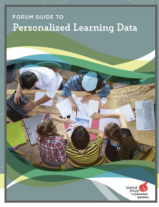

The case studies in this document are intended to highlight various experiences of states, districts, and schools that have implemented or are transitioning to personalized learning, with a particular focus on how they are managing and using personalized learning data to support, monitor, or evaluate the process.

Just as definitions of personalized learning vary, the methods and priorities of the education agencies featured in this document differ in multiple ways and are based on each location's needs and goals. Additionally, it should be noted that all of the examples provided here are still developing.[1]

Westminster Public Schools (Colorado)

Demographic Information

Approximate enrollment: **10,000**
Number of schools: **20**
Free and reduced-price lunch: **79.0%**
Grades using personalized learning: **PreK-12**
https://www.westminsterpublicschools.org/

Westminster Public Schools (WPS) is the largest school district in the country to be entirely competency based from preschool through high school. WPS officially began its current competency-based personalized learning initiative in the 2009-10 school year, but this effort followed multiple earlier steps toward competency-based learning. Colorado first adopted standards in 1993, which gave students a common set of goals for each subject area and initiated district plans toward competency-based assessment. However, at that time, the available technology systems were not advanced enough to support the data load necessary for competency-based education. In 2007, a board member's visit to a state school board association meeting, which featured discussions on the implementation of standards-based education, led to new consideration of personalized learning at the district level. The district[2] began with a one-year pilot at a single elementary school while developing a communication and implementation plan for all stakeholders. After this one-year pilot, the district began the overall effort with the elementary and middle schools, and then moved up a year at a time, in specific subjects, through the high school level.

WPS's competency-based personalized learning efforts cross all subjects and grade levels, and are demonstrated in classroom instruction and activities, such as real-time regrouping of students based on student data and students progressing to the next performance level at any point during the school year. Students are aware of and engaged in the data process through goal setting and recording progress through either hardcopy data notebooks or online versions that are ultimately aligned to career aspirations and goals. Students move through different subjects at the level necessary for them to master the material. The schools have "leveling-up" assemblies as students achieve mastery in given performance levels for any subject. District leaders note that one of the key elements for successful competency-based personalized learning is actively developing student agency, such that students own their learning and are invested in the process. District leaders have concluded that it is essential that teachers have high-quality and effective ongoing professional development that teaches them to empower students.

As the district transitioned to competency-based personalized learning, they found that students at the high school level needed foundations and concepts courses in order to shore up their learning and move successfully into new ways of learning and assessment. Now that the initiative has

1 Also note that the demographic information provided in each example is for the overall district or state. Not all students in each location are necessarily involved in personalized learning plans.
2 The district was at that time named Adams County School District 50.

matured, the foundation courses are no longer necessary, and the number of concept courses are greatly reduced.

Because personalized learning is a districtwide effort in WPS for all school levels, funding for the initiative is not seen as a separate entity, but instead the basis of the overall budget. Funding is directed where it is needed in the system (based on the outcomes of the continuous improvement processes), whether for technology and data systems, classroom support, or professional development. The district looks at funding for competency-based personalized learning not as one large amount to be spent at a single time, but as having funds available to allocate when and where they are needed. As they look to the future, their goal is to avoid overburdening the system by making too many adjustments and recognizing that schools will go at different paces and that the capacity to implement change needs to be effectively managed.

In retrospect, district leaders acknowledge that their incremental path to competency-based personalized learning led to various challenges. As the initiative expanded, high school students in particular moved between one system and the other, which caused confusion for students, parents, and teachers. Within the high school level, the district began by introducing competency-based personalized learning in math, literacy, science, and social studies courses, but the different means of assessing students (based on whether the teachers did or did not incorporate these methods) meant that two types of student report cards were needed—one for core subjects and another for electives. Additionally, families faced different assessment and grading systems for children at different grade levels: one sibling might be doing personalized learning while another was still under a traditional model. These variations made it hard for parents to understand and commit to the new way of doing things during the initial implementation stages.

Because of these challenges, leaders from WPS advise other educational agencies to plan for a full-system model from PreK-12 and get commitment across all stakeholder groups before moving forward. The full shared vision is needed prior to implementation, with communication and understanding of overall goals from teachers, parents, and students. All parties should be involved, with significant emphasis placed on ongoing professional development and well-structured and supported professional learning communities. If an incremental implementation is needed, they recommend introducing different elements of personalized learning in layers, rather than moving by grade level. They suggest, for example, that a district could move to competency-based standards in year one, establish proficiency scales in year two, and introduce the recording and reporting system in year three. To help other schools and districts transition to a personalized, competency-based system, WPS hosts site visits and an annual summit.

Working With Personalized Learning Data

WPS describes its competency-based personalized learning data process as active, as opposed to the passive “rear mirror” view of data usage in traditional educational models. Data are collected and used in real time, allowing students to know where they stand in relation to different learning targets for each subject area, as well as allowing teachers to regularly group and regroup students based on their mastery. This creates a process that is akin to response to intervention (RTI) or multi-tiered systems of support (MTSS) models, wherein schools can have regular assessment of students potentially falling through the cracks, and teachers can determine what interventions or extensions may be needed. District leaders state that this type of data use requires a heavier data burden for teachers, especially when dynamic recording and reporting systems are used. Leaders stress that strong ongoing professional development is needed to make sure teachers are well prepared for both the academic as well as noncognitive skill development.

Student progress is recorded on a four-point scale, where a 3 is considered competency (this means that a 3 is also akin to an A; a 4 in WPS is seen as a much higher level of rigor than it would be in a more traditional 4-point system). This system does not translate equivalently with all systems across the state, which can lead to issues with student transfers and scholarship programs that are based on traditional grades. This is becoming less of a challenge as more schools and districts begin to utilize competency-based approaches.

District schools use two data systems: a student information system (SIS) that collects overall demographic and attendance data and allows state reporting, and a competency-based learning management system (LMS) that provides student data directly aligned to competencies while allowing assessment and the reporting of student progress. The LMS allows student data to exist across all the years a student is enrolled in the district and for all content areas, rather than only a single school year, so that the data evaluation can be student-centric rather than course-centric.

At the school level, classroom data are reported in three-week cycles and reviewed by principals. Principals meet regularly with the superintendent, discussing school-level summative data to determine how the data align with the goals and action steps of the school improvement plans. Administrators also engage in monthly “learning walks” at the district level and discuss factors that are either impeding or accelerating the progress of the system. Annually, principals directly and publicly report their schools’ data journey to the Board of Education, which is fully invested in Westminster’s Learning Model (see https://www.westminsterpublicschools.org/Page/10746).

District leaders note that they have had challenges aligning the competency-based system with state reporting requirements because establishing typical teacher-student data links is more difficult under personalized learning systems. State reporting requires student scores to be attached to particular teachers for the duration of a school year, which is not how assessment works within their competency-based systems. When students “level up” in the competency system, they may stay with the same teacher or move to a different teacher. Additionally, multiple teachers may work with students to address learning gaps or areas of promise identified by student data. Ultimately, it is difficult for the district to fit its data into the current traditional data “buckets” prescribed by the state.

Forest Hills School District (Ohio)

Forest Hills School District (FHSD) began its transition to personalized learning during the design of its 5-year strategic plan. Upon the arrival of a new superintendent in 2014, the district began a process of surveying stakeholders and examining potential ways to better prepare their students for post-graduation success. With a focus on empowering each student to achieve personal academic success, FHSD began a shift to personalized learning as a core element of the strategic plan.

Demographic Information

Approximate enrollment: **7,450**
Number of schools: **9**
Free and reduced-price lunch: **10.4%**
Grades using personalized learning: **K-12**

The district first focused on transforming the learning experiences of teachers, focusing their professional development on various aspects of personalized learning and giving them opportunities to develop plans to align learning experiences with student needs. Gathering knowledge and support from a varied group of personalized learning experts, district leaders developed a districtwide shared curriculum with new standards incorporating what they call the “6 Cs”: collaboration, creativity, critical thinking, communication, citizenship, and character. Teachers have been encouraged to explore ways in which students meet those standards to provide a more personalized learning experience for each student. As district leaders have studied innovative teaching and learning practices, they have simultaneously tried to model effective practices, offer unique pathways, and support collaboration opportunities for educators. These have included "anytime/anywhere" learning opportunities, job-embedded professional learning, and conference style/project-based professional learning.

The district has placed great importance on collaboration among instructional staff. Weekly collaborative time has been established for all teachers in the district to work together to develop creative and effective ways to move from a teacher-centered to a student-centered classroom. Instructional coaches work with teachers to implement strategies such as blended learning, problem-based learning, flipped classrooms, and balanced assessments for mastery.

In their collaborative teams, teachers work to consistently return to four key questions:

- What do we want students to know and be able to do?
- What is the evidence/how will we know when they have learned it?
- How do we respond when students don't learn?
- How do we extend and enrich learning for students?

Working With Personalized Learning Data

FHSD has been transitioning to personalized learning while concurrently developing common assessments. District leaders built a framework for a balanced assessment system with both internal and external assessments, and the assessment system is still a work in progress. After exploring item banks, assessment tools, and products, they have found value in creating their own assessment items.

District leaders note that they have not yet built mastery levels, but they will move to "a more mastery-based conversation" over time. At this point, they maintain a greater focus on helping teachers identify what students need to know and be able to do in a personalized learning program, and establishing success criteria to show clear evidence of learning.

The district uses a data warehouse and multiple spreadsheets to monitor and track student learning. District leaders acknowledge that this system is not as flexible and dynamic as it should be, and expect that it will need to improve in order to allow teachers to be efficient and effective when dealing with personalized learning data. When asked about data flows between districts and the state agency in Ohio, they noted that to be effective, their statewide data management system would need to be designed to meet the real-time data needs of teachers, as well as to handle both big-picture data of a grade level or district and standardized data for the state. They asserted that many districts are challenged by the issues with the current system, which require additional staff efforts.

Mason City School District (Ohio)

Demographic Information

Approximate enrollment: **10,600**
Number of schools: **5**
Free and reduced-price lunch: **8.3%**
Grades using personalized learning: **PreK-12**

Mason City School District (MCSD) is working with several options for students and teachers as they develop strategies for personalized learning and continue transitioning from more traditional educational models toward a broad personalized learning approach. District leaders emphasize the importance of growing "the next generation of engaged citizens, problem-solvers and leaders" and feel a responsibility to encourage students to embrace a culture of healthy risk taking as they assume a bigger role in driving their own learning. One of the first changes was to add Personal Learning Days to the school calendar. On these days, students have the opportunity to create and embark upon personalized interest projects outside of school. These may include service learning, global awareness projects, online collaboration, and many other diverse opportunities that are often difficult to fit into the district's current curriculum. In their first year of Personal Learning Days, students designed activities such as field trips to specialized science labs, job shadowing days with doctors and business leaders, environmental sustainability projects, and specialized volunteer opportunities.

Leaders have also been working to engage teachers in personalizing their own learning and to expand their creative possibilities. Designating Personal Learning Days for students created additional time for teacher collaboration and professional development. District leaders have worked with teaching staff to establish and discuss why personalized learning is important, to help them understand that they should view it as a continuum, and to consider creative ways to allow students to customize their education. Building on conversations with multiple experts in personalized learning, the district is continuing to expand teachers' understanding of and comfort with the concept, with a plan to move toward a more expansive personalized learning perspective that includes five key elements.

The first key element is a learner profile that is created by learners, to support the learning process, development of student voice, and self-discovery. The student is the steward of the learning profile. Serving as a collection of information used to personalize learning, the profile includes the learning drivers, strengths, and challenges, as well as evidence of learning and growth inside and outside of the classroom. The second key element is the learning environment, which includes the space-time continuum for learning. It aligns virtual and physical spaces, time for learning, and groupings of learners to maximize progress toward learner outcomes. The third element is learner relationships, which provide the foundation for a positive, inclusive, and engaged learning culture. In personalized learning, the goal is to develop expert learners who are empowered to know themselves well, advocate for their needs, and drive their own learning throughout life. These relationships reflect trust and respect for who students are as learners and as people. The fourth element is learning paths, which are an opportunity for all students to collaborate with teachers and other key members of their network to co-design meaningful, authentic, rigorous, and relevant learning experiences. Finally, the fifth key element is learner outcomes, which are the clear, compelling goals for learning that include the following:

- **Skills:** Cross-disciplinary outcomes for critical thinking, collaboration, communication, and creativity
- **Mindsets:** Attitudes or beliefs that impact learning, including optimism, flexibility, resilience, persistence, and empathy
- **Content Standards:** Subject-area goals

Working With Personalized Learning Data

Because MCSD is in the beginning stages of its personalized learning efforts, its educators are still considering how data will most effectively be collected and used by teachers, schools, and district leaders. They are working on determining a measurement that shows not only academic progress but also elements such as engagement and behavior growth. The district currently uses standards-based grading, building on a mastery framework in grades K-5. At this time, district leaders are researching options and working with teachers to transition mindsets, gain insights, and co-create MCSD's progress-monitoring system, as they transition into broader personalized learning activities. The district has yet to define its metrics for measuring personalized learning.

Information from the students' Personal Learning Days is not logged into the district's SIS in any formal way (though teachers may document some data related to student reflections). The district's learning management system (LMS) is currently used to inform parents of their children's progress, which is currently based on more traditional academic measures. District leaders state that they would ultimately like to measure data on the "entire student" and his or her experiences, which would include mental wellness, engagement, "difference maker" attributes, academics, projects, and service transcripts.

MCSD currently provides an intranet portal, called MasonConnects, to staff and students that pulls relevant information from the existing SIS. Starting in January 2019, through a development partnership, MCSD will co-develop a system for students to create a robust and fluid learner profile allowing teachers and support staff to better understand the students they serve. Most importantly, the learner profile provides an opportunity for students to reflect upon themselves as learners, one of the five elements of personalized learning. Lastly, MasonConnects aggregates assessment data and offers personalized professional learning, another key factor involved in moving toward personalized learning in the classroom.

Westside School District (Nebraska)

Demographic Information

Approximate enrollment: **6,000**
Number of schools: **13**
Free and reduced-price lunch: **31.3%**
Grades using personalized learning: **K-12**

Westside Community School District's (WCSD) transition to personalized learning began as part of its larger strategic plan. In the spring of 2014, the district's strategic planning included a vision statement that called for concepts such as innovative educational ideals, personalized learning, and ensuring a broader, richer definition of success. These concepts were drawn, in part, by focus groups conducted during the strategic planning process, who asked that the district work to customize learning for each student. The district teams involved in the planning of the effort were committed to putting the learner at the center of the learning experiences.

Like many education agencies, WCSD faced the challenge of defining personalized learning and what it should mean in the context of the district. Planning teams researched the topic and ultimately tried to synthesize the information gathered from different sources to develop a plan that worked best for the district's students. The district began the implementation using what they called a "slow roll." They began by identifying a group of "Personalized Learning Early Adopters," who would learn about personalized learning, try new strategies in the classroom, and then share their experiences with other teachers in their professional learning communities. Teacher representatives from each of the districts' ten elementary schools, one middle school, one high school, and one alternative school sent multiple representatives to various trainings that were spread out over the course of the school year. Professional learning for these teachers included developing lessons and curricular units, meeting to discuss and share how these lessons and units worked in the classroom, and then returning to the classroom to implement modified plans based on the discussions with their peers. The district has focused the development of and transition to personalized learning on a philosophy of "student-centered learning by doing." District leaders plan to continue to move new groups through the professional learning and implementation process each year, allowing an organic change movement to occur across the district.

WCSD has also received guidance in its process from consultants from personalized learning organizations and a popular personalized learning textbook. This guidance, as well as the strong leadership from district- and school-level leaders, has allowed the district to work through initial teacher confusion about personalized learning and how it fits into existing teaching and assessment models.

Working With Personalized Learning Data

Because WCSD is still developing and expanding its personalized learning efforts, it is not collecting specific personalized learning data at the district level; the main collection that relates to these efforts is the annual strategic plan survey. In classrooms, teachers collect data and conduct observations related to the five key elements of personalized learning defined by the district and its leaders: knowing your learners; flexible groups, space, and mindsets; voice and choice; data-informed; and technology support. Within the data-informed element, teachers use student learning information to make specific decisions about student growth related to instructional standards. Beyond this, student progress is assessed as it was prior to the transition to personalized learning. In future school years, various teacher and administrator leaders in the personalized learning movement have partnered with educators from partner districts around the country to begin action research that is classroom focused.

Data related to the five key elements that are collected are not entered into the district's SIS. The district is currently experimenting with creating a personalized learning plan through its digital learning platform, and has considered the possibility of having data prepopulate the desired fields once this is established.

Vermont Public Schools

In Vermont, state law and state board of education rules require that, in grade 7 and beyond, students have personalized learning plans (PLPs) and access to flexible pathways for learning. PreK-6 schools are not required to offer personalized learning, but it is encouraged. State statutes include requirements for access to specific pathways, including Dual Enrollment, Career and Technical Education, and Early College.

Demographic Information

Approximate enrollment: **88,428**
Number of schools: **313**
Free and reduced-price lunch: **41.02%**
Grades using personalized learning: **7-12**

Number of schools: https://education.vermont.gov/data-finance-budget-book-2019
Enrollment/FRL: Vermont Agency of Education. (2018). *Child Nutrition Programs: Annual Statistical Report*.

State leaders describe a long history of educational innovation in Vermont, which has culminated in recent years in the Flexible Pathways Initiative (http://education.vermont.gov/student-learning/flexible-pathways) and the Education Quality Standards. These initiatives have three overall goals:

- All Vermont children are afforded educational opportunities that are substantially equal in quality.
- All Vermont students graduate from secondary school.
- All Vermont graduates are career and college ready.

Vermont is a local control state (wherein most decisionmaking power is at the district level), but the state education authority is also highly supportive of districts' personalized learning efforts and is working to provide guidance and resources to help them meet instructional and data requirements. In particular, state leaders are trying to ensure a coherent and equitable approach to education and personalized learning through alignment among state legislation (e.g., Act 77), the new Education Quality Standards, and the state's Every Student Succeeds Act (ESSA) plan. The state convened a PLP working group to develop a series of resources and guidelines to assist districts in the implementation of the personalized learning planning process (https://education.vermont.gov/student-learning/personalized-learning/personalized-learning-planning-process) and the state's Proficiency-Based Graduation Requirements (https://education.vermont.gov/student-learning/

proficiency-based-learning/proficiency-based-graduation-requirements). This group was comprised of many stakeholders, including students, teachers, school counselors, principals, superintendents, and representatives from higher education.

Working With Personalized Learning Data

State leaders are in the process of establishing Vermont's approach to the collection and use of personalized learning data. In collaboration with stakeholders, they are developing criteria for measuring the degree of personalized learning implemented, as well as the type and quality of personalized learning. The state's ESSA plan includes criteria for the implementation of personalized learning.

In regard to measurement of student progress, the state has provided guidance to districts that they must provide evidence that they are meeting performance-based graduation requirements (defined at the district level), that student progress is being monitored through PLP reviews, and that schools are identifying the learning targets that students must meet as they progress toward proficiency. It also provides guidance surrounding data collection. Though the state does not dictate the means by which personalized learning data are housed and used at the school level, it provides collection mechanisms and guidance for reporting the data required by the Vermont Education Quality Standards and the ESSA state plan.

Additionally, the state provides technical guidance to assist districts, which can include things such as sample templates and activities to assist educators in their daily practice. It also provides training around both personalized and proficiency-based learning through its professional learning network.

Vermont is in transition in regard to which data are incorporated into its SLDS. As part of the state's ESSA plan and its school climate measures, it will be including measures of students' engagement and role in the development of their PLPs. As part of the College and Career Readiness elements of students' PLPs, the state is collecting Dual Enrollment data as well as Early College participation. In addition, students' participation in Career Technical Education and the High School Completion Program will eventually be included in the ESSA State Report Card and statewide longitudinal data system (SLDS).

At present, the state collects student transcript data via the Student Educator Course Transcript (SECT) collection, which will soon be incorporated into the automated reporting system via the SLDS. These data make the linkage between students, the courses they take, the educators who teach them, and the grades those students earn. State leaders explain that like the current SECT collection, these data will have to conform to specifications that their school/district SIS systems will have to meet in order to be automatically reported in the SLDS environment. Specifications are due for release in 2018.

Utah Public Schools

Demographic Information

Approximate enrollment: **647,870**
Number of schools: **1,050**
Free and reduced-price lunch: **29.0%**
Grades using personalized learning: **K-12**

In 2012, the Utah legislature passed a law called the Student Achievement Backpack, which allows data exchanges between districts. This went hand in hand with a move to competency-based education (Utah generally uses the term "competency-based" rather than "personalized learning"). Competency-based education in the state is best reflected in its Competency-Based Learning Exploratory Pilot, which includes 13 charter school and district grantees. Utah's state definition for "competency education" (articulated in the Utah Code) is the iNACOL definition (https://www.inacol.org/news/what-is-competency-education/). The Competency-Based Education Grants Program consists of grants to improve educational outcomes in public schools by advancing student mastery of concepts and skills through five core principles: (1) student advancement upon mastery of a concept or skill; (2) competencies that include explicit, measurable, and transferable learning objectives that empower a student; (3) assessment that is meaningful and provides a positive learning experience for a student; (4) timely, differentiated support based on a student's individual learning needs; and (5) learning outcomes that emphasize competencies that include application and creation of knowledge along with the development of important skills and dispositions. Early implementers have taken various approaches in instructional practices as well as data collection and use.

Notably, Utah differs in its approach, as compared to many other states, in that personalized learning is the way in which districts are implementing digital teaching and learning: that is, the data and technology initiatives are driving the educational approaches, rather than the other way around. Whereas many states or districts decide to implement personalized learning and then figure out data processes and regulations, Utah is allowing districts in the qualified grant program to determine how their instruction can be structured to meet the data requirements of their technological approaches.

At the junior high level, the state has relaxed rules on course requirements: rather than requiring students to take specific courses, students can take types of courses (e.g., a set number of math credits). This allows districts more flexibility in what to offer and returns a level of local control. Some districts see this flexibility as opening up opportunities for student choice, but others have maintained their traditional course requirements.

Working With Personalized Learning Data

Districts participating in the Competency-Based Learning Exploratory Digital Teaching and Learning pilot vary in how they approach competency-based personalized learning data. Some have made changes to their assessment models and data systems in order to use standards- and domain-based competencies: for example, using a mastery scale of 1-4 to represent student progress. Other districts use a mastery system, but translate the 1-4 competency levels to letter grades for student transcripts. While this can make data more transferable or comprehensible to various stakeholders, it goes against effective implementation of the concepts of competency-based learning.

However, those districts working with the mastery levels have experienced challenges in transferring data to other districts. If a student transfers from a "mastery district" to one using traditional letter grades, it can be difficult to use transcripts to determine accurate placement into courses in the new district. Districts try to establish equivalency between courses, but these fundamentally different assessment approaches can cause difficulties. Districts may decide to assume, for example, that a mastery rating of 4 equals an A grade, but the differences in intent of these two types of assessment mean that this is not necessarily the case. To put it another way, a mastery rating of 1 would not mean a student is seen as an "F student" in a personalized learning system—it would simply mean that the student has not yet mastered the material, and that the learning plan should be adjusted such that the student has the time and necessary support to do so. At this time, state leaders are still working on how to aid districts in these types of communications, especially as more districts apply for Competency-Based Learning Exploratory Pilot grants.

Idaho Public Schools

Demographic Information
Approximate enrollment: **647,870**
Number of schools: **1,050**
Free and reduced-price lunch: **29.0%**
Grades using personalized learning: **K-12**

Personalized learning efforts in Idaho currently take place through varied programs, at several educational levels. These include the Idaho Digital Learning Academy (IDLA), a mastery badging system called SkillStack (https://skillstack.idaho.gov/), and the Idaho Mastery Education Network.

The Idaho Digital Learning Academy (https://www.idahodigitallearning.org/) was created 15 years ago when superintendents in the state supported the expansion of online learning, but feared the confusion that might be created if districts developed their own systems independently. Instead, IDLA is a state-level entity that brings digital learning to Idaho's students: a particularly important issue in a state where so many students live in rural areas. Its mission is to provide greater opportunities and educational equity to students across the state.

IDLA currently has three main areas focused on mastery-based and personalized learning:

1. Its core business is offering online courses with a certified online teacher: these courses have had 30,000 enrollments within the last year. IDLA officials state that one in four high school students in the state take a course with them each year, with more enrollment in rural areas.
2. It supports districts in their mastery-based instructional efforts. At this point, the team works with about half of the mastery schools in the state.
3. It partners with other states in infrastructure efforts, particularly those focused on establishing a framework for personalized learning that allows portability. Because personalized learning offerings tend to be very systems dependent at this time, it is difficult to transfer concepts and mastery evidence when a student transfers schools or locations.

SkillStack is a mastery-based badging system in which badges indicate levels of mastery of particular content or skills, and can be used to equal university credit or an indication of career and technical education competency levels. The badges are intended to easily communicate an individual's mastery of a particular content area, whether this was gained in an online course, certification program, or college class. The system aims to support students in their education as well as careers: postsecondary institutions and career and technical education entities have worked together to define the meaning of different badges, and they thus indicate the same mastery of content in either arena. Various industries are involved in the project, to ensure that the badges reflect the correct skills.

The Idaho Mastery Education Network (IMEN; https://www.sde.idaho.gov/mastery-ed/) is a consortium of districts focused on competency-based and blended learning. The state department of education selected 19 regionally diverse schools for the pilot program, each of which is developing unique approaches to mastery education. The IDLA currently works with 9 of the 19 IMEN districts.

Working With Personalized Learning Data

The different personalized learning programs in Idaho use data in a variety of ways. For example, in online mathematics courses offered by IDLA, personalization is based on student mastery of content. Students use a tool called EdReady (https://idaho.edready.org/home), which helps them prepare for math aligned to a specific exam or state standard. Once they take a unit pretest, the system identifies the content they need to meet their goals. The system uses questions aligned to educational objectives to determine whether the student has mastered the content. It can then assign work based on missed objectives.

In the SkillStack system, data are used to determine whether a student has mastered the content needed to earn a particular badge. At this point, a teacher must manually provide the evidence that a student has reached a particular mastery level, which currently puts a substantial burden on teachers (particularly on top of their other tasks). However, system designers are working toward a configuration in which students could determine appropriate evidence and submit it, allowing the teacher to simply approve the submitted information. Designers are also working toward a universal record storing function that could offer a universal gradebook. In this arrangement, marking students as competent in one system would carry over to others, thus reducing the burden on individual instructors. Another potential vision is for internship programs or apprenticeship supervisors to have the capacity to certify students for mastery, thus increasing the crossover of the system between secondary/higher education and industry.

Lessons Learned

Though there is great variation in the design, implementation, and maturity of the personalized learning programs summarized in this document, the experiences of the stakeholders in the different locations echo many similar challenges and solutions. The list below is a summary of lessons learned by the leaders in these and other education systems:

- Encourage communication among stakeholders and develop specific, intentional means for collaboration.
- Co-create the vision for the personalized learning program.
- Start with a guiding coalition of committed individuals.
- Determine reasonable timelines for change, and leave room for unexpected challenges.
- Consider the types and specific uses of data involved with personalized learning.
- Know that the core elements of personalized learning take time to build. Allow time for ideas to incubate.
- Foster a culture of innovation and encourage creative approaches.
- Consider the goals of and vision for the personalized learning program when determining how to assess its success and impact.