The Intersection of Personalization, Technology, and Leadership

Research Into Customized Learning

Institute for Teaching and Leading

rethink. innovate. empower.

Published by Institute for Teaching and Leading in partnership with Edgenuity, Inc. and EdSurge, Inc.
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contents</td>
<td>1</td>
</tr>
<tr>
<td>Foreword</td>
<td>2</td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>3</td>
</tr>
<tr>
<td>Introduction</td>
<td>4</td>
</tr>
<tr>
<td>Study Overview</td>
<td>5</td>
</tr>
<tr>
<td>Defining a Changing Landscape</td>
<td>9</td>
</tr>
<tr>
<td>Key Findings</td>
<td>1</td>
</tr>
<tr>
<td>Discussion of the Findings</td>
<td>1</td>
</tr>
<tr>
<td>Summary and Take-Aways</td>
<td>1</td>
</tr>
</tbody>
</table>

Research and writing by
Dr. Christopher Harrington and Elizabeth S. LeBlanc

Support provided by
Dr. Kirk Johnson
Dr. Kristin “KC” Testerman

Copyright 2019. Institute for Teaching and Leading, LLC - All rights reserved.
Foreward

Old Schools, New Times: Reflections on the Future of School

In 2005, Apple’s founder and then-CEO Steve Jobs famously said, “You can’t connect the dots looking forward; you can only connect them looking backwards.” Nowhere is this statement truer, perhaps, than when applied to the K-12 public education system in our country. This is one reason why the original research carried out by groups such as the Institute for Teaching and Leading, the Foundation for Blended and Online Learning, and a myriad of other entities practicing in the field of online, blended, and personalized learning is so critical in the move towards transforming our education system. Without innovative models, exemplars, and success stories - and a focus on the specific strategies that made these models achievable - there is no roadmap forward and no impetus for change.

American society has changed immensely since the 1800s; however, our school system has not followed suit. A nurse or doctor from one hundred years ago would not be able to walk into a modern-day hospital and get straight to work, but a teacher from one hundred years ago could walk into the majority of classrooms around the country and recognize instantly that “this is school.” Three questions come to mind:

1. How do we ensure that education is a priority to all American citizens?
2. What can individuals do to move schools into the 21st century?
3. What structures or traditions are holding us back from reimagining our education models and making deep, systemic change for our students?

As we celebrate the 100th anniversary of school as a legal requirement in our country, it is a good reminder that every student deserves the very best education we can give them, which means we as a country need to be shifting to a student-centered perspective. This, in turn, means confronting the traditional adult-centered structures that we have inherited from an outdated, Industrial-Age model and shifting these to support authentic, relevant opportunities for student-centered learning.

As part of our focus on the #FutureofSchool, the Foundation for Blended and Online Learning supports research in the field that provides a roadmap for breaking down some of these “immovable mountains” in our education system. Redesigning schools to better prepare students for the workforce of tomorrow means empowering our youth to have agency in their learning today. This means reconstructing the role of classroom teachers, leveling the equity playing field, and being open-minded to new ways of assessing district, school, and student performance right now. We simply cannot afford to wait any longer to redesign the K-12 education system to better serve the needs of our students, future leaders, and society as a whole.

Amy Valentine, Executive Director
The Foundation for Blended and Online Learning
Acknowledgements

The following organizations were invited to participate in this study. The dedication of time, effort, and passion by the participating schools was greatly appreciated!

Surveyed schools, districts, and consortia

AOS 96 Machias Bay Area School District
Auburn School System
Avonworth School District
Brewer School Department
Calais Public Schools
Central Pennsylvania Digital Learning Foundation
Central York School District
Chambersburg Area School District
Cherryfield School Department
Commonwealth Connections Academy
Cornville Regional Charter School
Deer Lakes School District
Downingtown Area School District
Duquesne University
Ephrata Area School District
Everett Area School District
Ferndale Area School District
Greater Johnstown CTC
Greencastle School District
Hamburg Area School District
Hollidaysburg Area School District
Huntingdon School District
Indiana Area School District
Jaffrey-Rindge Cooperative School District
Keystone Oaks School District
Ligonier Valley School District
Maine Academy of Natural Science
Maine Indian Education
Manheim Central School District
Meyersdale Area School District
Mifflin County School District
Moosabec CSD (Jonesport-Beals High School)
Mount Union Area School District
MSAD 37 Western Washington County
MSAD 44 Bethel
MSAD 70 Hodgdon
Neshaminy School District
North Star School District
Northern Maine Education Collaborative (NMEC)
Northern Potter School District
Northern Tioga School District
Penn Trafford School District
Penns Valley School District
Richland School District
Ridgway Area School District
RSU 12 Sheepscot Valley
RSU 4 Litchfield, Sabattus & Wales
RSU 67 Chester, Lincoln & Mattawamkeag
RSU 78 Rangeley
RSU 82 Forest Hills Consolidated School District
Shaker Regional School District, Belmont, NH
South Western School District
Southern Tioga School District
St. Marys Area School District
Titusville Area School District
Troy Area School District
Upper St. Clair School District
Warrior Run School District
Westmoreland Intermediate Unit
Williamsburg Community School District
Windham Primary School
Woodland Elementary School

“Spotlight Schools”

Governor Mifflin School District (PA)
Lindsay Unified School District (CA)
Marshall County Schools (KY)
Northern Cass School District 97 (ND)
Pequea Valley School District (PA)
Westminster Public Schools (CO)

Partner organizations

Edgenuity, Inc.
EdSurge, Inc.
Foundation for Blended and Online Learning
Mass Customized Learning National Alliance
Introduction

Where We Are and Where We Are Going: The Journey to Customize Learning for Every Child

The K-12 educational landscape is changing faster than ever before, with much of that innovation being technology-driven or at least technology-mediated. As an industry, much time and effort is spent in trying to define the myriad of emerging uses of digital learning in both K-12 and higher education and to characterize the impact that these technologies are having on teaching and learning models. In education as elsewhere, evolving and innovative practices often outpace our ability to describe them, especially in the midst of our industry’s ongoing quest to grow each child and to personalize their learning to their unique needs.

At the Institute for Teaching and Leading, we strive to build value for educators through our research into how schools and districts across the country are bringing together the principles of personalization, technology, and shared visions of leadership to create customized learning models. Our primary research goal is to take data and research and turn it into immediately useful and actionable information to inform the decisions of school leaders, administrators, teachers, practitioners, parents, and students going down the road of personalized learning. The i4tl research process includes a deep commitment to telling the authentic stories of the schools and districts with whom we partner.

In an effort to better understand the characteristics of high-quality personalized or customized learning programs, i4tl studied schools that are implementing digital curriculum and content in personalized learning environments. The resulting report, The Intersection of Personalization, Technology, and Leadership: Research into Customized Learning, explores the findings uncovered during this research project. In it, i4tl identifies six primary areas of both innovation and difficulty for schools and districts, places in the evolution of a personalized learning program that can serve as both opportunities for change and stumbling blocks in that same process. The study also sheds light on best practices for the design, implementation, and continuous improvement of digital learning models through the presentation of both quantitative and qualitative data illuminated by in-depth case studies of “spotlight schools” at various levels of program implementation.

The challenges that schools face are real and often daunting. Schools are challenged with high expectations and accountability for increased student learning; at the same time, the effectiveness of traditional practices and models are being questioned. Schools are looking for transformative measures to impact student success. However, achieving significant, sustained change in the teaching and learning process requires systemic efforts. Over the past decade, many schools have struggled to realize the promise of blended and personalized learning and to effect real, sustained transformation. As Bob Wise, President of the Alliance for Excellent Education and former West Virginia governor asserts, the goal of education is nothing less than extending the opportunities that are at present only available in a few pockets of innovation in our country to all children:

“At its core, transformation embodies a very basic proposition: all students have the quality education that currently is limited to a select few. When every school, regardless of zip code, embraces personalized learning, recognizes the imperative of educating the whole child, and encourages students to take control of their learning, our nation will have achieved true transformation. When all children have the opportunity to develop their talents to the fullest, that is transformation.”

This is the challenge facing schools and districts today. Our research aims to take the lessons learned from schools and districts engaged in this work and to help schools rethink, innovate, and empower toward the goal of preparing all students.

Dr. Christopher Harrington and Elizabeth S. LeBlanc - Institute for Teaching and Leading

---

The purpose of this study by the Institute for Teaching and Leading was to identify promising practices and challenges of customized (personalized) learning programs at the K-12 level and to articulate the experiences of students, parents, teachers, and administrators within these learning environments. In addition, the i4tl research team identified fundamental strategies for the design, implementation, and ongoing support of customized learning environments through case studies of specific schools at various levels of implementation. Throughout this report, we also strive to provide individual perspectives through the lens of each stakeholder group. To this end, the report explores the following research areas of inquiry:

**Key Research Questions**

1. What are best practices regarding the implementation and maintenance of an effective customized learning program?
2. What are the experiences of students, parents, teachers, and administrators learning and working in a customized learning environment?

**Research Design Framework**

This particular i4tl research project into customized learning looks at how schools and districts across the country are creating highly student-centered models that are breaking down the constraining structures of traditional education. One of the most significant challenges that schools face when considering a shift to more innovative learning models such as customized learning is that of creating and nurturing a compelling vision of teaching and learning that is sustained over time. Recognizing this challenge, the i4tl research team worked with several regional and national entities including the Mass Customized Learning National Alliance, Schwahn Leadership Associates, Maine Cohort for Customized Learning, McGarvey Educational Associates, Pennsylvania Leadership Development Center, Mass Customized Learning Mid-Atlantic Consortium, and Technology and Innovation in Education to identify and engage with a group of subject schools who have made the systemic, philosophical commitment to the design and implementation of truly student-centered learning environments. By focusing on these schools, the team was able to study in-depth a cohort in which change was actively happening in six key areas of innovation:

- Leadership
- Technology
- Curriculum, Instruction, and Assessment
- Professional Development
- School Operations
- Community Engagement

**Methodology**

The subjects for this study were K-12 schools and districts actively engaged in the work of implementing customized learning models across the United States. A multi-phased process of distributing online ques-
tionnaires and conducting interviews, focus groups, and school site visits was used in this study to obtain the diverse perspectives of various stakeholder groups and to examine the characteristics of successful customized learning programs over time. The initial phase of data collection consisted of a high-level scan of schools’ progress in implementing customized learning through an online questionnaire.

The second phase involved a deeper contextual investigation into individual schools and districts representing a range of implementation levels and program maturity. This phase included individual interviews with school leaders and administration as well as separate focus groups with students, parents, and teachers. In addition, classroom visitations and impromptu conversations with students engaged in their learning assisted in the collection of data.

A third round of data collection included follow-up interviews by both telephone and videoconference. All interviews were conducted in a conversational manner with open-ended questions; the resulting profile data was sent to schools for verification of the accuracy of data recorded. The team also relied on previously published information on customized and personalized learning in general, the state of the field, specific learning programs to add context to the study results, as well as their own on-the-ground experiences and observations as practitioners and researchers to interpret the questionnaire data.

The online questionnaire was developed by i4tl researchers in consultation with content area experts and was field-tested with practitioners before dissemination. Extended to 68 learning communities, the online questionnaire garnered 209 responses, a 31% response rate representing 21 distinct school districts and educational entities currently engaged in the implementation and/or practice of a customized learning program. These results, when triangulated with the additional levels of qualitative data obtained from follow-up interviews, site visits, and stakeholder focus groups, allowed researchers to begin to connect the dots between different areas of innovation and resource allocation that, when taken collectively, create the conditions for a highly effective, highly customized learning environment to develop and grow in its service to students.

Report Structure

The collected data were analyzed to identify trends and themes relating specifically to the support of customized learning programs. These data were arranged into eight general categories: (a) leadership; (b) technology; (c) curriculum, instruction, and assessment; (d) professional development; (e) school operations; (f) community engagement; (g) commonalities and success stories; and (h) differences and challenges. This information is presented in Sections I-VIII, which examine the team’s findings in each area. The final section of the report consists of a set of six “Spotlight Schools,” which are in-depth case studies of specific schools and districts at varying stages of implementation of their customized learning programs. Each of these tells the story of the school or district, including their impetus for change. These case studies also give insight into the challenges and successes of each district and includes a range of perspectives from students, teachers, parents, and administrators.
Project Reach and Demographics

Geographically, questionnaire responses received represented a range of schools stretching from North Dakota to the mid-Atlantic region, with larger representation from customized learning groups in Maine and Pennsylvania especially. The second round of data collection through phone calls and interviews reached schools and stakeholders in Colorado, California, Oregon, and Kentucky. Finally, site visits occurred across the country to observe “Spotlight Schools” in action and to further inform the report with on-the-ground observations and face-to-face interviews with school leaders, parents, teachers, and students.

The vast majority of schools and districts responding identified as rural (64.29%) or suburban areas (35.71%) with 0% urban responses. Of the questionnaire respondents, 81.34% self-described as teachers, 9.57% as building-level leaders (principals, assistant principals, deans of students, etc.), and 9.09% as district-level administrators (superintendents, assistant superintendents, curriculum directors, technology directors, etc). Taken in total, the questionnaire responses represented perspectives from 186 administrative leaders involved in the implementation and practice of customized learning in their schools and districts, 2,370 teachers, and 21,610 students.

Responding schools and districts also revealed an array of program implementation, student reach, and longevity. In 23.8% of the districts responding to the questionnaire, implementation of customized learning models has reached 50% or fewer of the student population. In most cases, these districts reported a pilot program that was rolled out in specific schools or grade levels and/or the use of an opt-in academy model for their personalized learning initiative. All other responding districts (76.2%) reported full implementation across grades PreK-12, but site visits and interviews revealed that there may be various degrees of program saturation at different schools within the same district or even across grade levels within the same school. The results are also indicative of different rollout strategies for customized learning models within the schools studied. For example, one district began their rollout in 7th grade only at the middle school level and in 10th grade only at the high school level. Another responding school began their pilot of customized learning in their upper middle school in 7th and 8th grades, adding another grade level each subsequent year.

This study represented the perspectives of...

186 Administrative Leaders
2,370 Teachers
21,610 Students
Instructional Models

For the purposes of this study, the i4tl team asked schools and districts to identify which of three school models were currently present in their educational setting.

**Blended or Hybrid:** A school using a hybrid or blended approach is designed such that formal, live-taught instruction supports a digital core curriculum. The experience from the student perspective is a “blend” of the flexibility and individualization afforded by technology and the hands-on practice afforded by face-to-face instruction. In a blended learning setting, students (and teachers) may have a nontraditional schedule, such as attending campus only two days a week or having a flex schedule.

**Online:** Also called virtual schools or cyber schools, an online school delivers all core course content in a primarily digital format. The majority of a student’s learning experience in this model occurs asynchronously online. The school may have a brick-and-mortar campus, and students may attend required lab times or tutoring sessions to supplement their online coursework.

**Technology Enriched Environment:** Larger numbers of schools are integrating technology or some element of digital learning into their traditional classroom structure. These schools generally maintain a regular bell schedule on a brick-and-mortar campus and face-to-face instruction remains the predominant instructional modality. The use of technology tools that adapt to students’ mastery levels, allows teachers to track student progress, and supports more effective classroom instruction is increasingly common as more schools move to 1:1 device ratios.

It was evident from the study results that the lines between these different models are blurring, as adoption of the principles of customized or personalized learning is not relegated to any single instructional model, but is present and/or in progress across fully online models (represented by 28.57% of questionnaire respondents), in blended or “hybrid” learning models (represented by 57.14% of questionnaire respondents), and in traditional school models utilizing varying levels of technology integration (64.29%). As the results also make clear, increasing numbers of schools and districts are offering more than one instructional model to students and families, increasing the choice of learning models for students to find their best fit. For example, some traditional schools are offering a virtual school option for homebound students, or a blended academy model embedded in a more conventional school setting.

**Program Duration**

Schools and districts responding to the questionnaire represented a wide range of experience with customized learning, with 21.43% of participants in their first full year of implementation. The majority of schools that answered have used a customized model for 2-3 years (57.14%) with 21.43% of respondents having used a customized learning model for 5 or more years.
Defining a Changing Landscape

Blended, personalized, and customized learning are emerging in schools and districts across the country in modalities that match the needs and goals of the community that they serve. Yet, at times, it seems as though our industry’s collective emphasis on the terminology of digital learning - on what it is - gets in the way of looking at characteristics of high-quality implementations in order to learn what is working instead. The following section gives a brief overview of the Institute’s understanding and use of these key terms throughout the report.

Blended Learning

The 2015 publication of Michael B. Horn and Heather Staker’s book Blended: Using Disruptive Innovation to Improve Schools was important for many reasons, but partly because it provided and popularized a shared vocabulary for what was happening in classrooms and schools across the nation. In their work, blended learning emerges as a formal education program in which a student learns in part through online learning and in part in a brick-and-mortar location away from home, with some element of student control over time, place, path, and/or pace of their learning. Key to the concept of blended learning is that the online and face-to-face modalities work together to provide a cohesive learning experience for the student. Horn and Staker, along with the work of the Clayton Christensen Institute, gave educators in the field key terminology for describing the basic building blocks of blended learning models: flipped classroom, station rotation, a la carte model, flex model, and enriched virtual learning models.

As the field of digital learning has evolved, these well-defined models that have been helpful in the past are becoming less distinct as schools and classrooms move past a one-size-fits-all approach. i4tl’s research found that many schools in the disruptive stages of blended learning, in which the use of technology and digital content is actively changing traditional patterns and structures, use combinations of all of these at different times, depending on the goals they are trying to achieve or the problems they are trying to solve. Hybrid schools in particular may be operating on a flex model that also includes a la carte, station or lab rotation, some enriched virtual classroom experiences, and elements of flipped classroom.

Personalized Learning

If blended learning helps educators describe “how” instruction is delivered in a specific district, school, or classroom, then personalized learning speaks to the “why.” Personalized learning can encompass a broad range of implementations meant to address a range of concerns, including student engagement, graduation rates, student achievement measures, and/or increased college and career readiness. As Larry Cuban pointed out, some schools implement sustaining models that can be integrated into the existing schedule or structures of the traditional classroom; others are building truly innovative educational settings that adjust the pace of learning, instructional approaches, sequencing, objectives, and/or demonstrations of mastery for each learner. While what personalized learning looks like in each setting may vary dramatically, most share the following common characteristics identified by the US Department of Education:

---

Personalization starts with a learning experience for all students. This can be individualized learning occurring within digital content, whole-group instruction, Socratic seminar, or small, targeted groups. Some level of identification of student need has already been done.

There is an assessment or measurement of student performance. Assessment can be formal or informal, summative or formative, observational, anecdotal, via portfolios, rubrics, or projects, but ongoing monitoring of student progress is key to personalization of the learning experience.

Student performance is evaluated against an established set of standards. These may include Common Core, state, or district-created core academic standards, but may also be measures for college and career readiness, social-emotional learning, or 21st century learning skills. Many districts have created a “graduate profile” to help them identify what student success looks like in their schools and to track student progress towards those criteria.

The educational experience is then adjusted or personalized for each learner. This step may occur directly in the classroom, through a technology-based personalized learning platform, or through some combination of the two. Depending on the learning model used, the student may also have voice and choice into how, when, and where to personalize their own learning based on progress data.

Continue the cycle. The process is ongoing with continual improvement and adjustment to best meet the needs, interests, and goals of the individual student and to build their skills towards mastery.

Customized Learning

The term customized learning entered the field of education from the business world and its often used synonymously with personalization. At its core, customized learning is defined as the capacity to tailor learning to meet the specific needs and/or desires of the learner without adding significantly to the overall cost and workload for the system and while providing the same level of deep customization for every student, at all times. Proponents of the customized learning philosophy point to companies such as Nissan, Starbucks, and Nike, which have all added ways in which the end user can select from an array of features - such as product color, design, functionalities, and add-ons - to create a product that is customized to their own preferences. It is, in the words of one of the administrators interviewed for this study, a “relentlessly student-centered” educational philosophy.

As a learning model, customized learning means much of the choice and control over the learning experience is placed squarely in the hands of the learner. Therefore, while both personalization and customization work with the same end in mind - an educational experience reflective of and responsive to a student’s unique abilities and interests - the most significant difference between the two is the latter’s emphasis on the locus of control resting with the learner as the end user. While personalization may be done primarily by the teacher or the learning system, customization is done by or to a large degree with the input of the student.

Mastery-Based Learning vs. Competency-Based Learning

As the movement towards deeper personalization of education has accelerated across the country, so has the shift towards competency-based learning. Rather than using time as the measurement of student success, competency-based learning means that students advance based on their demonstrated mastery of learning objectives along their curriculum pathway. If competency is the “big picture” of the larger goal or standard to be met, then mastery and proficiency would be steps on the way towards achieving competency. “Learners must demonstrate their proficiency in a competency and multiple demonstrations of proficiency lead to mastery of that competency.”


Mass Customized Learning: Putting It All Together

Out of customized learning, the emergence of a new model bears additional attention. Mass customized learning (MCL) emphasizes the philosophy of personalization and extends that to the customization of each individual student’s educational experience. Combined with a competency-based learning approach, MCL is attracting more and more attention nationwide as schools and districts strive to better serve their students. MCL first came to national attention when Chugach School District in Alaska became the first K-12 district in the nation to fully implement a personalized instructional model in which student advancement occurred based on performance. However, the 2012 publication of Charles Schwahn’s and Beatrice McGarvey’s book, Inevitable: Mass Customized Learning in the Age of Empowerment, broke down the goals and best practices of MCL in a way that made this model accessible to schools and districts across the country.8

MCL is organized around the essential question: “How do we customize learning so that it reaches every child and teaches the whole child?” Mass customized learning is happening, according to Schwahn and McGarvey, when “…we are meeting the learning needs of every learner every hour of every day, while simultaneously meeting the learning needs of every other learner, every hour of every day.”9 It has been described by Lindsay Unified School District’s Director of Advancement Barry Sommer as a “relentlessly student-centered” model of education. In an MCL environment, traditional school practices are shifted to support a customized approach for every learner in a school. Schwahn and McGarvey have termed these traditional structures as the “weight-bearing walls” that prevent student learning and the development of a culture of empowerment. Many of these are what students, families, and even educators themselves are used to thinking of as hallmarks of education: grade levels, student-assigned classrooms, class periods that last 50 minutes, daily bell schedules, a state-prescribed progression of classes (such as teaching Biology in 9th grade), textbooks, letter-based grading systems that give students an A, B, C, D or F on their report cards, and even the ubiquitous nine-month school year. In contrast, a mass customized learning model is characterized by:

- A systemwide move to “learning bands” versus an emphasis on traditional grade levels
- The creation of mastery-based, standards-aligned learning progressions that meet the student where they are and grow them towards established criteria
- Use of Marzano-scale proficiency levels instead of traditional letter grades
- Pacing that is student-driven instead of dictated by an academic calendar
- Schedules that include flexible times within the bell schedule for students to work in their areas of need or to seek out targeted support aligned to their goals
- Curriculum that includes choices over how to interact with the learning band content and how the student will demonstrate mastery at each level

“We are working to create the ideal learning environment for each learner.”

- Pequea Valley School District Administrator

---


Ibid.
Key Findings

The group of schools and districts studied for this research project were all in various stages of implementing, developing, and refining personalized, customized, competency-based learning models that align with the tenets and best practices of Mass Customized Learning. Data collected through this study revealed that schools which have made the philosophical shift to a customized learning environment for students tended to move through a similar series of levels or stages as their programs mature.

- There is a general pattern of evolution to the levels and areas of innovation as schools build their customized learning programs; in general, change starts with the leadership level, moves into the area of technology, gradually affecting all aspects of the school’s or district’s daily operations.

- Schools and districts reap increasing benefits as their customized learning programs mature, including changes in the mindset, empowerment, self-efficacy, and motivation of teachers, leaders, and learners as correlated with program longevity.

- The structures which change first to support customized learning programs soon create a “ripple effect,” in which innovation in one area leads to change in others as the learning model grows increasingly student-centered.

- Any one of these six areas can serve as either “launch pads” or “stalling out” points in a school’s or district’s journey toward a more student-centered approach to learning.

Customized learning programs’ growth over time follows a progression through six areas of change and innovation – leadership; technology; curriculum, instruction, and assessment; community engagement; professional development; and school operations. The stacked bar chart below, The Evolution of Customized Learning Programs, details the levels to which change was happening in each of these six areas according to questionnaire data and to what extent (“great” or “moderate”) respondents felt that this area impacted the implementation and sustainability of their customized learning programs.

**Leadership.** The first area of change or investment occurred in the area of leadership as school or district leaders began the work of visioning what teaching and learning will look like in the new model. In this study, 81% of schools implementing these new kinds of learning programs reported that leadership had “great” impact on the development and maintenance of their customized educational model; another 19% reported that their leadership had “moderate” impact in this area. All schools responding to the questionnaire reported change in this area.
Technology. This area was also an early indicator of change to come and was one of the first areas of investment for the participating schools. More than 9 in every 10 (92%) of questionnaire respondents reported “great” impact to their programming through changes and resource allocation in the area of technology, with another 7% of respondents characterizing these changes as having “moderate” impact on their programming. Only 1% of responses indicated that little or no investment had happened in this area and its impact was seen as minimal.

Curriculum, Instruction, and Assessment. After the technology foundation is in place, schools and districts tended to move to changes in the teaching and learning process, which saw the next highest amounts of change. Nearly one half (47%) of the responding schools reported shifts in how they teach and assess students as having “great” impact, while 37% of respondents to the questionnaire reported impact here as “moderate.”

Professional Development. Teacher support in the form of professional development was an area that 75% of respondents reported as having “great” or “moderate” impact on the building of their customized learning program.

School Operations. Finally, as schools continue to build their programs, school structures begin to change as well to support the increased customization of learning for all students. The impact of school operations on the development of customized learning programs was reported to a “great” degree by 19% of respondents, and to a “moderate” one by 42%. Over one half of all schools studied (61%) had reached a level in their journey towards increasingly student-centered learning that the operations of their schools (staffing, classroom spaces, scheduling, etc.) was adjusting to meet this philosophical shift in the teaching and learning process.

Community Engagement. After the changes in instructional practices, community engagement and communication emerged as the next place that schools and districts began to focus, with 22% of respondents crediting this area with having “great” impact and over one half (54%) stating that this area had “moderately” impacted their programming.

The reality is that most schools and districts building a customized learning program will encounter problems and/or resistance in at least one of these areas, and will very likely experience growing pains at each stage. The following sections of the report explore each of these areas in greater detail.
Discussion of the Findings

Section I: Leadership

Michael Fullan once wrote, “The litmus test of all leadership is whether it mobilizes people’s commitment to putting their energy into actions designed to improve things. It is individual commitment, but above all it is collective mobilization.”

The leaders of the schools studied were engaged in managing transformational change at scale, shifting the model of “education as usual” for all school stakeholders. To help understand how administrators can successfully manage the change process when leading district-wide and school-wide initiatives, the i4tl researchers looked at which actions by district- and building-level leaders most strongly correlated to positive impact in the effective implementation of a customized learning environment. In addition, the team examined their effect on the empowerment, mindset, motivation, and self-efficacy of other administrators, teachers and other instructional staff, and student stakeholders.

Leadership at the district and the building levels was ranked highest in the online questionnaire data in terms of the degree of change seen overall in i4tl’s growth model. Every one of the schools or districts responding to the questionnaire indicated change in this area; 81% of responding schools characterized their leadership teams as having “great” impact on the nurturing and sustaining of their customized learning plan, while 19% of them characterized this as having “moderate” impact. It was clear from the data gathered that effective leadership is at the heart of introducing and driving any sustained shift to a transformative learning environment. “Change is difficult for everyone,” acknowledged one teacher from Ligonier Valley School District in Pennsylvania. “However ... we’ve been supported and encouraged and aided at every step by the administration.”

District-Level Leadership

In this section of the questionnaire, respondents were asked to report the extent to which the actions of district-level leaders nurture the implementation and maintenance of highly effective customized learning environments. The greatest impact was reported when district-level leaders encouraged building-level administrators to implement innovative processes and procedures within their schools, with 81.25% of respondents to this question agreeing that this action supported the implementation/maintenance of customized learning environments to a great extent. Two additional actions that were identified by over three-quarters of respondents (78.13% each) as supporting effective implementation of customized learning models to a great extent were involving building level leaders in the development of a district-wide shared vision and in district-wide strategic planning around that vision.

Less emphasis was given by questionnaire respondents to frequent and meaningful communication to all district stakeholders, with 43.75% of respondents crediting this action with impacting their customized learning model implementation to a “great” extent. Finally, the use or introduction of accountability measures for staff scored at the lowest rate by the questionnaire respondents; less than one-third (31.25% ) indicated that this action had “great” impact on their program. The initiation of accountability measures was also the only action to have some respondents indicate that it had no impact on the development and maintenance of the highly customized environment.

The graph below, Actions of District-Level Leaders, shows the district-level leadership actions with the greatest and least impact on the support and maintenance of highly customized learning environments according to questionnaire respondents.

Building-Level Leadership

The impact of building-level leaders, such as principals and assistant principals, differed both qualitatively and quantitatively from their district-level counterparts. Overall, building level leadership actions were less closely correlated with the successful implementation of a highly customized learning environment at a programmatic level; however, building leader actions had a higher degree of impact on teacher and student experiences within those settings reported as compared to the decisions and actions of those working at the district level. In general, district-level actions that tied to vision, planning, and alignment were most efficacious, while the most effective building-level actions had to do with engagement, collaboration, and team-building.

The most important actions that building leaders took to nurture and maintain a highly effective customized learning environment was to encourage teachers to implement innovative processes and procedures within their classrooms (90.27% of respondents agreed that this action impacted the learning environment to a great or moderate extent) as well as involving teachers in the development of a district-wide shared vision of teaching and learning (also at 90.27% agreement). The third highest-ranked action by principals and assistant principals was providing opportunities for collaboration and sharing of ideas among teachers (88.11%). Several building-level administrators reported that finding the time and tools to support teachers during the transition to their new learning model was one of their own biggest challenges, with scheduling time for collaboration between teaching teams into the school day as one of the biggest difficulties.
The graph below, Actions of Building-Level Leaders, shows the building-level leadership actions with the greatest and least impact on the support and maintenance of customized learning environments according to questionnaire respondents.

Creating a Culture for Change

Leaders involved in customized learning initiatives are often simultaneously engaged in creating a school culture that supports this level of innovation. “Leaders in a culture of change have to empower individuals in the organization to solve adaptive problems and engage in innovative and creative cultures... leaders need to ensure that there is a clear sense of purpose, mastery of skills, and empowerment and then innovation culture will become a reality.”\(^{11}\) The actions of school and district leadership were also examined in terms of their impact on the motivation, self-efficacy, empowerment, and mindset of other stakeholders as a means to examine whether or not the actions indicated were indeed supporting meaningful organizational change, as demonstrated in the graph below. In general, as shown in the graph below, Impact of Leadership Actions, leadership actions, taken in aggregate from data including both district- and building-level leaders, impacted building leaders, teachers, and students to a “great” extent in roughly similar patterns across each area (motivation, self-efficacy, empowerment, and mindset) examined in this study.

Data collected through the study’s questionnaire, interviews, and focus groups revealed that specific actions of district-level leaders have a strong impact on the motivation, self-efficacy, empowerment, and mindset of building-level leaders with a lesser, but still significant, impact on teachers. However, the greatest impact on teacher and student stakeholder groups in these areas come directly from the actions of building-level leaders. In i4tl’s study, 78.13% of respondents felt that actions by district-level leaders affected their empowerment to a “great” extent, while 75% of respondents for this question answered that district leadership actions impacted their motivation to the same degree. District-level leaders were reported to have slightly less impact on their building-level leadership in terms of mindset or orientation towards change, with 68.75% of respondents for these question answering to a “great” extent. The impact of district leadership was seen to be least in the area of building self-efficacy in their teachers; just 34.38% responded that district leaders’ actions had a “great” impact on this area. In fact, self-efficacy was the lowest scoring category for both building-level leaders and teachers when related to actions of district leaders.

Which specific actions of school leaders at the district level have the strongest correlation with positive change on the motivation, self-efficacy, empowerment, and mindset as self-reported by building-level leaders?

Questionnaire respondents indicated that district-level leaders providing frequent and meaningful communication to all district stakeholders (students, teachers, administrators, families, and the community, in general) was the single most important action as far as having a positive effect on the motivation, self-efficacy, empowerment, and mindset of both building level leaders and teachers. When district leaders took this action, growth occurred in all areas, with an especially significant reported impact on the self-efficacy (which rose 15.18%) and motivation (up 10.71% from the baseline) of building leaders. Consistent and ongoing communication strategies also positively correlated with increased growth mindset and orientation towards change for teachers, which rose 14.29% as well as motivation and empowerment (up 11.16%) in this stakeholder group.

The second most impactful action that district leaders reported taking was the implementation of structures that ensured accountability for growth and success at all levels - from students to teachers to administrators. The largest gains seen here were in the self-efficacy and mindset of building-level leaders, both of which increased by double digits as reported in the questionnaire; self-efficacy increased by 23.75% when accountability structures were put into place, while the mindset of building level leaders increased by 18.75%. A positive effect on self-efficacy and mindset was reported by teachers as well when district-level leaders took this action.

Other notable correlations include district leaders who supported or provided for specific opportunities to increase the growth mindset of building-level leaders through leadership coaching, mentorships, or professional development; this had a positive correlation to their reported feeling of self-efficacy in their work. Finally, when district-level administrators encouraged their building leaders to implement innovative processes and procedures and gave them the autonomy to do so, both the motivation and mindset of teachers, as reported in this category, increased significantly.
The table below, Actions of District-Level Leaders, makes clear the specific actions that district leaders can take that have the most impact in each category based on i4tl’s research findings in this study; percentages indicate the percentage of respondents who reported that the selected action had a “great” or “moderate” degree of impact on the area shown.

<table>
<thead>
<tr>
<th>Category</th>
<th>Essential Action 1</th>
<th>Essential Action 2</th>
<th>Essential Action 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation</td>
<td>Communication (86%)</td>
<td>Innovation (81%)</td>
<td>Accountability (80%)</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>Accountability (80%)</td>
<td>Communication (71%)</td>
<td>Growth Opportunities (63%)</td>
</tr>
<tr>
<td>Empowerment</td>
<td>Communication (64%)</td>
<td>Strategic Planning (60%)</td>
<td>Vision (60%)</td>
</tr>
<tr>
<td>Mindset</td>
<td>Growth Opportunities (74%)</td>
<td>Innovation (73%)</td>
<td>Vision (72%)</td>
</tr>
<tr>
<td>OVERALL IMPACT</td>
<td>ACCOUNTABILITY</td>
<td>COMMUNICATION</td>
<td>INNOVATION</td>
</tr>
</tbody>
</table>

Which specific actions of school leaders at the building level have the strongest correlation with positive change on the motivation, self-efficacy, empowerment, and mindset as self-reported by building-level leaders?

The impact of building-level leadership action correlated more directly with impact on teachers in terms of motivation, self-efficacy, empowerment, and mindset than on those same qualities in students. However, the strength of the relationship between the building-level leaders’ impact on teachers was less correlative than the district-level leaders’ impact on the building-level administrators; where district-level actions impacted all questionnaire respondents, some respondents stated that building level-leadership had little to no impact in these areas. The response options garnering the highest number of “to a great extent” and “to a moderate extent” responses were: motivation of teachers (93.51%), empowerment of teachers (92.39%), mindset of teachers (91.89%), and self-efficacy of teachers (91.84%).

Building-level leadership was seen to have the biggest impact on student empowerment and motivation, with over 80% of respondents to the question finding principals, assistant principals, and department heads to impact the customized learning environment to a “great” or “moderate” extent. Areas where building-level leadership actions were seen to have the least impact were in the self-efficacy of students, where almost one in four (23.37%) respondents stated that the actions of building-level leaders had little to no impact. The table below, Actions of Building-Level Leaders, makes clear the specific actions that building leaders can take that have the most impact in each category based on i4tl’s research findings in this study; percentages indicate the percentage of respondents who reported that the selected action had a “great” or “moderate” degree of impact on the area shown.

<table>
<thead>
<tr>
<th>Category</th>
<th>Essential Action 1</th>
<th>Essential Action 2</th>
<th>Essential Action 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation</td>
<td>Communication (89%)</td>
<td>Accountability (87%)</td>
<td>Growth Opportunities (85%)</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>Communication (85%)</td>
<td>Accountability (77%)</td>
<td>Collaboration (76%)</td>
</tr>
<tr>
<td>Empowerment</td>
<td>Communication (93%)</td>
<td>Collaboration (93%)</td>
<td>Accountability (90%)</td>
</tr>
<tr>
<td>Mindset</td>
<td>Communication (90%)</td>
<td>Accountability (89%)</td>
<td>Growth Opportunities (84%)</td>
</tr>
<tr>
<td>OVERALL IMPACT</td>
<td>COMMUNICATION</td>
<td>ACCOUNTABILITY</td>
<td>GROWTH OPPORTUNITIES &amp; COLLABORATION</td>
</tr>
</tbody>
</table>
All of the actions studied had a positive impact on the social-emotional aspects of teacher and student learning, including the motivation, self-efficacy, empowerment, and mindset. This kind of leadership impact cannot be overstated. As Julia Fisher Freeland wrote:

*The importance of shared leadership and empowering teachers and students is a common theme from the principals....Change cannot happen with one person tackling it on their own, so leaders who are looking to make changes within their buildings must ensure that they have a team to support each other and get buy in from stakeholders. The importance of distributed leadership builds on the need for ownership in the school by capitalizing on strengths and allowing teachers opportunities to grow and lead themselves.”*¹²

The relationship between district-level to building-level leaders and teachers ensures a clear, direct communication of vision from the district into the classroom.

**Section II: Technology**

Across the areas of leadership; technology; curriculum, instruction, and assessment; professional development; school operations; and community engagement, which this study examined, the area of technology emerged as an “early indicator” of progress toward building a customized learning program. This is the place in which schools and districts looking to implement customized learning programs at a scale intended to reach every learner often innovate or allocate resources first. Data from respondents across the country demonstrated that the adoption of the foundational technology infrastructure was of primary importance to the building of their subsequent programming. While customizing learning does not have to depend on technological components, i4tl’s data and school responses ultimately suggest that if customized learning models are truly to reach all learners, technology is a needed catalyst to achieve this goal.

**Ensuring Adequate Access**

Participating schools and districts responded overwhelmingly that extending Internet access to their students and faculties (both at school and at home) had positive results for their ability to implement customized learning at scale and was a top priority in their planning. The vast majority of respondents (92.18%) indicated that ensuring adequate Internet access had “great impact” on the establishment, maintenance, and growth of their customized learning environment and 6.70% of respondents credited this investment with having “moderate” impact of the same aspects of their programming. All of participating schools and districts stated that they had invested resources in this area and that doing so had positively impacted their learning model. Schools and districts reported using a wide variety of strategies to meet this goal:

- Some reached out to their community to identify safe, supervised places where their students can access the Internet and complete assignments, projects, and coursework.
- Others extended their own district network to the town or community, as in the example of Lindsay Unified School District in California, which became its own Internet Service Provider and through a grant-funded program, provides community wi-fi access to all student families.
- Other schools and districts worked with their communities to find options through providers that support low-cost home Internet for economically disadvantaged students and families; for example, Marshall County Schools in Kentucky have access to such a program for their families.
- Schools also found creative ways to supplement student access to their education beyond just the home or school building, piloting wi-fi service on their athletic buses to turn long bus rides into recovered instructional time.

Devices

The next place where schools and districts reported investing additional resources to support their person-
alized learning program are in the number and availability of computing devices. Well over three-quarters
(86.52%) of respondents credited ensuring adequate device access with having a “great” degree of impact
on their ability to maintain and build their customized learning model; 9.55% recorded the same action
“moderately” impacting their ability to do so. More than 97% of the respondents stated that their schools
reported that both students and teachers have an adequate amount of access to computing devices while
at school, and many of the schools and districts responding reported that they have gone to a 1:1 student-
to-device ratio, have a take-home computer program, or some combination of the two. Other notable
insights include:

- According to one teacher from Pennsylvania’s Ligonier Valley School District, devices and improved
  access are leveling the playing field for her students: “[T]hey have devices in their hands that they
  would not otherwise have due to severe poverty within the district.”

- One distant rural school reported that, despite initial concerns that students would be “edged out”
  of computer use at home by other family members, homework engagement had increased in the
  grades in which students were allowed to take their devices home.

- A third district indicated that their own program has yielded additional results in their community;
  adults in the families with take-home devices had also benefited from the device program, some-
times using the school-issued computer to complete resumes and/or online classes for professional
certification or continued education.

Adequate Bandwidth for Academics

When adequate access and devices are in place, the next step for most programs was to ensure adequate
network and Internet bandwidth for both teachers and students. One group that has worked with countless
states and districts in providing low-cost high-speed Internet has been EducationSuperhighway. Dedicated
to closing the connectivity gap, this nonprofit group helps schools, state leaders, and service providers
share and compare broadband services and bandwidth information across the nation so that they can
maximize their budgetary dollars. Another strategy that schools and districts are turning to is maximizing
their E-rate funding. E-rate (also known as the Schools and Libraries Program),13 is overseen by the Federal
Communications Commission. The funding is specifically aimed at helping public schools and libraries ac-
cess affordable high-speed Internet access and telecommunications services.

A large majority (84.27%) of respondents indicated that they are implementing these steps to a “great”
extent in order to support their customized learning programs. This means ensuring that the Internet avail-
able to students and teachers is easily accessible from all parts of campus, is consistent and reliable, and
runs at speeds that support digital learning.

Other technology resources needed for the building of customized learning environments included the use
of a learning management system (LMS), the purchase or creation of digital content, and user-friendly data
systems that aid teachers and administrators in the effective monitoring of student progress and mastery.
While data reported by participating schools and districts indicated significant progress in the use of a
LMS, digital content, and data systems, overall implementation in these areas was not to the high degree
seen for device access and network infrastructure, particularly in the use of student data at the instruc-
tional level.

Digital Content and Learner Management

The use of a LMS or similar learning platform in schools is often a key indicator of its level of technology
use in the teaching and learning process. Leveraging a LMS to organize and deliver content at scale also
enables faculty to create digital components of their face-to-face courses to supplement or potentially
blend instruction. It also means that students may have access to course content and resources 24 hours

13 https://www.usac.org/sl/
per day, seven days per week. This kind of ubiquitous access, when used intentionally across schools and districts, serves as a foundation for blended and personalized learning models, as well as customized learning. The responding schools and districts of this study reported that 64.04% of the programs utilize a LMS or a learning platform to a “great” extent. Almost one-quarter of responding schools use this tool to a “moderate” extent, and 12.26% of questionnaire respondents stated that these tools, while in use, had only a “slight” impact on their school’s learning model at this time. Additionally, data collected through the questionnaire revealed the following:

- There was no single LMS or digital content provider that schools reported using as the basis of their customized learning models; some used purchased digital core curriculum and others used teacher-created curriculum.

- The commonalities that both LMS and/or digital content tools used by schools and districts in this study possessed were the capability of teacher and/or student control over aspects of teaching and learning such as course pacing, levels of difficulty, ability to adapt content based on learner progress, and the ability to customize demonstrations of mastery.

- Many schools and districts reported using digital content that addressed competencies that are not simply academic. Some, like Northern Cass School District in South Dakota and Marshall County School District in Kentucky, have developed a “graduate profile” that helps them to identify and monitor student progress towards a specific set of characteristics that they have committed to foster in graduates. Others use social-emotional learning curricula that help them reach and teach SEL skills to their learners.

### Consistent Use of Data Systems

The use of data to monitor student progress towards mastery is the lowest-growth area thus far among the schools and districts studied. Not surprisingly, this area is strongest among schools that have greater program longevity. Only 41.57% of respondents stated that this area of technology use had “great” impact on the success and maintenance of their learning model; 32.02% stated that user-friendly data systems thus far have had a “moderate” impact on their school’s customized learning model. These findings are consistent with the progression that the i4tl team often sees as consultants in the field - that infrastructure and hardware come first, then the Learning Management System (LMS) with digital content creation or purchase. Finally, once the tools are in place and instructional staff gains familiarity with them, there is a move to make student progress data more accessible/usable in the classroom. Because the ability to customize and choose content based on unique student needs and goals is central to achieving a fully customized learning environment, it seems likely that these areas will be the next to see growth and movement as school programs continue to develop. Some examples of forward-thinking applications of the use of student data within a customized learning program include:

- Westminster Public Schools in Colorado, for example, has a set three-week schedule at which time students can demonstrate mastery towards a new level of proficiency. In addition, student data is tracked daily, weekly, and annually.

- Others district use data folders to help students plot their own progress over time towards identified goals.

- Still other schools and districts have uniform standards that they chart progress towards across all grade levels; such data charts used for tracking progress towards and beyond reading proficiency were observed in classrooms across Lindsay Unified School District in California.

### How Changes in Technology Lead to Changes in Instruction

This study also revealed correlations between initial investments in technology and increased changes to the teaching and learning process in the classroom reported by both teachers and administrators. The changes were most evident in the areas of use of student data to support instructional decision-making and in the use of formal established learning progressions; both are key characteristics of building a competency-based, customized learning model. While schools making these kinds of instructional shifts did not report higher-than-average (for this study) investments in either number of devices for students or
teachers, Internet access, or bandwidth, they did report higher-than-average investment in other areas. These schools tended to be further along in their program growth and to have a clearly developed and articulated vision for transformational teaching and learning.

Schools and districts using a LMS or digital learning platform in which to build or host the content designed for students reported higher levels of change in their teaching and learning processes. In particular, LMS use correlated positively with an 8% rise in the use of formal learning progressions to a “great” extent, a 10% increase in the incorporation of student voice and choice to a “great” extent, and a 12% increase in the use of instructional strategies that include a range of learning formats to a “great” extent. Similarly, schools and districts that invested in user-friendly platforms to support the frequent and ongoing use of student data reported higher use of formal learning progressions with an 18% increase in to a “great” extent responses, a 17% increase in the use of strategies incorporating student voice and choice to a “great” extent, and a 22% increase in the use of instructional strategies that include a range of learning formats to a “great” extent. When schools or districts reported using both a LMS and strong data practices, their ability to implement changes to the teaching and learning process that incorporates the tenets of customized learning increased in all areas, as seen in the chart below.

However, while technology use provided the foundational tools for schools seeking to implement their customized learning models, school leaders made it very clear that technology use is a means to an end. “[W]e see technology as a tool. It is an accelerant to our work - it helps us build with speed, accuracy, and scale. But it is no replacement for the hard work that our learning facilitators do everyday,” said Barry Sommer, Director of Advancement of Lindsay Unified School District in California.
Section III: Curriculum, Instruction, and Assessment

After leadership and technology, changes in teaching and learning are the next landmarks in a school’s or district’s customized learning roadmap. With a strong technological foundation in place for scaling digital learning, schools and districts in this study were then able to progress to a new level of program implementation. Having adequate access to computing devices, digital content, and student performance data enabled schools to begin modifying their traditional structures in order to provide more customized learning experiences to students. Schools reported shifts in the area of curriculum, instruction, assessment as they began to transform the teaching and learning process. Many, but not all, of these shifts tended to be mediated by technology, simply because technology, as demonstrated in the previous section, is the accelerator that allowed schools and teachers to customize learning at scale.

According to Sturgis and Patrick, the three primary principles that allow customization are:

- Advancement based on mastery of learning - students are assessed according to their performance only and the credits earned by students are based on the demonstration of mastery and not “seat time.”
- Creation of clear and measurable learning goals - in this model, teachers are not at the center of instruction, but take on a facilitation or coaching role.
- Purposeful and meaningful assessment - ongoing formative assessments are aligned to learning goals and combined with summative assessment to ensure content mastery.14

Based on these principles, the i4tl team studied the following possible changes in teaching and learning for schools implementing customized learning: the use of formal learning progressions, opportunities for student voice and choice, a focus on student readiness, increased student ownership of the learning process, and the use of a variety of learning formats, including the use of multiple modalities for both interacting with content and demonstrating mastery of that content and related skills. The study also examined the extent to which student data was being used to adjust learning goals and supports and how schools and districts are using mastery criteria versus traditional grades and seat time. The graph below summarizes the degree to which the questionnaire respondents believed their school or district has implemented the specific aspects of curriculum, instruction, and assessment identified above.

![Graph showing extent of implementation of various aspects of curriculum, instruction, and assessment.]

Formal Learning Progressions

One of the innovations that was consistently reported across the schools and districts studied was the use of flexible, but formal, learning progressions. This work, “… ensuring a viable and valid structure of learning progressions for each content area, with attention to processes that take into account complex reasoning, and habits of mind and work” is one of the first steps a school or district must take in order to reach customization at scale. In most cases, these formal progressions were made accessible to students both on and off campus through a cloud-based platform. The learning pathways might be teacher-created or built into a purchased curriculum, allowing students to demonstrate mastery based on alignment to specific standards. Formal learning progressions that are aligned to district-level outcomes or standards were credited by 77.9% of respondents of this study as having a “great” to “moderate” impact on the maintenance of a highly customized learning environment.

Student Voice and Choice

At an instructional level, all participating schools reported significant progress in providing students with higher levels of student voice and choice. Almost one-third (29.8%) of all schools and districts responding stated that this practice had been incorporated into their learning model to a “great” extent, and an additional 44.75% reported this practice was part of their instructional work to a “moderate” degree. Instructional strategies that reflect student voice and choice, not only in the subject matter being studied but also in terms of learning preferences, were more and more prevalent; this kind of instructional design in the customized learning environment allows students to interact with content in several different modalities and also allows students to demonstrate mastery through multiple options. For example, a PowerPoint presentation, a written paper, or a student-designed, hands-on application project might all be options for demonstrating mastery. Overall, instructional strategies that reflect student voice and choice were selected by three-quarters of questionnaire respondents as having a high degree of impact on the success of their customized learning model.

Focus on Readiness

Meeting each student where they are and building from there in a way that incorporates the students’ interests, strengths, areas of challenge, and preferences as a learner is predicated upon using strategies to assess, both formally and informally, student readiness. In this section of the study, 77.35% of schools studied indicated using instructional strategies that reflect student readiness. The study also revealed that how schools, districts, and teachers are thinking about assessing student readiness is also changing. For example, at Westminster Public Schools, this step may involve project-based learning assessments that are aligned with standards across multiple levels, allowing students to demonstrate mastery in several curricular areas at once and to advance more than one level at a time. In other schools, assessments often involve “knowledge checks” before a student is allowed to progress to the next learning standard and/or larger, cross-curricular assessments that allow students to demonstrate mastery by applying the concepts learned in novel or complex ways. A focus on project-based learning allows teachers at Marshall County Schools in Kentucky to continually assess and adapt instruction based on student readiness.

Student Ownership of the Learning Process

In examining ways that schools and districts worked to nurture student ownership of their learning, over 70% of questionnaire respondents indicated that strategies to support student ownership have been implemented to at least a moderate extent. In some cases, this means allowing students the opportunity to seek out the information, support, or modality of learning that they need such as the use of a flex space for individual or small group work as evidenced at Governor Mifflin School District in Pennsylvania.

Use of a Variety of Learning Formats

In the i4tl questionnaire, 84.44% of respondents stated that the incorporation of learning opportunities that utilized a variety of learning formats based on individual student needs (e.g. independent learning, group
learning, project-based learning, flexible timelines, etc.) had a “great” or “moderate” impact on the customized learning environment. For example, at Lindsay Unified School District in California, the i4tl team observed students with the options to practice math skills in small groups, individually via digital learning platforms, individually via online practice sheets, and in project-based learning teams. In Language Arts, students could read leveled books via an e-library or from their own personalized reading baskets at their tables stocked with student-selected books at their independent and/or instructional reading levels.

Use of Student Performance Data

Both the use of user-friendly data systems and mastery-based advancement were at the lower end of the spectrum for this category of inquiry into change in curriculum, assessment, and instruction. In the area of using student performance data on an ongoing basis to inform customization and instruction, 65.2% of respondents rated this as having “great” or “moderate” impact. Pequea Valley School District in Pennsylvania was among some of the schools that have effectively instituted this practice. With continuous frequency, math teachers at the Pequea Valley High School monitor individual student progress to identify students who are in need of acceleration and remediation. Using the data available to them through their student performance data system, teachers dynamically group students and assign teachers to these groups based on the teachers’ instructional styles and expected effectiveness.

Advancement Based on Mastery

Approximately 68% of the responding schools in this study indicated that their programs now include student advancement or progression based on student mastery (competency) of knowledge or skills. A common method used to accomplishing this involves the use project-based learning assessments that are aligned with standards across multiple levels, allowing students to demonstrate mastery in several curricular areas at once and to advance more than one level at a time. For example, a student at Westminster Public Schools in Colorado can advance through several academic levels by demonstrating not only knowledge of a concept in isolation, but then appropriately recognizing and applying that knowledge in conjunction with other learning to solve a real-world problem. The pie charts below summarize the responses of all questionnaire respondents relative to the degree of implementation of mastery-based advancement in their schools or districts.
Section IV: Professional Development

Teacher support is yet another linchpin of program success; however, advancement and innovation in this area lags behind activities such as investment in technology, leadership, curriculum, and community engagement within the schools and districts studied here. In general, responses to professional development (PD) questions also demonstrated a much lower degree of confidence than the previous sections. For this area of inquiry, the i4tl team looked at actions such as the extent to which the PD models offered within schools and districts included learning opportunities that allow for teacher voice and choice, nurture teacher ownership of their learning, and incorporate a variety of learning formats based on individual teacher needs (e.g., independent learning, group learning, project-based learning, flexible timelines, etc.). The team also examined the extent to which various PD models included formal learning progressions that aligned to district-level expectations, formal learning progressions that aligned to each individual teacher’s supervision process, and/or the use of technology coaches who worked directly with teachers to design and deliver lessons.

None of the actions studied garnered 50% of responses in the “to a great extent” category; “not at all” category responses were higher in this section as well, suggesting that these activities are either not happening to the degree that scheduling changes and technology changes are happening and/or that the professional development activities engaged in are not having a strong level of impact. Teacher feedback in both the online questionnaire and in teacher focus groups suggests that a combination of both causes might be the case.

Teacher Support and Training

Approximately 75% of responding schools and districts indicated that they have incorporated customized learning practices into their professional development models as well as their student learning. Practices such as allowing teachers to have voice and choice into the PD process, teacher ownership of learning, and variation in learning formats available to teachers all demonstrated growth. Teacher and administrator participants alike stated that incorporating these elements of customized learning effectively modeled to teachers how the student learning experience should look and feel. In addition, providing formal learning progressions for teachers and administrators that are aligned to school or district expectations as well as providing or co-creating customized learning plans based on individual teachers’ supervision process was also impactful as reported by approximately 65% of the respondents.

Providing effective and appropriate PD for teachers and administrators also emerged as a strong contributing factor to program success and longevity. The questionnaire data correlated strongly with perspectives from interviews and onsite focus groups that providing high-quality, effective PD was key to moving schools forward with transforming instructional and assessment practices.
Data collected through the online questionnaire also revealed that the structure and format of PD for educators and practitioners within these learning environments is evolving to look more and more like the type of customized learning environments the schools are implementing for students. Some aspects of customized learning for staff such as voice and choice, teacher agency, varied learning modalities, and formal learning progressions aligned to personal goals and objectives are outpacing implementation for students - in other areas, the application of customized learning principles for educators themselves lags behind its application to student learning.

Ninety-seven percent of all questionnaire respondents indicated that teachers were able to choose (or at least influence) their professional learning experiences. Nearly one-third of the participants (32%) reported that this opportunity existed to a “great” degree, while an additional 41% reported the level at a “moderate” extent. The degree to which participants believed that the learning opportunities for teachers nurtured ownership of their own professional learning was reported at similar levels, with 32% of participants reporting that this practice was implemented to a “great” extent and another 44% stating that implementation was to a “moderate” extent.

Increased levels of personalization, if not customization, were found in the PD opportunities offered. Thirty-four percent of the responding participants claimed that learning opportunities that incorporate a variety of learning formats based on individual teacher needs was present, while 40% reported this existed to a “moderate” extent, and 23% reported it existed to a “slight” extent. The extent to which formal learning progressions for teachers was implemented in the participating schools and districts was also measured. Sixty-eight percent of all participants reported that a structure of formal learning progressions for teachers that were aligned to district-level expectations was implemented, and 65% indicated that such learning progressions were directly aligned to the individual teacher supervision process.

The most highly effective strategy for developing the skill of teachers within a customized learning environment was the use of coaches or specialists who work directly with teachers to design and/or deliver lessons. Seventy-four percent of the participants in this study reported that this type of focused PD was implemented to at least a “moderate” extent. The hands-on, job-embedded nature of this approach to professional development, according to teachers surveyed, helped build confidence and empowerment.

While all participating schools reported some level of PD for instructional staff, the data collected through the online questionnaire revealed that the structure and format of PD for educators and practitioners within these learning environments was looking more and more like the type of customized learning environments that the schools and districts are implementing for students. Specifically, data collected on aspects of customized learning for staff such as voice and choice of the teachers’ PD programing, teacher agency, varied learning modalities, and formal learning progressions aligned to district and personal goals and objectives indicated that in some areas it is outpacing implementation for students, but in other areas, application of customized learning principles for teachers themselves lags behind its application for students. The graph below illustrates a comparison of the extent to which customized learning principles are included in the learning opportunities for both teachers and students.
While all participating schools and districts reported providing some level of PD for staff as part of their customized learning program implementation, teachers overwhelmingly voiced that they would benefit from even more targeted PD and shared time for collaboration and planning as they transitioned to a customized learning model.

Section V: School Operations

Data from this study revealed that as customized learning programs evolved, there tended to be a shift from adult-centered traditional structures in school operations to ones that better serve students and their learning, and this shift correlated positively with program longevity. This area is perhaps one of the most difficult to truly transform. While some change and innovation is possible at the classroom level, breaking up traditional structures at the school or district level is a complex issue that can run counter to state-level statutes, union rules, national policy decisions, and community expectations.

This study also examined changes occurring in the area of school operations, specifically the extent to which the annual school calendar has been modified to support a mastery-based (competency-based) education model, how much daily and weekly student schedules are customized to support individual student learning pathways, how much daily and weekly teacher schedules are customized to support individual student learning pathways, the extent of modification to district-wide or school-wide staffing structures to support customized learning, and how learning spaces within the physical school facilities have been re-designed or re-purposed to support customized learning. In the schools and districts responding to the questionnaire of this study, this was the sole area in which “great” or “moderate” levels of change did not reach a 70% participation rate; only 19% of reporting schools and districts responded that they have shifted school operations to a “great” extent. Another 42% responded that these changes have happened to a “moderate” degree, as shown below.

Time-Based Operational Structures

The greatest operational shift reported by responding schools and districts was in the modification of traditional staffing models and how they are deploying their human resources. More than 60% of the questionnaire respondents indicated they made “moderate” to “great” changes in their district-wide staffing structures in order to support higher degrees of customized learning. The second area of school operations that saw substantial change was in the daily and weekly student schedules, which are increasingly being customized to support individual student learning pathways. Specifically, 55% of the respondents stated that their schools or districts have implemented effective changes in this area, while a slightly lower percentage (54%) reported that their schools or districts have effectively adjusted teacher schedules to support the learning environment. In some schools, this might be in the form of a “flex” period during the otherwise traditional bell schedule. This may be time in a schedule during which students can get targeted support in a subject they need, or it can be time when students can work on independent projects to demonstrate higher mastery levels. “WIN” time (or “What I Need”) time is another way that schools are adjusting regular bell schedules to accommodate time for adaptive instruction for students. Other changes are more radical, such as flex schedules for students taking dual credit classes at a partner college, university, or trade
school. In some cases, students’ schedules for the week are determined by a pre-test or assessment that is used to place students into academic levels based on their understanding of the concepts to be studied that week; their daily schedule changes based on what the assessment data tells teachers that students need. A student might be needing support from a math group that focuses on hands-on practice of concrete skills, but also be ready for an accelerated social studies lesson that involves collaborative evaluation of primary documents and complex thinking skills.

However, to a large degree, schools are still tied to a traditional annual school calendar; this area showed the least amount of change as a result of moving to a customized learning model. Of all questionnaire respondents, 35% indicated that there was no change at all in their school’s or district’s annual school calendar as the customized learning model was initiated, and only 37% of the participating schools and districts indicated that their annual school calendar has been modified to support a mastery-based (competency-based) education model. Insights from school personnel expressed that changing an annual school calendar in their school or district is difficult due to external pressures, with state-level mandates regarding seat time and attendance and school community acceptance being among the most significant of these pressures.

Another area of relative lag was the change or adjustment in teacher daily schedules to accommodate individual student pathways. Twenty percent of respondents indicated this area remained unchanged by the implementation of their customized learning model. It is worth noting here that the areas that are slowest to change are also the ones that are least within the purview of the school or district and may be subject to constraints or mandates from outside entities such as legislation, state-level statutes, and public education department rules that have not evolved as quickly as the student-centered, customized learning models studied here.

Section VI: Community Engagement and Support

Engaging the greater school community to understand, develop, and support the shift to a customized learning model was the fifth area to see change as reported by schools and districts that participated in the study. Slightly less than one-quarter of respondents (22%) rated this area as having “great” impact on the success and nurturing of their customized learning environment. Over one half (54%) ranked this impact as “moderate.” However, as several school leaders and participants remarked in retrospect, this really should have been the first or second area of growth in tandem with leadership. School leaders, teachers, and parents interviewed during the study explained that frequent and meaningful communication of the vision, goals, and “the why” of implementation was an important aspect of garnering support. For example, several of the districts with the longest track records of involvement in customized learning, Lindsay Unified School District in California and Westminster Public Schools in Colorado, reported that they held stakeholder conversations for up to two years before making the move to implement their new systems of customized learning.

In this study, the majority of responding schools reported that their schools have developed formal communication channels with internal and external stakeholders and that frequent and meaningful communications are executed for the purpose of educating stakeholders of the status, successes, and challenges of their programs. A closer look at the data revealed that each school community had nuanced needs based on current issues within the school community, and school leaders adjusted the communication processes based on the specific needs of their communities. School leaders’ development of formal communication channels to be able to connect with various stakeholder groups within the greater school community was rated by 71.91% of respondents as an area where they have worked to a “great” or “moderate” degree throughout their implementation; only 28% of stakeholders said this had little or no impact on their learning models’ implementation or sustainability. While these figures clearly demonstrate that the majority of schools and districts that participated in this study executed formal communications to stakeholders, less than one half of these schools and districts (44%) reported the implementation of a formal process for evaluating the effectiveness of their communications with the internal and external stakeholder groups.
Schools executed regular and frequent communications regarding their personalized and customized learning programs to greater extent internally with students, parents, and school employees with 76% of participants reporting that this was done to at least a “great” or “moderate” extent. Communications with external stakeholder groups (businesses, civic organizations, and general community members) happened to a lesser degree with 56% of the participants reporting this action to at least a “moderate” extent and 37% responding that this action occurred only to a “slight” extent.

Section VII: Commonalities and Success Stories

When asked about the benefits of the customized learning program implemented in their school or district, administrators and teachers (82.53%) alike reported that they observed increased levels of student engagement. Well over one half also reported increased levels of student motivation (62.65%) and a higher adoption of a “growth mindset” of students (59.04%). The least reported positive impacts occurred in the areas of attendance and discipline, but more than one out of three respondents reported benefits in these areas as well; questionnaire responses and perspective on this topic are summarized in the bar graph below.

Another student benefit school leaders and teachers experienced or observed as a result of implementing a customized learning model in their school or district was the individualized pacing and ability for students to work at their own level. Indeed, this was the most common benefit the team heard from student focus groups during school site visits as well - students truly appreciated the opportunity to work ahead when and where they were able, but also to be able to receive teacher support in areas of struggle when needed. Conversations with teachers and school leaders revealed additional benefits resulting from their customized program implementations as listed below in their own words:

“Our learners don’t give up, but instead have a growth mindset philosophy because they are being placed in a group/room where they fit best to be successful!”
- District-level administrator

“One additional benefit that comes to mind is HOPE. We can offer hope to learners who have ‘burned out’ for whatever reason in their previous/traditional school.”
- High school teacher
“Instead of being ‘the place I go to fail,’ my students now view school (my classroom, anyway) as ‘the place where I can succeed.’”

- Middle school teacher

“Graduates report that they feel more prepared for college as they have been provided autonomy in high school where their peers struggle with their new freedom that they never had during their high school years. Additionally, they can better reflect on their own best learning style.”

- High school principal

“We have an increased percentage of graduates going for further education and increased scholarship dollars awarded to graduating classes”

- High school assistant principal

Students were not the only stakeholder group that directly benefited from the implementation of customized learning. Questionnaire respondents reported that teachers and other instructional staff also benefited. More than three-quarters (76.73%) of the respondents stated that there was an increased adoption of a “growth mindset” among teachers engaged in the new learning model; still others (71.07%) noted increased levels of teacher empowerment. Another benefit reported by questionnaire respondents was an increased level of teacher motivation (61.01%). However, only 37.73%, or one out of every three respondents to this question, agreed that the transition to the customized learning model had increased teacher job satisfaction. Other benefits that were self-reported by teachers included a sense of feeling trusted as a professional, increased collaboration with fellow teachers, and a renewed sense that they are meeting students’ needs. A summary of responses is provided below.

### Section VIII: Differences and Challenges

Questionnaire participants were also asked to think about the very real challenges of implementing such a deeply disruptive learning model, one that breaks down many of the traditional structures. Engagement on this question was especially high, perhaps reflecting that teachers and school leaders themselves are still considering how to improve and refine upon their work to date. As one administrator stated, “The greatest challenge is that there is no road map to how [customized learning] should be implemented. We must learn from our failures and keep moving forward.”

The main challenges raised by stakeholder groups in the questionnaire fell into a few major categories. One of these challenges was that while administrators, school leaders, and teachers understood the customized learning model that they were striving to implement, there was less understanding and buy-in from
families and students. One school leader cited confusion and “push back” on the part of the community regarding the new vocabulary. Another stated that, “[T]he biggest issue is stakeholder buy-in. The forceful changeover seems to have caused a division in our faculty and community from those who are all in and those who are full traditionalists.”

Another challenge reported through the questionnaire was the sheer amount of work that moving to a customized learning model requires on the part of teachers, especially in the early years before curriculum and systems are fully developed. One teacher reported, “This has empowered teachers but at the same time increased work-related stress” as educators try to figure out what the new model means for their own classroom practice. Teachers also cited the need to schedule time for collaboration with colleagues throughout the school day, especially since many of them are teaching multi-age groups and/or sharing students back and forth based on mastery levels. Time, they felt, is at a premium more than ever as they strive to implement a high-quality learning experience that is as new to them as it is to their students.

A third challenge that teachers offered was the fact that the professional development was not always aligned with their needs or specifically aimed at helping teachers in the classroom; instead, they were learning theory about customized learning or listening to speakers. Teachers wanted more support in figuring out how the learning model would actually look and feel for their students. Feedback from this stakeholder group reiterated that teachers needed more - and different - professional development. Other challenges cited were the lack of student readiness to be fully engaged and empowered participants in their own learning and that the sudden shift in expectation was disorienting and confusing for learners who were used to a more traditional classroom model. Additionally, both teachers and administrators alike responded that there are simply places where their customized learning model still runs into difficulty when it intersects with other state or federal structures. For example, state standardized testing which is based on grade levels, translating the customized learning proficiency levels into a college-friendly transcript, and having an instructional day or school year that is dictated by seat-time were all identified as lingering challenges. One school leader wrote that “Removing the barriers imposed by the state ... has been one of the biggest obstacles to implementing a customized environment.”
Summary and Take-Aways

The i4tl research team is grateful to the many leaders, administrators, teachers, students and parents involved in the work of customized learning for sharing their time, expertise, and experiences with us in the course of this project. The MCL community, both as individuals and as a group, shares a forward-thinking, student-centered vision for what education can become across our country. Throughout many formal interviews and informal discussions over the course of a year, with leaders, teachers, administrators, and technology teams, as well as with parents and community members, we heard again and again their commitment to improving outcomes for students, coupled with the belief that we, as educators, have a moral imperative to continue to break down outdated structures that no longer truly serve our learners. The schools in this study were also united in their dedication to sharing what they themselves have learned, both their successes and their mistakes, and to helping other schools and leaders engaged in the work of customized learning start from a higher baseline. “We’re all in this together” was a prevailing attitude throughout our work on this project.

The team at the Institute for Teaching and Leading hopes that the findings presented in this study help shape the vision for other schools and districts who are starting their own journey towards a more student-centered learning model. The data and school stories told here demonstrate the many ways that the principles of customized learning can be used to provide a relevant, empowering education to all students. By helping schools and leaders understand how implementations unfold and what to expect as they move through the areas of leadership; technology; curriculum, instruction, and assessment; community engagement; professional development; and school operations, we hope to support them in the implementation and sustainability of their customized learning programs.

For schools considering the design and implementation of a customized learning model, we offer a few key take-aways from our findings here:

- **It takes time.** The study found that schools and districts reported increasing benefits as their personalized learning programs matured over time. Schools reported about the many challenges, stumbling blocks, and bumps along the way - but they also reported increased benefits to administrators, teachers, and learners as they stayed the course. One of the most striking take-aways were the positive changes in the growth mindset, empowerment, self-efficacy, and motivation of teachers, leaders, and learners as correlated with program longevity.

- **There will be bumps in the road.** Every school we interviewed and surveyed shared at least one time where they ran into a problem and thought perhaps their move to great customization was over, or they were not sure how they could solve it. For some, that first big hurdle was getting community buy-in; for others it might have been getting technology in place to allow the kinds of changes in instruction that they wanted to see. For still others, it was figuring out how to support and empower their teachers in a new learning model without overwhelming or burning them out.

- **You have to lay the groundwork.** Successful customized learning programs attributed a lot of their results on their community engagement at early stages of planning and frequent, meaningful communication with stakeholders (internal and external) around their vision for teaching and learning. In addition, schools and districts across the continuum demonstrated that the adoption of the foundational technology infrastructure was an early area of investment toward building a customized learning program.

- **Training is essential.** 100% of the participating schools provided some kind of professional development for staff as part of their movement toward customized learning. However, the teachers surveyed overwhelmingly indicated a need for more targeted professional development to help them make the transition from a traditional classroom to a more customized model. They also voiced a
need for more scheduled time for collaboration and planning time as a group or team during imple-
mentation and beyond. Survey data also revealed an evolution of professional development for edu-
cators as elements of customized learning such as voice and choice, learner agency, varied learning
modalities, and formal learning progressions aligned to individual goals, are increasingly part of
adult learning. In other areas, the application of customized learning principles for educators them-
selves lags behind its use in student learning.

- **It’s seriously hard work.** Any one of the categories we researched can be an opportunity for in-
novation - or a stumbling block in the process of building a customized learning program. Even with
the best-laid plans and training in place, sometimes programs “hit the wall.” School leaders and
teachers reported myriad challenges such as: pressure to produce high test scores, resistance from
staff to learning new practices, difficulty communicating the district’s vision, and skepticism from
families about the new learning practices. However, most also reported that the challenges were a
temporary part of their school or district’s customized learning journey.

- **The job is never done.** The schools that participated in our research reported through both quali-
tative and quantitative data that building one aspect of the program often has an unforeseen ripple
effect on other areas of their learning model; innovation in one area leads to change in others as the
learning model grows and evolves to become increasingly student-centered.

**It turns out, as many of us have long suspected,**
there really is no “we’re done” in education.

![Institute for Teaching and Leading](i4tl.png)

**rethink. innovate. empower.**