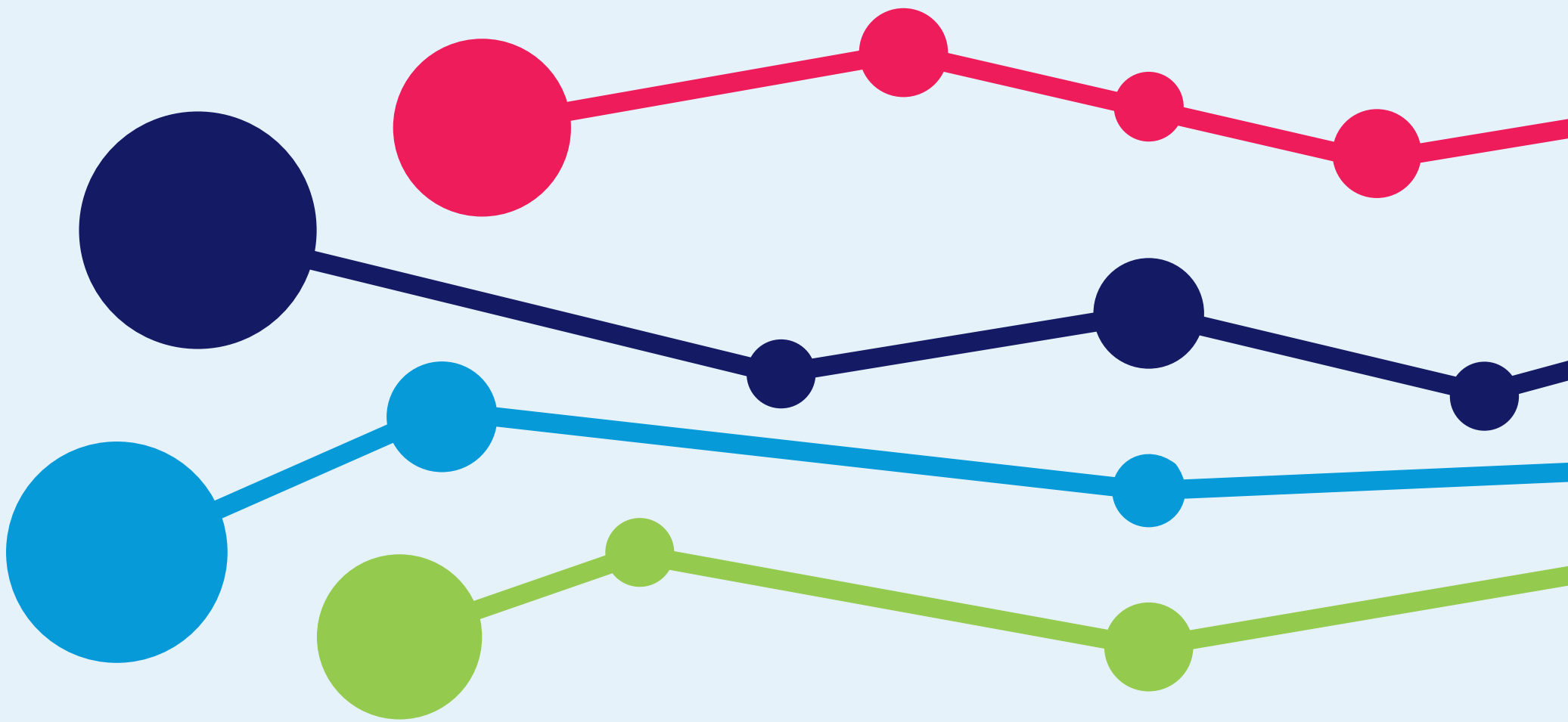
Matt Williams is the Vice President of Policy and Advocacy for KnowledgeWorks. Prior to his current role at KnowledgeWorks, Matt served in various capacities focusing on policy, advocacy, special initiatives, and college and career access. He is the former Director of GEAR UP Waco, a comprehensive grant project focused on increasing college access in Waco, Texas. He holds a B.A. in History from the University of Texas at San Antonio and a M.S.Ed. from Baylor University.

Jesse Moyer is the Director of State Advocacy and Research for KnowledgeWorks. Prior to his current role, Jesse served the organization as part of the strategic foresight team, primarily working on the 2020 Forecast: Creating the Future of Learning. He holds a B.A. in Contemporary Media and Journalism from the University of South Dakota and a M.Ed. from Xavier University.

Melinda George is the President of the National Commission on Teaching & America's Future. She is the former Senior Director of Education Strategic Relations at PBS, where she developed national partnerships and oversaw the development of PBS TeacherLine. She was also the first Executive Director of the State Educational Technology Directors Association (SETDA). Melinda began her career as a 4th and 5th grade teacher in D.C. Public Schools. She holds a M.P.A in Public Administration from The American University and a B.A. in American Culture from Vassar College.

Elizabeth Foster is the Vice President of Strategic Initiatives at the National Commission on Teaching & America's Future. Prior to NCTAF, Elizabeth was the Research and Policy Associate at Recruiting New Teachers in Boston where she published research studies on policy and program developments in teacher recruitment, preparation, and development topics. Previously, Elizabeth taught middle school special education, conducted quantitative and qualitative research, and worked for several New York City public education innovation projects. Elizabeth has a B.A. in Political Science from Trinity College and an Ed.M. in education from Harvard University.





KnowledgeWorks is a nonprofit organization dedicated to advancing personalized learning that empowers every child to take ownership of their success. With nearly 20 years of experience exploring the future of learning, growing educator impact and working with state and federal policymakers, our passionate team partners with schools and communities to grow a system-wide approach to sustain student-centered practices so that every child graduates ready for what's next.

Get more resources to help make personalized learning a reality at [KnowledgeWorks.org](https://www.knowledgeworks.org).



The National Commission on Teaching & America's Future (NCTAF) was founded in 1994 as a bipartisan effort to engage education policymakers and practitioners to address the entrenched national challenge of recruiting, developing, and retaining great teachers in order to ensure that all students have access to quality teaching in schools organized for success.

Learn more at [nctaf.org](https://www.nctaf.org).