

Best Practices in Personalized Learning Implementation

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In the following report, Hanover Research presents findings related to the support of successful personalized learning program implementation. We discuss the changes in district policy, classroom structure, and teacher roles that are necessary for a successful transition to personalized instruction. We also present the best practices associated with establishing positive learning environments and increasing teacher responsiveness to leverage personalized instruction and address diverse learners' needs.

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EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

This report discusses the best practices in system-wide personalized learning program implementation. It focuses on various facets that support systemic change toward personalized learning, including district-level policy changes, the roles of teachers and administrators, and strategies for effective professional development practices. We also address how best to leverage personalized instruction to meet the needs of diverse learners, focusing on the creation of positive learning environments and increasing teachers' responsiveness to diverse student populations.

This report comprises the following sections:

- **Section I: Staffing and Professional Development** defines personalized instruction, outlines the re-defined role of the teacher, and describes how to emphasize personalized learning in hiring practices. This section also discusses how to obtain teacher buy-in for personalized instruction initiatives, and provides suggestions on professional development opportunities that support personalized instruction.
- **Section II: District and Classroom Program Implementation** describes the common challenges associated with transitions to personalized learning programs, and outlines strategies for their successful implementation at the district level and the classroom level. This section includes a profile of an exemplary model in personalized learning implementation, Mooresville Graded School District in North Carolina.
- **Section III: Personalized Learning for Diverse Learners** discusses how to leverage positive learning environments and increased teacher responsiveness to optimize instruction for diverse sets of learners. This section includes a profile of a school network that has successfully implemented personalized learning for diverse learners, the Metropolitan Regional Career and Technical Center in Rhode Island.
- **Conclusion**

KEY FINDINGS

- **Rather than a set of prescribed best practices, personalized learning can be thought of as a holistic, student-centered approach to instruction.** Personalized learning is characterized by the promotion of 21st century skills and the use of technology to create instructional pathways that incorporate students' needs, interests, and aspirations. The best personalized learning programs are situated within a strong community of teachers, parents, and students.
- **Technology affords teachers the flexibility to spend more time personalizing instruction for individual students.** Without appropriate technological infrastructure, personalized learning cannot be brought to scale for more than a few students at a

time. Though personalized learning and technology are intimately linked, sound policy and good instruction must precede the blind adoption of new technologies.

- **Successfully implementing personalized learning requires change on two levels: the district policy level and the classroom level.** Changes on the district level require system-wide alterations to programs, processes, and personnel. At the classroom level, curricula, assessments, student data, and technology should be seamlessly incorporated to create personalized learning trajectories for each student.
- **The most effective teachers in personalized instruction programs understand that all students can learn, have high expectations of their students, and take on the role of “instructional facilitator.”** Often, teachers’ experiences and education do not align with the expectations of the “facilitator” role, so existing teachers should be given ample professional development opportunities to supplement their current skills. Hiring managers should screen candidates, conduct behavioral interviews, and consult candidates’ references to ensure that new hires possess the qualities that most directly align with the district’s personalized instruction priorities. Principals’ roles must also change, and those principals who voice and provide support for personalized instruction initiatives witness the most success.
- **Transitioning to personalized instruction requires significant deviation from the structures and processes associated with traditional methods of instruction.** For instance, due to the emphasis on students’ competencies and mastery of skills rather than seat time, personalized learning programs benefit from flexibility in the amount of time students have to master concepts. Districts and schools should also consider making scheduling accommodations for teacher training in personalized instruction, the increased use of computer labs, and spaces for frequent small-group activities.
- **Personalized instruction is an effective way to meet the needs of diverse learners, as its fundamental aim is to optimize learning for all students, including diverse and at-risk students.** Positive, personalized learning environments serve to augment students’ feelings of belonging, which in turn increases motivation and the desire to remain in school. Teachers can use several strategies, such as communicating high expectations and engaging students in active learning, to further customize instruction for diverse learners.

SECTION I: STAFFING AND PROFESSIONAL DEVELOPMENT

In the following section, Hanover Research discusses the systematic changes related to staff development necessary for the successful implementation of personalized learning programs. First, to provide context to the discussion of implementation, we define personalized instruction and discuss the key components of personalized learning programs. Next, we examine changes to teacher and administrator roles, and provide guidelines for hiring the best personalized instruction teachers. Finally, we conclude by discussing the types of professional development opportunities that the most successful personalized learning programs provide for their staff members.

DEFINITION

Broadly, personalized learning refers to a student-centered, student-directed approach to instruction. Though personalized learning has existed since the 1970s,¹ the newest brand of personalized learning emphasizes teaching and learning 21st century skills. Personalized learning aims primarily to support students' needs and interests. Rather than teaching students in a "one-size-fits-all, factory assembly-line classroom-based model developed over a century ago,"² this instructional model gives students a unique learning experience based upon their individual needs. Personalized learning puts the needs of students first, and **students are able to direct "how, what, when, and where" they learn.**³

Personalized learning is also intimately connected with utilizing advances in technology. Personalizing instruction for every student can be challenging, but technology provides educators with the flexibility to adapt to learners' needs quickly. Technology also provides students real-time access to custom content and resources, thereby encouraging students to take ownership of their learning.⁴ Furthermore, many programs offer assistance with tasks such as assessment and grading, which allows teachers to spend more time with individual students. Technology thus allows for the individualization of engaging, effective learning experiences that are appropriately paced and tailored to fit with each student's prior experience and interests.⁵

The U.S. Department of Education distinguishes between individualization, differentiation, and personalization of instruction, since some educators use the terms interchangeably. Personalized instruction encompasses aspects of both differentiated instruction, which

¹ Jenkins, J. M., and Keefe, J. M. "Two Schools: Two Approaches to Personalized Learning." *Phi Delta Kappan*, 83:6, 2002, pp. 449-456. <http://resources.chuh.org/CHHS/pride/Documents/Thomas%20Haney.doc>

² "About Personalized Learning." The APLUS+. <http://www.theaplus.org/personalized-learning.php>

³ Ibid.

⁴ Culatta, R. "Personalizing Learning." U.S. Department of Education. July 10, 2012. <http://www.ed.gov/teaching/summerseminars>

⁵ "Learning: Engage and Empower." U.S. Department of Education. <http://www.ed.gov/technology/netp-2010/learning-engage-and-empower>

refers to adjusting the learning approach, and individualized instruction, which refers to adjusting the pace of learning. In this report, the definition of personalized instruction presented in the table below will be used unless otherwise specified. Figure 1.1 illustrates the distinguishing features of individualized, differentiated, and personalized instruction.

Figure 1.1: Individualized, Differentiated, and Personalized Instruction

INDIVIDUALIZATION	DIFFERENTIATION	PERSONALIZATION
<ul style="list-style-type: none"> ▪ Instruction is paced to the learning needs of different learners. ▪ Learning goals are the same for all students, but students progress through material at different speeds according to their learning needs. ▪ Students may take longer to progress through a given topic, skip topics that cover information they already know, or repeat topics they need more help on. 	<ul style="list-style-type: none"> ▪ Instruction is tailored to the learning preferences of different learners. ▪ Learning goals are the same for all students, but the method or approach of instruction varies according to the preferences of each student or what research has found works best for students like them. 	<ul style="list-style-type: none"> ▪ Instruction is paced to learning needs, tailored to learning preferences, and tailored to the specific interests of different learners. ▪ In a fully-personalized environment, the learning objectives and content as well as the method and pace may all vary. ▪ Thus, personalization encompasses differentiation and individualization.

Source: U.S. Department of Education⁶

ELEMENTS OF PERSONALIZED LEARNING

As mentioned above, personalized learning can refer to numerous aspects of student-centered instruction. However, there are certain features that are shared among most personalized instruction programs. A 2012 presentation by Richard Culatta, Deputy Director of the U.S. Department of Education (ED)’s Office of Educational Technology, enumerates the following “essential elements” of personalized learning: students have access to their own devices; near real-time feedback is given to parents, students, and teachers; programs allow students to “own” their data; and educators leverage patterns in students’ data.

Rather than rely on outdated computer labs, it is recommended that districts work toward providing each student with individual access to learning devices. Additionally, to maximize the effectiveness of more frequent assessments, real-time feedback should be generated and shared among students, teachers, and parents. This helps to create a community that focuses on learning. Students should also be encouraged to take ownership of these data, which helps them develop autonomy by increasing their self-awareness and responsibility over their strengths, weaknesses, achievements, and opportunities for improvement. Finally, patterns derived from student interactions with digital learning resources should be used to further customize instruction.⁷

⁶ Table items adapted from: Ibid.

⁷ Culatta, R. “Personalizing Learning.” U.S. Department of Education. July 10, 2012. <http://www.ed.gov/teaching/summerseminars>

The Association of Personalized Learning Schools and Services (APLUS+), a membership organization consisting of over 40 personalized learning charter schools in California, adds that personalized learning can be characterized by:⁸

- Putting the needs of students first
- Tailoring learning plans to individual students
- Supporting students in reaching their potential
- Providing flexibility in how, what, when, and where students learn
- Supporting parent involvement in student learning
- Encouraging relationships between student, parent, teacher, school, and community
- Preparing students to be life-long learners
- Engaging and motivating students by supporting their learning in a way that is relevant to each student's life, interests, and goals

The aforementioned components should be considered in their totality, and constitute a philosophy or approach to instruction rather than discrete attributes that must be implemented. In effective personalized instruction programs, each component follows from successful implementation of the first characteristics listed above, namely *putting the needs of students first*.

The 2010 “Innovate to Educate” symposium, a gathering hosted by organizations in education and the information technology industry, produced a list of key elements of personalized learning that adds further context to those provided above. In particular, symposium participants highlighted the fact that personalized instruction often redefines and expands the role of “teacher”; utilizes project-based, authentic learning opportunities; constitutes a student-driven path of learning; and focuses on mastery and competency-based progressions and pace.⁹

LEARNING ENVIRONMENTS

The creation of a culture supportive of personalized learning is arguably the single most important element of successful programs. Past research suggests that students learn better in cooperative settings than alone,¹⁰ so a supportive school should be a place “where teachers and students work together in a cooperative social environment to develop meaningful learning activities for all students.”¹¹ This culture builds on a constructivist environment, wherein teachers help students scaffold their own learning based on prior knowledge, interest, and skill level. Teachers use reflection, seminars, and long-term

⁸ Bulleted points adapted from: “About Personalized Learning,” Op. cit.

⁹ “Innovate to Educate: System [Re]Design for Personalized Learning.” Software & Information Industry Association, p. 13. <http://www.siiia.net/pli/presentations/PerLearnPaper.pdf>

¹⁰ Slavin, R. E. “Synthesis of Research Cooperative Learning.” *Educational Leadership*, 48:5, 1991, pp. 71-82. http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_199102_slavin.pdf

¹¹ Keefe, J. W., and Jenkins, J. M. “Personalized Instruction.” *Phi Delta Kappan*, 2005. http://www.lecforum.org/publications/Jenkins_Keefe_KAPPAN_Article_1.htm

projects as tools to encourage students to expand their knowledge of a certain topic. This process builds cognitive skills, and encourages student learning by emphasizing reflection, problem solving, and taking initiative.¹²

In sum, the nature of the “essential components” and “key elements” outlined above suggests that personalized learning should be **learner-centered, not curriculum-centered**. Successful personalized learning programs focus on the individual needs of the student, and create supportive learning environments conducive to self-directed learning.

ROLE OF TEACHERS

Teachers play a crucial role in effectively implementing personalized learning environments. In such environments, teacher buy-in is critical, and the traditional teacher role should be expanded to include aspects traditionally associated with an instructional facilitator.

TEACHER SKILLS

Defining the new role of a teacher can best be summarized as “student-centered” rather than “teacher-centered.” **The transition away from teacher-centered instruction shifts the role of the teacher from “sage on the stage” to “learning facilitator.”**¹³ Furthermore, this shift requires that teachers believe that all students are capable of learning. Teachers should “treat all students as smart and capable... [and] educators must also be steadfast in the belief that all students can learn.”¹⁴

Accordingly, the role of teacher must expand to include the teacher as both coach and adviser. The teacher-as-coach “collaborates with other teachers, student peer tutors, and community resource persons to guide student learning.”¹⁵ The coach helps students develop metacognitive skills, and serves as a learning guide to help students find appropriate resources and engage them in learning activities. The teacher-as-adviser “provides advice, counsel, and guidance to 15 to 20 students on academic and school adjustment issues.”¹⁶ The adviser assists students with academic and social matters, and helps create a sense of classroom community.

This transition constitutes a significant departure from traditional teacher-directed models, and often deviates from how teachers are educated and trained. For example, classroom management methods are a common component of teacher education courses, and these methods frequently emphasize controlling student behavior. Personalized learning, however, requires teachers to take a step back, relinquish control of the students, and

¹² Ibid.

¹³ Wolf, M., “Innovate to Educate: System [Re]Design for Personalized Learning.” Software & Information Industry Association, pp. 13-14. <http://www.siiia.net/pli/presentations/PerLearnPaper.pdf>

¹⁴ “Closing the Achievement Gap: Key Policy Issues.” Washington State School Directors’ Association, p. 34. <http://www.wssda.org/Portals/0/Resources/Publications/agt04.pdf>

¹⁵ Keefe, J. W., and Jenkins, J. M., Op. cit.

¹⁶ Ibid.

encourage students to learn through exploration.¹⁷ Sara Schapiro, director of the League of Innovative Schools, says that some teachers find relinquishing traditional lecturer roles difficult, because

...If you've taught for 30 years at the front of the class and all of a sudden your kids are researching things on Google and coming up with projects where they are the expert on a certain topic, you are sort of ceding control of your classroom in a way that's uncomfortable...you are more of a roving conductor.¹⁸

Personalized learning also acknowledges that anyone can provide students with learning opportunities, and so the expansion of the teacher role should also include various other mentors, including members of the community and local businesses.¹⁹

Substantial differences exist between personalized and traditional instructional methods. For example, a traditional teacher might teach several classes of 25-35 students according to a rigid curricular pacing guide over the course of a semester or year. A teacher in a personalized instruction environment, on the other hand, may teach somewhat smaller groups of students over a multi-year period and emphasizes one-on-one coaching.²⁰ Figure 1.2 illustrates the differences in teacher responsibilities between traditional and personalized instruction approaches.

Figure 1.2: Traditional vs. Personalized Instructional Teacher Roles

TRADITIONAL TEACHER	PERSONALIZED INSTRUCTION TEACHER
<ul style="list-style-type: none"> ▪ Teaches several new classes of 25-35 students for a semester or year, each year. ▪ Cover course content within allocated amount of time. ▪ Tests for levels of student achievement on given content. ▪ Teaches all students of various abilities simultaneously. ▪ Meet with approximately 80-100 to parents about the success or failure of their child. ▪ Keep class attendance records of 80-100 students. 	<ul style="list-style-type: none"> ▪ Works with students of various grade and achievement levels continuously over the course of their educational career, often in a resource center or learning environment. ▪ Advises and monitors a group of 20-25 students. ▪ Develops learning guides for assigned subject areas. ▪ Meets with students in small group seminars. ▪ Coaches students in small groups and in one-on-one instructional settings. ▪ Evaluates student achievement on specific subject content. ▪ Meets with parents of 20-25 students about their progress.

Source: Learning Environments Consortium International²¹

¹⁷ Wolf, M., Op. cit., p. 26.

¹⁸ Hanford, E., and Smith, S. "One Child At a Time-Custom Learning in the Digital Age: Computers in American Schools." American Radio Works, August 2013. <http://americanradioworks.publicradio.org/features/personalized-learning/>

¹⁹ Ibid.

²⁰ Amenta, R., and Lowery, R. E. "Personalized Learning Environments." Learning Environments Consortium International. http://www.lecforum.org/publications/Pers_Learning_Environments_Article_1.htm

²¹ Table adapted from Ibid.

As the table suggests, teachers of personalized instruction meet with fewer students over a longer period of time (i.e., all of high school) than traditional teachers, who are responsible for instructing many more students. This flexible, small-group format allows teachers to encourage deeper learning on an individual basis than would be possible with traditional, more rigid methods of instruction.

TEACHER BUY-IN

One critical component in successfully implementing personalized learning programs is obtaining buy-in from existing teachers. Teacher buy-in is an important determinant of the success of personalized learning programs, and an evaluation report conducted in the state of New Jersey found that “the degree of teacher buy-in, training quality, staff resources, and staff communication had the greatest influence on whether a school reported that the [personalized learning] program had a positive impact.”²² Teachers are frequently asked to buy-in and adopt different program implementations, and many times those programs are discontinued if they are not effective. This adoption-discontinuation pattern can result in little buy-in and weak support of new programs, and districts may encounter resistance for new personalized learning initiatives.

ROLE OF SCHOOL ADMINISTRATORS

School administrators—particularly school principals—also serve a critical function in supporting personalized learning initiatives. An evaluation of the personalized learning pilot programs in New Jersey found that “principals who provided verbal support, but were unwilling to ‘take action,’ were perceived by staff as not being supportive of [personalized learning].”²³ Furthermore, teachers felt that a lack of principal support was a major challenge in personalized learning implementation. For the reasons stated above, teachers are often reluctant to wholeheartedly adopt new program initiatives and look to principals and administrators to gauge the appropriate degree of buy-in. Consequently, principals should voice support and accommodate personalized learning efforts, including adapting to new schedules and allowing more flexibility with respect to staff time.²⁴

In sum, principals who offer frequent verbal and active support to both teachers and personalized learning initiatives were the most successful at implementing school-wide personalized instruction.

ROLE OF EMPLOYERS

Teachers form the “front lines” of personalized learning implementation, but employers also play a crucial role in the success of personalized learning. **Employers should ensure**

²² “New Jersey Department of Education Personalized Student Learning Plan Pilot Program, 2009-2010 Evaluation Report.” John J. Heldrich Center for Workforce Development at Rutgers, New Jersey Department of Education, August 2010.

http://www.state.nj.us/education/sboe/meetings/2010/November/public/PSLP_Evaluation_Report.pdf

²³ Ibid.

²⁴ Ibid.

that existing teachers support personalized instruction efforts, and should recruit and hire teachers that are enthusiastic about and well-suited for personalized instruction. From a district perspective, successful change depends on successfully hiring the best teachers for the job. Employers must focus on “hiring people with the skills and attributes required to implement personalized learning.”²⁵ Often, this requires a re-examination of the process by which teachers are recruited and selected.²⁶

Traditional recruitment methods rely on the assumption that all teacher education programs produce equally effective teachers. Furthermore, if there are perceptible gaps in a given teacher’s education or skills, districts assume that “professional development initiatives help teachers improve their practice in alignment with broader system goals.”²⁷ However, this is not always the case, which underscores the responsibility that district employers have to hire teachers with the appropriate vision and skills.²⁸ Moreover, the hiring process represents a critical transition point between a teacher’s formal education and their professional development: “If school district employers do not shift their hiring practices to reflect the transformation in our classrooms, they will have lost a crucial opportunity to support their district’s capabilities to implement personalized learning.”²⁹

RE-EXAMINING TRADITIONAL HIRING PRACTICES

There are significant and long-lasting costs to poor hiring decisions. For example, it takes significant time, effort, and energy to review candidates’ application materials and references. Once the candidate moves on to the interview stage, time and energy are spent on the interview process. If the candidate is hired but does not have the requisite skills or is somehow a mismatch, there are

...increased costs associated with the need for more managing and mentoring, negative effects on coworkers in terms of morale and lost leadership opportunities...and hiring an underperforming employee may also impact an organization’s ability to hire stronger performing candidates in the future.... An underperforming teacher can [also] significantly hinder student learning and confidence—costs that are not easily measured.³⁰

Therefore, hiring managers seeking to implement personalized instruction can no longer afford to rely on traditional recruitment and hiring practices that evaluate candidates’ planning and instructional strategies.

However, district employers and hiring managers may be unsure of how to adequately screen for the best teachers, and the best criteria by which to do so. In the case of hiring the

²⁵ Stewart, J. “Personalized Learning: A Human Resource Perspective on Hiring 21st Century Educators.” *Make a Future*, August 11, 2011, p. 4. http://www.makeafuture.ca/papers/personalized_learning-hr_perspective_in_hiring_in_21C_educators.pdf

²⁶ *Ibid.*

²⁷ *Ibid.*, p. 5.

²⁸ *Ibid.*

²⁹ *Ibid.*, p. 6.

³⁰ *Ibid.*

best teacher to implement personalized learning programs, hiring managers should screen applications, conduct behavioral interviews, and check personal references for evidence that the candidate enacts the following instructional approaches:³¹

- Teachers become co-learners with their students, and use inter-disciplinary approaches and working in teams (with other teachers) to support students;
- Teachers give students more time to reflect on what they are learning and why they are learning it;
- Teachers facilitate learning experiences for students beyond the classroom that contribute to the community at large;
- Teachers use the community and local environment as the classroom;
- Teachers provide students with real life problems requiring a team-approach to develop a variety of solutions; and
- Teachers recognize and provide for a variety of ways for students to express their learning.

In other words, districts must shift their expectations for new teacher hires to reflect the priorities and values of their own personalized learning programs. It is critical for district employers to first identify and clearly define the criteria that will be used to evaluate and assess potential employees, and then to gather evidence by which a candidate's competence can be measured. For example, a candidate's proficiency with a variety of computer systems, prior experience in facilitating student success using technology, an ability to flexibly collaborate within a range of working and learning contexts, an ability to creatively address students' learning needs, and an ability to adapt to changing conditions are all examples of possible criteria to use in this process.³²

PROFESSIONAL DEVELOPMENT

In addition to adjusting hiring processes to reflect the redefined role of teachers in personalized learning environments, there is a need for ongoing, job-embedded professional development to further support personalized instructional efforts.³³ Often, new expectations contradict what teachers have learned and practiced during the course of their education and training. Willing teachers should be given ample opportunities to address these inconsistencies. Indeed,

...most teachers do not have experience or training in the facilitator or collaborator role, and are challenged to differentiate instruction. Teachers require and deserve support through on-going and sustainable professional development to acquire these skills and fully implement personalized learning. This includes a comprehensive set of tools and resources, easy access to data, curriculum, and content resources, and technology to implement the lessons and resources.³⁴

³¹ Bullet points adapted from Ibid, p. 7.

³² Bullet points adapted from Ibid, p. 8.

³³ "Support of Personalized Learning: Guidance for West Virginia Schools and Districts." West Virginia Department of Education, March 2013, p. 2. <http://wvde.state.wv.us/spl/Documents/SPLGuidanceDocument2013.pdf>

³⁴ Wolf, M., Op. cit., p. 28.

Teachers' roles in personalized learning environments have changed so substantially that professional development opportunities must reflect that change. Fundamental changes in professional development practices are required, and providing teachers with opportunities such as online professional development, the use of instructional coaches, collaborative planning time, and professional learning communities will help teachers adjust to the new learning facilitator role.³⁵

PROFESSIONAL LEARNING COMMUNITIES

One of the most useful components of professional development programs designed to support personalized instruction is the professional learning community (PLC). In this model, teachers come together in communities that focus on improving practice and professional skills, which in turn promote effective collaboration and communication between teachers. Members of PLCs come together to “examine the current reality of their practices” and devise ways to improve upon those practices to increase student motivation and achievement. PLCs encourage the examination of student work, observations of other teachers' classroom practices, and the sharing of common goals.³⁶ Because PLCs give teachers the opportunity to present and discuss individual student achievement and progress, they are particularly useful for promoting methods of personalized instruction.

³⁵ Ibid.

³⁶ “Support of Personalized Learning: Guidance for West Virginia Schools and Districts,” Op. cit.

SECTION II: DISTRICT AND CLASSROOM PROGRAM IMPLEMENTATION

In this section, Hanover Research presents recommendations for policy-level and classroom-level changes related to implementing personalized instruction. We first identify several challenges associated with transitioning to personalized instruction, and also discuss details related to addressing these challenges, including how to create the technological infrastructure necessary for the wide implementation of personalized learning. This section concludes with a profile of Mooresville Graded School District (MGSD), which illustrates a successful implementation process for district-wide personalized instruction and a corresponding 1:1 technology initiative.

COMMON IMPLEMENTATION CHALLENGES

Regardless of how enthusiastic a district may be to make the transition from traditional instruction to personalized instruction, there are several significant challenges that must be addressed. In 2009, the state of New Jersey began to pilot personalized learning programs in select schools. The evaluation of those pilot programs identified the following six major obstacles experienced by schools teachers and administrators:³⁷

- **Teacher buy-in:** Perhaps unsurprisingly, the biggest challenge schools encountered was obtaining teacher buy-in for personalized learning initiatives. Teachers are responsible for delivering the curriculum, so if they are either unsure of or unconvinced by the possible benefits of transitioning to personalized learning programs, the delivery of the curriculum will ultimately suffer. A lack of complete buy-in or unwillingness to accept leadership responsibilities in personalized learning initiatives may reflect a general reluctance due to frequent but brief implementations of other initiatives.
- **Scheduling:** Another challenge cited by pilot schools is the need to make scheduling accommodations for teachers needing extra planning time or training sessions as well as for classes needing computer labs and/or spaces for small-group activities, all within the typical school day. Some schools found success with utilizing more senior students as a way to assist faculty and staff with acclimating freshmen to the new schedule.
- **Access to technology:** Much of the personalized learning program involves heavy utilization of technology, and in many schools, computer labs are a shared resource. In the pilot schools, some teachers who were not involved in the personalized learning initiatives resented participating teachers' monopolization of the shared space. Compounding this frustration, many of the computers were poorly maintained or of insufficient number to support both personalized instruction programs and regular instruction.
- **Implementation consistency:** The level of teacher buy-in directly influences the likelihood of consistent program implementation. To maintain a level of consistency, teachers should be encouraged to proactively use personalized learning terminology and curriculum techniques on a regular basis in their classrooms.

³⁷ Bulleted points adapted from "New Jersey Department of Education Personalized Student Learning Plan Pilot Program, 2009-2010 Evaluation Report," Op. cit., p. 13.

- **Physical space in the school building:** Though it may seem like a small concern, space in classrooms becomes a significant factor in determining successful implementation. Personalized instruction focuses on group learning, and finding physical classroom space for small groups to gather and interact can be challenging.
- **Parental involvement:** Parental involvement in and support of personalized learning initiatives is an important factor in their success, so districts should make an effort to educate parents about the value of personalized learning and solicit parental support.

Districts seeking to implement personalized learning initiatives should be aware of the most common challenges, including the reluctance of teachers to buy-in, scheduling conflicts, and ensuring equitable access to technology for all students. Below we provide further details regarding implementation strategies that can help overcome these potential obstacles.

POLICY-LEVEL IMPLEMENTATION

Transitioning to a personalized learning instructional program involves cooperation on both the policy level and at the classroom level. **State and district policies set the tone for classroom implementation, and often establish the degree to which personalized instructional programs can be successful.**

At the policy level, “personalized learning requires a shift in the enterprise of schooling.”³⁸ Current school systems comprise a host of stakeholders, including community members, teachers, parents, school and district leaders, and state and federal regulators. These stakeholders “help to create many policies, traditions, and cultural norms that may encourage, but too often hinder, the redesign of education to personalize learning.”³⁹ It follows that in order for personalized instruction to find success, stakeholders must be supportive of the initiative.

Transitioning to personalized instruction requires significant deviation from the structures and processes that support traditional methods of instruction. The 2010 Innovate to Educate Symposium identifies five policy-level enablers for this kind of fundamental change:⁴⁰

- **Redefine the use of time from the Carnegie Unit and corresponding calendar.** Traditional models of instruction use the Carnegie Unit, seat time, as the metric by which students’ progress is measured. Since personalized learning programs focus on competence and mastery rather than standards for seat time, they require flexibility in the amount of time students are given to master concepts.
- **Adopt a performance-based, time-flexible state assessment.** Current high-stakes state assessments dominate the instructional landscape; often, schools and districts have little choice but to “teach to the test,” which directly contradicts the aims of personalized learning.

³⁸ Wolf, M., Op. cit., p. 21.

³⁹ Ibid.

⁴⁰ Bulleted items adapted from Ibid.

Rather, states should take advantage of advances in technology that allow for more flexible and individualized assessments.

- **Ensure equity in access to technology infrastructure.** It is widely acknowledged that personalized learning efforts cannot be brought to scale without widespread utilization of technology. However, constant, consistent access to technology in school and at home presents a problem with equity. Currently, technology is categorized as a supplemental expense in many districts, which restricts the ability of teachers to use technology as a foundational instructional mechanism. Problems with technological equity are greatest in high-poverty and rural communities.
- **Investigate funding models that incentivize completion.** Currently, many federal, state, and local funding sources use Average Daily Attendance (ADA) to determine funding, but this system does not have a way to accommodate for personalized learning outcomes.
- **Adopt a P-20 continuum and non-grade band system.** Traditional grade-levels are dictated by age and are predicated upon the notion that students tend to progress linearly with a cohort of similarly-aged students. However, personalized instruction requires re-examining this notion. Indeed, “the fact that students are all born within a preset 12 month period does not, and should not, dictate their abilities or performance at a given time (or age).”⁴¹ Furthermore, working toward a P-20 continuum encourages personalized learning by focusing on students’ mastery rather than grade level.

In sum, reconfiguring policies related to district resources, the use of students’ time, and the methods by which they progress will set a solid foundation for successful personalized instruction implementation.

CLASSROOM-LEVEL IMPLEMENTATION

In addition to requiring several district-level policy changes, successful personalized learning implementation necessitates classroom-level change as well. Below, we discuss several factors related to classroom-level implementation of personalized instruction.

ASSESSMENT & DATA

One of the most challenging—yet necessary—corollaries to personalized instruction is the need to track student progress in real time. Ideally, student progress data should “...encompass a broader range of measures beyond performance on academic tests, including information on a student’s learning style preferences, previously successful experiences, and other factors in a learner’s life.”⁴² This may require districts to **look beyond traditional assessment strategies to more flexible modes of assessment.** However, though assessment tools designed for use in personalized learning environments must be sophisticated and capable of capturing a great volume and variety of data, research and development in this area is still needed to more seamlessly integrate content and assessment with subsequent instructional pathways.⁴³

⁴¹ Ibid, p. 24.

⁴² Ibid., p. 25.

⁴³ Ibid.

The data obtained from these assessments should be used to identify students' strengths and weaknesses, and to target early intervention efforts, if necessary. In a more traditional instructional system, data are obtained solely from standardized tests. However, personalized learning requires that the data used to target students' instruction be much more comprehensive than traditional methods. Ideally, student-level data should be used to select more individualized—and therefore effective—modes of instruction, including the use of online instruction and adaptive software.⁴⁴

CURRICULA

Another challenging facet of successful personalized learning program implementation is selecting the appropriate curricular resources. Personalized learning requires the use of a wide variety of curricular resources “to meet the wide range of student learning styles, performance, and interests.”⁴⁵ Personalized curricula consist of many different choices for teachers and students, including multi-dimensional, multi-modal curriculum options that can be personalized based on reading level, interaction, and other preferences.⁴⁶ Teachers should also be encouraged to investigate and create their own resources for students.

TECHNOLOGY

Technology and personalized learning are intimately linked. The use of novel assessment methods and personalized curricula often rely heavily on the use of technology. The appropriate use of technology is also critical in bringing personalized learning initiatives to scale in larger school and district contexts. Indeed, **“while it may be possible to implement personalized learning without technology for a few students at a time or for a few lessons, education leaders overwhelmingly agree that it is almost impossible to bring the program to scale for all students without capitalizing on technology.”**⁴⁷ Technology allows for the seamless integration of assessment, data, as well as curricula that can be managed anytime or anywhere and adapted to students' individual learning paths.⁴⁸

Adaptive learning technologies have already captured the attention of the higher education space,⁴⁹ and further study of its benefits in that space have spurred recent grants provided by the Bill & Melinda Gates Foundation, totaling more than \$9 million.⁵⁰ Benefits associated with adaptive learning are many, including provision of formative evaluation opportunities, effective feedback mechanisms, emphasis on mastery-based learning, and concept

⁴⁴ Ibid., p. 26.

⁴⁵ Ibid.

⁴⁶ Ibid.

⁴⁷ Ibid., p. 23.

⁴⁸ Ibid.

⁴⁹ Fain, P. “Intel on Adaptive Learning.” *Inside Higher Ed*, April 4, 2013.

<http://www.insidehighered.com/news/2013/04/04/gates-foundation-helps-colleges-keep-tabs-adaptive-learning-technology>

⁵⁰ “Gates Foundation Announces \$9 Million in Grants to Support Breakthrough Learning Models in Postsecondary Education.” Press Release, Bill and Melinda Gates Foundation. <http://www.gatesfoundation.org/media-center/press-releases/2012/06/gates-foundation-announces-grants-to-support-learning-models>

mapping.⁵¹ “Adaptations” of student learning use data can be derived from several different indicators. For example, some programs monitor how well students perform on after-unit assessments. Others take into account how long it takes students to complete questions and records whether a student needs “hints” to answer questions. This information is then accommodated to adjust that student’s subsequent learning experience.⁵²

One of the most promising adaptive learning programs under development is the product of a partnership between Houghton Mifflin Harcourt (HMH) and adaptive learning company Knewton called the *Personal Math Trainer Powered by Knewton*. This program combines the brand equity and recognizable name of HMH with the considerable innovative power of Knewton to create a tool that

...will analyze—down to the concept level—each student’s interactions with HMH content to determine personal strengths, weaknesses, preferences and pace, and provide personalized trajectories for every student to ensure the most efficient path to achieving learning goals. The more each student uses the product, the more it learns about them and the “smarter” it becomes, using the combined data power of every student to help find the perfect strategy for each student for each concept. The system will provide educators with real-time insights into their students’ individual needs, challenges, and learning styles.⁵³

Other adaptive learning programs are currently available, although fewer programs exist for K-12 students than for students in higher education. However, advances in adaptive learning technologies are only expected to grow as demand for personalized instructional software and programs increases.⁵⁴

INFRASTRUCTURE REQUIREMENTS

Another consideration that can have a serious impact on the effectiveness of personalized instruction is the district’s technological infrastructure, which underpins most personalized learning tools.

BROADBAND

One crucial component of successful personalized learning programs is access to broadband wireless technology.⁵⁵ **A major challenge that K-12 educators face in personalizing**

⁵¹ Rajan, R. “Adaptive Learning Market Acceleration Program RFP Q& A Webinar.” Session for Institutions, Bill & Melinda Gates Foundation, March 29, 2013, p. 4.
<http://www.gatesfoundation.org/~media/GFO/Documents/How%20We%20Work/Adaptive%20Learning%20RFP%20Webinar%20Presentation.pdf>

⁵² “Adaptive Learning: Overview.” EdSurge. <https://www.edsurge.com/adaptive-learning>

⁵³ “Houghton Mifflin Harcourt and Kewton Announce Pioneering Partnership to Deliver Adaptive Learning Solutions to K-12 Students.” Knewton, June 6, 2013. <http://www.knewton.com/about/press/houghton-mifflin-harcourt-and-knewton-announce-pioneering-partnership/>

⁵⁴ Riddell, R. “Adaptive Learning: The Best Approaches We’ve Seen So Far.” Education Dive, October 31, 2013.
<http://www.educationdive.com/news/adaptive-learning-the-best-approaches-weve-seen-so-far/187875/>

⁵⁵ “Access to Success: The Role of Technology in Delivering Personalized Learning.” Pearson.
<http://apps.fcc.gov/ecfs/document/view?id=7520959115>

instruction is dealing with the limitations of inadequate internet infrastructure, such as low bandwidth (data transfer capacity) and low transfer speed. Many personalized learning tools require internet access, and many tools are optimized when students can interact online simultaneously. However, the current infrastructure of most districts is such that few schools can support high-volume internet use because of low bandwidth. Future technological innovations will likely require even more bandwidth to operate effectively.

Many experts recommend that K-12 districts use high-speed broadband in their schools. A recent survey conducted by the Federal Communications Commission found that of the schools with access to broadband services, nearly 80 percent believed it to be inadequate to meet their schools’ current needs.⁵⁶ Figure 2.1 displays the minimum bandwidth recommended by the State Educational Technology Directors Association (SETDA).

Figure 2.1: SETDA Recommendations for K-12 Broadband Infrastructure Needs

ACCESS FOR TEACHING, LEARNING, & SCHOOL OPERATIONS	2014-2015 SCHOOL YEAR TARGET	2017-2018 SCHOOL YEAR TARGET
An external Internet connection to the Internet Service Provider (ISP)	Minimum of 100 Mbps per 1,000 students/staff	Minimum of 1 Gbps per 1,000 students/ staff
Internal wide area network (WAN) connections from the district to each school and among schools within the district	Minimum of 1 Gbps per 1,000 students/staff	Minimum 10 Gbps per 1,000 students/staff

Source: SETDA⁵⁷

DIGITAL DEVICES

As discussed above, personalized learning relies heavily on the use of technology. However, if personalized learning initiatives are to be supported by the use of technological devices such as laptops, tablets, or other mobile devices, several factors should be considered. First, screen size should be adequate enough to optimize student engagement and to display frequently used websites and applications. In the case of smaller devices such as mobile phones, screens may be too small to view standard web pages. Inadequate screen size may prove to be extremely problematic if the district opts to supplement existing technology with a Bring-Your-Own-Device (BYOD) policy. Battery life of devices should also be considered. Battery life should be sufficient enough to last the length of an average school day, and charging stations should be made available. Districts should also consider network access restrictions, such as whether students should be able to access data outside of school, and the resources to which students should have unlimited access.

⁵⁶ Fox, C., Waters, J., Fletcher, G., and Levin, D. “The Broadband Imperative: Recommendations to Address K-12 Education Infrastructure Needs.” State Educational Technology Directors Association (SETDA), 2012. http://www.setda.org/c/document_library/get_file?folderId=353&name=DLFE-1515.pdf

⁵⁷ Table adapted from Fox, C., Waters, J., Fletcher, G., and Levin, D. “The Broadband Imperative: Recommendations to Address K-12 Education Infrastructure Needs.” State Educational Technology Directors Association (SETDA), 2012, p. 3. http://www.setda.org/c/document_library/get_file?folderId=353&name=DLFE-1515.pdf

Finally, districts should consider how students will transport these devices. For example, districts should discuss whether laptop or device protective cases will be provided by the district, or whether students should be responsible for bringing their own. Though these matters may seem incidental in the grand scheme of implementation, each factor discussed above could have a cumulative negative impact on the technologies needed to support personalized learning.⁵⁸

PROFILE: MOORESVILLE GRADED SCHOOL DISTRICT, NC

In 2007, Mooresville Graded School District (MGSD) in North Carolina implemented a personalized learning initiative supported by a 1:1 technology program. The aims of this program were to reduce the achievement gap and increase student graduation rates.⁵⁹ Graduation rates grew from 73 percent in 2007 to 91 percent in 2011, and MGSD's test scores are now the third highest in the state. Its credit recovery program boasts a 99 percent graduation rate, and despite the adoption of 1:1 technology supports for its personalized learning program, MGSD ranks only 100th out of 115 North Carolina school districts in terms of per-student spending.⁶⁰ In some cases, students have seen upwards of 40 percent gains in reading, math, and science.⁶¹

Mark Edwards, superintendent of MGSD, notes that making the decision to implement personalized learning district-wide was not without its significant costs and challenges, particularly at the beginning. Implementing a 1:1 technology policy is initially very costly: rental costs per year for each student's MacBook Air total \$1 million, with an additional \$100,000 per year in software costs, and students' families pay \$50 annually to subsidize the cost of computer repairs (fees are waived for families who cannot afford the cost). Furthermore, 65 jobs were eliminated, in part to free up funds for technology. Edwards maintains that these decisions to free up funding were not made lightly, and the district's chief financial officer stated that they were "incredibly tough decisions."⁶²

Aside from funding concerns, MGSD faced other significant challenges, such as ensuring equitable access to technology. The issue of equity is a typical concern in large-scale implementations of personalized learning and 1:1 technology initiatives. For example, some parents cannot afford the cost of providing the Internet access that is required for their child to complete their homework. MGSD has mitigated this concern by negotiating a deal for district parents with a local cable company; parents are able to purchase broadband Internet access for only \$9.99 a month.

⁵⁸ "Challenges of BYOD." K-12 Blueprint, p. 1. <http://www.k12blueprint.com/sites/default/files/BYOD-Challenges.pdf>

⁵⁹ "Access to Success: The Role of Technology in Delivering Personalized Learning," Op. cit.

⁶⁰ Schwarz, A. "Mooresville's Shining Example (It's Not Just About the Laptops)." New York Times, Education, February 12, 2012. http://www.nytimes.com/2012/02/13/education/mooresville-school-district-a-laptop-success-story.html?_r=0

⁶¹ "Every Child, Every Day: Mooresville's Digital Conversion" Puts Kids First." Cisco. <https://www.cisco.com/web/strategy/docs/education/CiscoEduEveryLearner.pdf>

⁶² Schwarz, A., Op. cit.

However, Edwards maintains that despite these costs, the benefits of personalized learning have more than paid for themselves. For example, expensive computer labs became obsolete, which constituted a significant financial boon for MGSD. There are also broader, more far-reaching benefits of the personalized learning program's success. Despite a nationwide real estate downturn, local real estate markets have seen significant growth and are experiencing what is known as a "seller's market." Parents want to relocate to the area to provide their children with the best educational opportunities possible. Finally, despite teacher layoffs, teacher morale and collaboration are high. The layoffs served to cull ineffective teachers and motivate teachers who expressed reluctance to adopt personalized learning instructional strategies. The result has been a cohort of highly effective, highly dedicated, and innovative teachers.

MGSD is quick to emphasize that the 1:1 technology initiatives are not ends of themselves, but rather a means to support personalized learning efforts. Traditional tasks such as correcting worksheets, grading papers, and assembling student progress data have been transferred to technology. This frees up teachers to interact more with students. Teachers at MGSD maintain that "they value computers not for the newest content they deliver, but for how they tap into the oldest of student emotions—curiosity, boredom, embarrassment, angst—and help educators deliver what only people can."⁶³

The use of technology to facilitate personalized learning allows students to receive truly customized instruction. Classrooms have moved from a lecture structure to a lattice structure, which allows students to collaborate in small groups. Frequently, content is co-constructed using tools such as Google Docs. This allows students with learning disabilities or who are shy to participate in meaningful discussion at their own pace online, which in turn increases student engagement and motivation.⁶⁴

Edwards mentions that a significant contributor to the success of the personalized learning program's success is involving the community. In particular, he says that "a big part of this type of initiative is building awareness and consensus within the local community and teaching community...there was a real sense of 'let's step up and create better opportunities for all.'"⁶⁵ Also critical was the supportive school community, particularly with regards to teachers. Teachers were encouraged to lead by creating innovative, customized learning opportunities that were based on students' needs. Furthermore, professional development is differentiated by content, grade level, and teacher responsiveness level, and teachers help one another any way they can. Teachers also embraced the new facilitator roles, finding that the technology allowed them both the information and flexibility they needed to further students' learning.⁶⁶

⁶³ Ibid.

⁶⁴ Ibid.

⁶⁵ "Every Child, Every Day: Mooresville's Digital Conversion Puts Kids First." Cisco.
<https://www.cisco.com/web/strategy/docs/education/CiscoEduEveryLearner.pdf>

⁶⁶ Ibid.

Ultimately, personalized learning requires significant shifts in how teachers and administrators approach technology and student learning. In many cases, school leaders mistakenly view technology as an add-on to their current approach, but should consider it as an opportunity to dramatically alter how they teach and how students learn.⁶⁷

In a recent interview, Mark Edwards has the following recommendations for schools adopting personalized learning programs supported by technology:⁶⁸

- **Build a foundation.** Stakeholders must buy in to the idea of personalized education, and MGSD created an advisory group of teachers and parents to help with this effort.
- **Form strategic alliances.** Partnering with Apple, Discovery Education, and local community partners allowed MGSD to solve problems, such as teacher professional development and providing Internet access for students' homes.
- **Thoroughly think through logistics.** Every detail of the transition was discussed, and a thorough acceptable use policy was drafted prior to any distribution of technology.
- **Rethink fund allocation.** MGSD reallocated funds by obtaining grant funding and repurposing existing funds by eliminating the use of textbooks.
- **Apply gentle yet sustained pressure.** Transitioning to personalized learning constitutes a significant cultural change, so be supportive, but firm. Teachers were encouraged to take home new technologies and "just try it out"; the result of this low-stakes roll-out was a significant increase in teacher enthusiasm for new technologies.
- **Empower and educate your teachers.** Provide sustained, meaningful professional development opportunities. It is also crucial to provide teachers with the time necessary to complete professional development.
- **Watch the transformation.** At MGSD, skeptical teachers became inspired by students' increased engagement, and began to become more involved, further increasing innovation and collaboration.
- **Collect and use data wisely.** Students' data are collected and shared in real time, which allows teacher the opportunity to adjust instruction in real-time adjustment. It also allows parents to be more involved.
- **Share best practices.** Sharing even the most modest successes with others helps create positive momentum, and can contribute to a greater likelihood of success.
- **Continue to evolve.** Transition requires consistent effort, and the transition should be considered a "work in progress."

In sum, MGSD successfully implemented personalized instruction by fully embracing the use of technological support. MGSD also made difficult strategic decisions to free up district funds that were re-invested to provide each student with a laptop. Finally, these changes would likely not have been as effective were they not situated within a supportive learning community.

⁶⁷ Hanford, E., and Smith, S., Op. cit.

⁶⁸ Bulleted points adapted from Farrell, E. F. "10 Lessons From the Best District in the Country." Scholastic Administrator, Spring 2013. <http://www.scholastic.com/browse/article.jsp?id=3757944>

SECTION III: PERSONALIZED LEARNING FOR DIVERSE LEARNERS

This section discusses how best to leverage personalized instruction to serve diverse learner populations. We first discuss how to optimize instruction for all students, because reaching every student is a principle aim of personalized learning programs. Next, this section illustrates how to construct positive learning environments and increase teachers' responsiveness to diverse learners in the context of personalized instruction. We conclude by profiling The Metropolitan Regional Career and Technical Center (The MET)'s strategies for using personalized instruction to reach diverse and at-risk populations of students.

OPTIMIZING PERSONALIZED INSTRUCTION

One of the advantages of transitioning to personalized learning systems is that they are designed to optimize instruction for students of all ability levels. Through personalized learning, “students are more likely to experience success academically, social/emotionally and behaviorally...[and] all students [have] access [to] appropriate levels of support and instruction that align with their current levels of individual academic, social/emotional and behavioral development.”⁶⁹ If implemented successfully, personalized learning will reach all students, including diverse and at-risk learners.

POSITIVE LEARNING ENVIRONMENT

One of the most effective ways to reach diverse learners with personalized instruction is to establish a positive learning environment. High dropout rates are a serious concern nationwide, but drop-out rates as high as 40 percent for at-risk students are particularly disturbing. Though any student can be at-risk at any given time depending on a combination of various life factors, being at-risk is “a multidimensional concept that has no set rules.”⁷⁰ **Therefore, because at-risk students—like all students—have “diverse learning styles, learn at different rates, have varying socioeconomic backgrounds, and have diverse intellectual strengths,” personalized learning and individualized instruction are particularly effective in working with this student group.**⁷¹

Building a positive, student-focused environment is critical to helping at-risk students succeed. Positive interactions with peers and teachers can significantly augment the school experience for at-risk students because they feel that the teachers and school care about them as individuals, and “connecting each student to a caring advisor who will stay connected long enough to understand student aspirations and talents is critical to the

⁶⁹ “Support of Personalized Learning: Guidance for West Virginia Schools and Districts.” West Virginia Department of Education, March 2013, p. 2. <http://wvde.state.wv.us/spl/Documents/SPLGuidanceDocument2013.pdf>

⁷⁰ “Statistics and Facts.” National Dropout Prevention Center/Network. <http://www.dropoutprevention.org/statistics>

⁷¹ Hamby, J. V. “How to Get an ‘A’ on Your Dropout Prevention Report Card.” *Educational Leadership*, 46:5, 1989, pp. 21-28. http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_198902_hamby.pdf

success of personalized learning.”⁷² Efforts to personalize learning will also have a positive effect on the so-called “droopouts,” or students who—though they remain in school—are unengaged and expend little effort on learning.⁷³

Students can also often fail to see any connection between their efforts at school and success, so establishing a meaningful context for learning is a goal that can be achieved by personalized instruction. **Personalized instruction maximizes students’ skills and strengths, and takes advantage of personal interests and aspirations to create meaningful learning opportunities.** It also provides educators with a significant opportunity to begin to close the achievement gap. Students can arrive at school unprepared, unmotivated, and may feel as though they will never be able to catch up or succeed. However, those same students may succeed if the focus is shifted from curriculum-based instruction to personalized instruction. Fundamentally,

...a school’s learning environment has a significant impact on student achievement. The learning environment provides the conditions and climate in which learning takes place. It affects expectations, perceptions, and behavior of both students and teachers. School environments that foster high expectations and respect spawn resilient youth who are engaged and self-motivated...personalized learning environments are characterized by staff who demonstrate caring and who value student experiences and strengths. They treat all students as smart and capable. As expectations rise by adopting rigorous standards, educators must also be steadfast in the belief that all students can learn, and must provide personalized learning environments that support students in that achievement.⁷⁴

Students who do not feel connected to other students, teachers, or content are more likely to drop out of school altogether. A central feature of personalized instruction is connection, as it allows students to work together in groups, and encourages teachers to form personal mentor relationships with individual students. This connection enhances the learning climate.

RESPONSIVE TEACHERS

In addition to creating a positive, supportive learning environment, teachers can reach diverse learners by being responsive to their needs. Traditional systems of education tend to focus on a “one-size-fits-all” mentality of instruction, and are not designed to accommodate diverse learners such as students of color, low-income students, students with disabilities, English language learners, and gifted students.⁷⁵ **Often, a root cause of poor academic achievement in diverse student populations is a lack of motivation due to the impersonal, rigid nature of traditional methods of instruction. In contrast, a**

⁷² Clarke, J., Op. cit.

⁷³ Ibid.

⁷⁴ “Closing the Achievement Gap: Key Policy Issues,” Op. cit.

⁷⁵ “Transforming Schools or Tinkering? An Analysis of CCSSO’s Model Core Teaching Standards—A Center Policy & Practice Analysis Report.” Center for Mental Health in Schools, University of California Los Angeles, August, 2010. <http://smhp.psych.ucla.edu/pdfdocs/ccssoanalysis.pdf>

responsive teacher can increase students’ motivation by creating personal connections with his or her students.

Though personalized instruction as a pedagogical philosophy is designed to reach all student learners, there are several practices teachers can undertake to further connect with diverse populations of student learners. For instance, teachers must first develop a deep understanding of their own “frames of reference,” or personal biases (e.g., culture, gender, language, etc.) and examine the effect these frames of reference have on their relationships with students.⁷⁶ From this perspective, teachers can then provide custom approaches for learning that take into consideration students’ perspectives. The following table illustrates several strategies that teachers can use to become more responsive in the context of personalized learning.

Figure 3.1: Teacher Responsiveness Strategies

SKILL	STRATEGY
Communicate high expectations	<ul style="list-style-type: none"> ▪ Ensure that all students understand that they are expected to engage and achieve at a high level. ▪ Do not allow yourself or students to make excuses for disengagement.
Actively engage students in learning	<ul style="list-style-type: none"> ▪ Coach students to question, consult original material, connect content to their own lives, write to learn, read broadly, build models, test hypotheses, and make time to build relationships. ▪ This ensures that when students try but do not quite succeed, they will not be so disappointed or discouraged as to disengage from learning entirely.
Facilitate learning	<ul style="list-style-type: none"> ▪ Build students’ capacity to handle new material, solve complex problems, and develop new skills by scaffolding their learning from what they already know through a series of increasingly complex experiences that shift the locus of control from teacher to learner.
Understand students’ assets and capabilities	<ul style="list-style-type: none"> ▪ Understand the diversity represented in your classroom by getting to know students. ▪ Engage in real dialogues with students to get to know them as learners.
Anchor learning pathways to the everyday lives of students	<ul style="list-style-type: none"> ▪ Connect students’ knowledge and skills to content knowledge. ▪ Use real-life, authentic contexts and texts to engage students in inquiry about the things that matter to them as diverse learners.
Select learning opportunities that reflect students’ ways of knowing and doing	<ul style="list-style-type: none"> ▪ By placing yourself in a situation where you are the clear minority, focus on how it feels, what challenges you might face, and what helped you in that situation. ▪ Translate these understandings into ways to personalize students’ learning.

⁷⁶ Ibid.

SKILL	STRATEGY
Share control of the classroom with students	<ul style="list-style-type: none"> ▪ Sharing control of the classroom allows students to bring their own perspectives to bear on content.
Engage in reflective thinking and writing	<ul style="list-style-type: none"> ▪ By engaging in active reflection, teachers can begin to understand their own personal motivations that govern behavior. ▪ Translate this understanding into practice.
Explore personal and family histories	<ul style="list-style-type: none"> ▪ Understanding differences in family structures, cultures, and expectations can help teachers better relate to colleagues and students from different backgrounds.
Acknowledge membership in different groups	<ul style="list-style-type: none"> ▪ Acknowledgment of how membership in different social groups (e.g., White, female, middle-class) affords specific advantages and disadvantages can help teachers incorporate this awareness into instruction.
Visit students' families and communities	<ul style="list-style-type: none"> ▪ Getting to know students and their families on a personal level will help teachers better relate to students in the classroom.
Visit or read about successful teachers in diverse settings	<ul style="list-style-type: none"> ▪ Teachers can visit the classrooms of other teachers who successfully engage with diverse learners to develop new ideas.
Develop an appreciation of diversity	<ul style="list-style-type: none"> ▪ No one group is more or less competent than another, and acknowledgement of diversity of opinions and worldviews can augment the richness of instruction.
Participate in reforming the institution	<ul style="list-style-type: none"> ▪ Teachers should participate in the reformation of traditional educational systems that are teacher-focused and neglect the needs of diverse learners.

Source: Equity Alliance⁷⁷

Diversity in learners can encompass a variety of factors, including socio-economic status, culture, language, and skill level. Traditional methods of instruction are often too rigid to accommodate the needs of diverse learners, but teachers can use the aforementioned strategies in the context of personalized instruction to be more responsive to the diversity of student needs.

PROFILE: THE METROPOLITAN REGIONAL CAREER AND TECHNICAL CENTER, PROVIDENCE, RI

The Metropolitan Regional Career and Technical Center (the MET) in Providence, Rhode Island, is a network of six public schools that are dedicated to “educating one student at a time.”⁷⁸ The MET serves largely urban at-risk populations, and is an alternative vocational institution. Students at the MET meet daily with an advisor to evaluate progress toward

⁷⁷ Kozleski, E. B. “Culturally Responsive Teaching Matters!” Equity Alliance, Arizona State University, pp. 6-7. <http://issuu.com/equityallianceatasu/docs/crteaching>

⁷⁸ “One Student at a Time.” About Us, The Metropolitan Regional Career and Technical Center. <http://metcenter.org/about-us/>

their own personal educational goals. During these meetings, students reflect on current progress, plan new challenges, and evaluate their progress toward their own personal goals. These personalized learning plans are supplemented by community support programs such as specialty internships, which are a critical component of a MET student’s education.⁷⁹

PERSONALIZED LEARNING GOALS

Students’ personal learning plan must comprise the following components, according to the MET’s rigorous learning goals. Learning goals are “accomplished through independent project work, school based workshops, learning in the real world, college courses, and community service. Figure 3.2 illustrates these learning goals.

Figure 3.2: The MET’s Learning Goals

LEARNING GOAL	SKILL	COMPONENTS
How do I prove it?	Empirical Reasoning	<ul style="list-style-type: none"> ▪ Developing strategies to prove ideas ▪ Research ▪ Logic
How do I measure or represent it?	Quantitative Reasoning	<ul style="list-style-type: none"> ▪ Basic operations ▪ Tables and graphs ▪ Algebra, geometry, and statistics ▪ Estimating and number sense
How do I take in and express information?	Communication	<ul style="list-style-type: none"> ▪ Listening and speaking ▪ Writing and reading ▪ Foreign language ▪ Computers and multimedia ▪ Creative expression
What do other people have to say about this?	Social Reasoning	<ul style="list-style-type: none"> ▪ Past experience/history ▪ Understanding diverse perspectives ▪ Citizenship, cooperation, and conflict resolution
What do I bring to this process?	Personal Qualities	<ul style="list-style-type: none"> ▪ Respect, responsibility, perseverance, organization, and self-awareness ▪ Leadership ▪ Physical fitness

Source: The MET⁸⁰

⁷⁹ Clarke, J. “Personalized Learning: Changing Systems to Personalize Learning.” The Education Alliance, Brown University, 2003, p. 16. http://www.brown.edu/academics/education-alliance/sites/brown.edu.academics.education-alliance/files/publications/Personalized_Learning.pdf

⁸⁰ “About Us: The Learning Goals.” The Metropolitan Regional Career and Technical Center. <http://metcenter.org/about-us/one-student-at-a-time/goals/>

AUTHENTIC LEARNING

In addition to creating learning experiences around centralized learning goals, the MET creates authentic learning experiences by emphasizing internships and work experiences. Central to students' personalized learning plans is the Learning Through Interests (LTI) program, which matches students with community mentors based on their interests. Twice a week, students attend worksites to participate in informational interviews, shadow days, and learning opportunities under the direction of a worksite mentor. The worksite mentor collaborates with the student and his or her respective MET adviser to apply academic knowledge in a practical, meaningful way.⁸¹ The MET maintains that

...experiences in the real world motivate profound learning for several reasons. First, the work has real consequences that matter to an audience beyond the student and teacher. Second, the resources for learning are limitless when students are not confined to one building and a pre-determined set of materials. Third, the student develops personal relationships with experts in the area of his or her interest. A personalized curriculum is built around these experiences. Students are guided to identify their interests and search out professionals in the community to pursue those interests.... These projects become the foundation for the student's learning plan and provide opportunities for the student to address the MET's learning goals.⁸²

Students at The MET are grouped according to career or interest clusters, including: agriculture, architecture, arts, business management, education, government, health science, hospitality and tourism, information technology, law and public safety, manufacturing, marketing, science and technology, and transportation.⁸³

FLEXIBLE ASSESSMENT

Assessments also reflect the student-centered focus of personalized instruction. The MET uses assessments that are designed to help "students reflect on his or her work, create strategies to improve, and develop his or her own internal standards."⁸⁴ Assessments have become an integral part of the learning process, and "should be learning experiences within themselves, strengthening the quality of students' work and their understanding of themselves as learners."⁸⁵ Students are evaluated on multiple measures, and input from teachers, mentors, and advisors factors into the evaluation process. In so doing, the process used for student assessment allows family, peers, and mentors to contribute meaningfully to students' progress. The key elements for student evaluation include components such as

⁸¹ "The Metropolitan Regional Career and Technical Center Report Card: Facts and Data." The Metropolitan Regional Career and Technical Center, p. 5. <http://www.aypf.org/documents/StateReportCard2009.pdf>

⁸² "About Us: Learning Through Real Work." The Metropolitan Regional Career and Technical Center. <http://metcenter.org/about-us/one-student-at-a-time/realwork/>

⁸³ Ibid.

⁸⁴ "About Us: Evaluation and Assessment." The Metropolitan Regional Career and Technical Center. <http://metcenter.org/about-us/one-student-at-a-time/evaluation/>

⁸⁵ Ibid.

exhibitions, digital portfolios, narratives, and transcripts. Ultimately, students learn to measure themselves against personal benchmarks and the question: “Is it good enough?”⁸⁶

AT-RISK LEARNERS

Though personalized learning is designed to reach learners at all levels, some students will require additional assistance. Students who are in need of extra help or are determined to be at-risk can receive up to an additional 35 hours tutoring at no cost. Tutoring is provided by local education service providers, and the MET website provides links to each. Many of these services serve low-income, minority, and limited English speaking populations and offer tutoring in various settings, including community centers, after-school programs, businesses, houses of worship, and will even travel to students’ homes. Furthermore, the climate at MET schools is so supportive that there is no stigma associated with seeking extra help from tutors or counselors.⁸⁷

SUCCESS

The MET has seen extraordinary success over the past several years. The MET’s students are predominantly Hispanic (42 percent) and African-American (27 percent), and nearly 65 percent of students qualify for free or reduced lunch. Despite serving an inner-city population, the MET has a 94.5 percent graduation rate, surpassing both Providence’s graduation rate (76.5 percent) and the Rhode Island graduation rate (85.6 percent).⁸⁸ Furthermore, nearly 98 percent of MET graduates are accepted to college.

In addition to excellent graduation rates, there are other benefits that result from holistic, student-centered instruction. For instance, the MET has been rated first in the state for school climate, parental involvement, and teacher availability in both personal and academic matters. They are second in the state in terms of teacher effectiveness and skill. In conjunction with the MET’s outstanding academic outcomes, high climate rankings indicate that the MET schools have successfully implemented personalized learning.⁸⁹

⁸⁶ Ibid.

⁸⁷ Perreault, D. “A Holistic Approach to Education.” Providence Business News, 2013.
<http://www.bigpicture.org/2009/03/a-holistic-approach-to-education/>

⁸⁸ “The Metropolitan Regional Career and Technical Center Report Card: Facts and Data.” The Metropolitan Regional Career and Technical Center, p. 5. <http://www.aypf.org/documents/StateReportCard2009.pdf>

⁸⁹ Ibid., p. 2.

CONCLUSION

To summarize, Hanover Research has identified several characteristics common to effective personalized learning implementations. Several of these commonalities warrant additional emphasis.

First, commitment to personalizing learning for every student more closely approximates an instructional philosophy than a rigid program. Compared to the “one-size-fits-all” philosophy of traditional instructional methods, personalized instruction seeks to adopt a student-centered instructional focus. Personalized learning programs should utilize 21st century technology and skills to incorporate students’ needs, interests, and aspirations into instructional strategies that are customized for each student. The most effective personalized instruction programs comprise strong, positive, learning-focused environments and involve the larger community of students, parents, and teachers.

Next, successful implementation requires change on two levels: the policy or district level, and the classroom level. Districts must ensure that all students have access to devices and to broadband Internet, and should reconsider how they structure student time. At the classroom level, curriculum, assessments, student data, and technology should all be incorporated seamlessly to curate individual students’ learning trajectories.

Additionally, personalized instruction and technology are intimately linked, as technological advances have allowed teachers the opportunity to spend more time with individual students. The appropriate use of technology is also critical in bringing personalized learning initiatives to scale in larger school and district contexts, because while personalizing instruction is feasible for a few students without the help of technology, it becomes nearly impossible on a larger scale without the appropriate technological infrastructure. However, though it is an important component of personalized learning, the adoption of new technologies must coincide with fundamental changes in school policy and teaching to have an impact.

Indeed, transitioning to an effective personalized learning environment requires significant change on both policy and classroom levels. One of the most significant determinants of personalized learning program success is the degree of teacher buy-in. Teachers constitute the “front lines” in personalized instruction efforts, and ineffective teachers undermine the possibility of successful implementation. District hiring managers should be aware of the attributes that align with district personalized learning initiatives, and should actively seek these attributes from candidates. Often, teachers’ experiences and education do not align with the new role of “facilitator” in personalized instruction, so existing teachers should be given ample professional development opportunities to supplement their current skills. One particularly effective method of continuing professional development is the establishment of professional learning communities (PLCs), wherein members can evaluate current skills and collaboratively improve instruction. Additional challenges associated with widespread

implementation of personalized instruction initiatives include ensuring equity of resources for students and reconfiguring schedules to accommodate the new demands on resources.

Finally, personalized instruction is an excellent way to meet the needs of diverse learners. Personalized instruction is designed to optimize learning for all students, including diverse and at-risk students. Positive, personalized learning environments serve to augment students' feelings of belonging, which in turn increases students' motivation and corresponding desire to remain in school. Teachers can use several strategies to increase their responsiveness to diverse learners' needs, and can incorporate this knowledge to further customize students' instruction.

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