

Observations and Guidance on Implementing Personalized Learning



Personalized learning (PL) is an approach to education that seeks to allow what and how a student learns on a daily basis to be less constrained by the needs of other students or by external grade-level requirements. Instruction is driven largely by the individual student’s needs, interests, and context, and is informed by ongoing conversations with the student and the adults in his or her life. While some aspects of PL have long been mainstays in U.S. K–12 education—for example, individualized education plans for students with special needs, providing support through tutors, and diverse elective course offerings—technological advances have expanded how and where student learning can be personalized. In its ideal form, PL allows for greater variety in what students are working on at any moment, while still setting ambitious goals for each student’s progress.

Early personalization efforts were mainly implemented within schools and classrooms that otherwise retained a traditional model of instruction to groups of roughly 20–30 similar-age students. However, in recent years, it has become more common for schools to embrace schoolwide PL approaches that depart more radically from typical practice. At the same time, there is still little

research evaluating what actual elements of PL schools are implementing or what the facilitators and obstacles to such implementation may be.

As part of a recent study for the Bill & Melinda Gates Foundation, RAND Corporation researchers have sought to identify what PL looks like in a small sample of schools that were implementing PL approaches schoolwide. These schools received funding from the Next Generation Learning Challenges (NGLC) initiative to support highly personalized approaches to learning. The researchers looked at what PL strategies were adopted, as well as obstacles to implementation. In addition, they explored how the approaches to personalization in these schools compared with a national sample that represented more typical practice in the United States. They also examined how PL implementation differs between charter schools and traditional district schools included in the NGLC sample.

Key Findings

- Schools in the study were pursuing a wide variety of practices to focus on the learning needs of each individual student in a supportive and flexible way.
- Schools were implementing specific PL approaches to varying degrees, with none of the schools looking as radically different from traditional schools as theory might predict.
- Students experienced positive achievement effects and closed gaps relative to national norms.
- Implementation and effects both seemed stronger in the charter schools than in the district schools.

Characteristics of the NGLC Schools

Key characteristics include the following, based on 2014–15 school year data provided by school administrators:

- schools were predominantly located in urban areas; two were rural
- 43 percent of the schools had been implementing PL for one year, 38 percent for two years, and 20 percent for three years
- elementary and K–8 schools averaged about 230 students per school, and middle and high schools averaged about 270 students

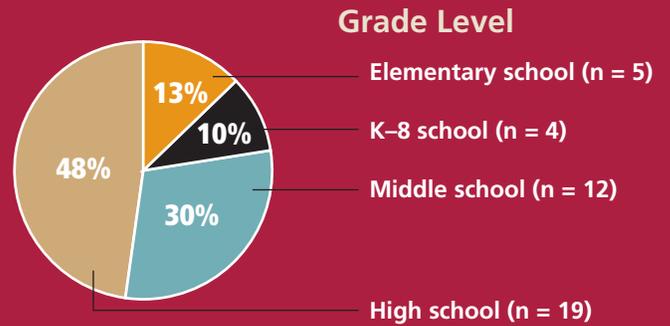
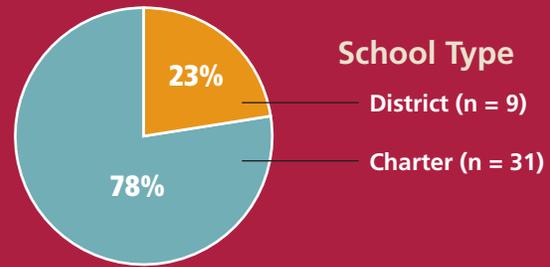
Composition of schools in the implementation analysis

About
10,600 students

40 schools participating
in NGLC

6,145 students surveyed

241 teachers surveyed



Note: Percentages may not add to 100 percent due to rounding.

- the median schoolwide proportion of students eligible for free or reduced-price lunch was 80 percent
- the median schoolwide proportion of students of color was 96 percent.

Schools Used Four Broad Approaches to Personalized Learning

PL prioritizes a clear understanding of the needs and goals of each individual student and the tailoring of instruction to address those needs and goals. These needs and goals, and progress toward meeting them, are highly visible and easily accessible to teachers as well as students and their families, are frequently discussed among these parties, and are updated accordingly. The NGLC schools used a variety of approaches toward meeting these objectives, which can be broadly grouped into four interdependent strategies:



Learner profiles maintain a rich and up-to-date record of student strengths, needs, goals, and progress.



Personal learning paths provide appropriate and meaningful choices of material for each student to work on, with the necessary adult supports.



Competency-based progression enables these personalized paths to run their natural course by removing external constraints on what material each student works on, when, and for how long.



Flexible learning environments enable schools to allocate resources in new ways to best support these processes.

The schools in this study did not necessarily plan to implement each of these strategies. Rather, they were all working toward the more general goal of improving student achievement through PL, and were free to be creative and to adopt approaches compatible with local context and the population of students they served. A summary of implementation efforts and a comparison with what schools are doing nationally is presented below.



KEY TAKEAWAYS: Implementing Learner Profiles

Both NGLC and national teachers reported receiving and using student data frequently, and the researchers did not find differences in the use and characteristics of formal learner profiles. However, NGLC teachers reported receiving many types of student data (e.g., data on students who have achieved mastery or need extra assistance) more frequently, and reported using them to adjust instruction in ways consistent with PL practices to a greater extent than did teachers in the national sample. Although more NGLC students reported using technology to track their learning progress, students in the two samples reported similar levels of

discussion with teachers about their learning progress or learning goals. These differences in data access and use could be related to differences in the schools' data systems, which in NGLC schools seemed more likely to contain student data that facilitated PL practices.

According to principal interviews, many NGLC schools faced barriers to more-extensive use of student data, including difficulty measuring nonachievement outcomes (such as data on student behavior or socio-emotional skills), integrating such data with achievement data, and using the full complement of data to set goals and inform instructional decisions.



KEY TAKEAWAYS: Implementing Personal Learning Paths

Highly personalized approaches, such as flexible paths through content and extensive student choice in the content or structure of learning, were not common in either the NGLC or the national samples, most likely because they can be time-consuming for teachers to develop and manage. However, NGLC schools reported adjusting instructional time to focus on coaching and individual supports for students to a greater extent than did teachers in the national sample, a difference that was perhaps facilitated by the fact that the NGLC schools appeared to dedicate more time to one-on-one supports for students, such as an advisory period, in the school schedule.

In the NGLC schools that offered students some choice in path and content, students reported that they often worked on different topics and assignments than their peers. While many students enjoyed the flexibility such choices offered, others indicated that it made seeking help from (and collaboration with) peers difficult, because students were all working on different things. NGLC teachers perceived limited time to develop personalized lessons to be the biggest obstacle to implementing personal learning paths and noted that the need to meet standards constrained the amount of choice they could offer to students, which also may have limited implementation of highly personalized approaches.





KEY TAKEAWAYS: Implementing Competency-Based Progression

Although most teachers nationally reported using competency-based practices, NGLC teachers and students reported higher levels of such practices. NGLC teachers were also more likely to require students to get through a certain amount of material. Among the NGLC schools, teachers and students reported that some competency-based practices were common—in particular, allowing students to work at different paces and to work on different topics or skills at the same time. While this finding is encouraging, implementing competency-based progression is not without challenges.

Many NGLC teachers said that allowing students to progress at their own pace through content was challenging when students did not complete work at an acceptable pace. Some teachers reported that organizing students in groups for the larger performance tasks could be difficult, because students were in different places in learning the material. In addition, principals and teachers said that competency-based grading systems were difficult to explain to stakeholders and did not fit with traditional reporting practices.



KEY TAKEAWAYS: Implementing Flexible Learning Environments

NGLC schools used space, staff, and time in ways that were different from schools in the national sample. These practices included creating learning spaces that were open and flexible, using a variety of activities that were based on the needs of the student or the demands of the lesson, using student achievement data to assign students to groups, and, among teachers who reported grouping students by ability level, changing those groups more frequently. The role of technology in instruction was similar in both

samples. While these findings are encouraging, some NGLC principals, teachers, and students reported that creating and using flexible spaces in traditional school buildings was challenging: Such spaces were often noisy, making it difficult for students to concentrate. Some aspects of flexible scheduling also proved challenging for NGLC schools: Schools experienced barriers to flexible scheduling at the school level but used time flexibly at the classroom level, and student grouping was more flexible within classes than schoolwide.

KEY TAKEAWAYS: Obstacles to Implementing Personalized Learning that Apply Across the Four Strategies

NGLC teachers were less likely than those in the national sample to report that environmental and operational factors, such as lack of administrator support, pressure to cover specific material, lack of data, lack of flexibility in

curriculum, and scheduling constraints, were obstacles. Pressure to cover specific material and lack of flexibility in the curriculum seemed to be the largest obstacles for teachers in the national sample.

How Did Charter and District NGLC Schools Compare in Their Implementation of Personalized Learning?

With early signs indicating PL could have a positive effect on student achievement, there has been considerable enthusiasm about scaling up its implementation. But it remains unclear whether effects seen among early adopters, the majority of which are charter schools, can be scaled up to include district-operated public schools, which serve the vast majority of K–12 students in the United States. For example, charter schools composed 92 percent of the sample that produced favorable results in the Pane et al. (2015) study.* The limited data available in the current sample—consisting of one-fourth district-operated and three-fourths charter schools—enable a preliminary examination of implementation similarities and differences between district and charter schools. *Although these analyses do not enable strong conclusions due to small sample sizes, and thus should be interpreted with great caution, they may offer some observations that warrant consideration by stakeholders interested in the scale-up of PL.*

In general, charter schools tended to display more-extensive implementation of many aspects of PL. District

schools displayed less-extensive implementation and tended to look more similar to the national sample, suggesting lower implementation of novel PL practices. For example, charter teachers reported greater use of key aspects of learner profiles, such as more-frequent receipt and use of student data, and greater adaptation of course content to meet students' needs. Charter teachers and students reported using and experiencing competency-based practices to a greater extent, such as the ability to work on different topics than others and at their own pace. Key components of flexible learning environments, such as flexible use of staff, space, and technology, were reportedly also more common in charter schools. Opportunities for student choice were uncommon in both groups, but more charter teachers reported adapting course content to meet students' needs to a great extent. Flexible use of class time was common in both groups, as was using a variety of instructional strategies, and group assignment by age or achievement level.

How Did NGLC Schools Affect Student Achievement?

NGLC students were estimated to experience gains of about 3 percentile points in mathematics relative to a comparison group of similar students. Specifically, a student who would have performed at the median in the comparison group is estimated to have performed 3 percentile points above the median in an NGLC school. In reading, there was a similar trend, though it was not

significant. Students at all levels of starting achievement appeared to benefit. On average, the students started the 2015–16 academic year below national norms and approached those norms by the end of the year. Looking at individual schools, nearly half showed significant positive effects and about one-fifth showed significant negative effects.

*See John F. Pane, Elizabeth D. Steiner, Matthew D. Baird, and Laura S. Hamilton, *Continued Progress: Promising Evidence on Personalized Learning*, Santa Monica, Calif.: RAND Corporation, RR-1365-BMGF, 2015, (available at: http://www.rand.org/pubs/research_reports/RR1365.html)





Recommendations

Based on the findings from this study, the RAND researchers offer the following recommendations for implementers of PL at the district or school level.

Provide teachers with resources and time to pilot new instructional approaches and gather evidence of how well they work. Although it is not yet clear which PL strategies and practices are most likely to positively affect student outcomes, it is important to ensure that teachers and school leaders have the flexibility, time, and resources (e.g., funding, support staff, access to experts) to experiment with new instructional approaches, develop a systematic process for collecting and analyzing evidence of their effectiveness, and make changes as needed.

Provide teachers with time and resources to collaborate on developing curriculum materials and on reviewing and scoring student work. If staff prefer to develop their own curriculum materials, it is important to ensure that they have the flexibility, time, and resources to do so in ways that are minimally intrusive on their teaching duties. Time to collaborate on scoring student work is particularly important in schools that use mastery-based grading systems, where the system's norms and parameters may still be in development.

Identify a school staff member (or two) who is comfortable with technology and has curriculum expertise to serve as a just-in-time resource for teachers. Some technology resources have the potential to enable key PL strategies, but integrating technology into instruction can often be challenging for teachers. It is therefore important that schools identify one or two staff members who can support teachers in troubleshooting technology issues as they arise, creating technology-integrated lessons and projects, accessing

and interpreting data from technology-based curriculum materials, and developing classroom management plans to include technology.

Provide resources and support for school staff to help them choose the most-appropriate digital or nondigital curriculum materials. Many NGLC teachers and administrators reported that it was challenging to find high-quality technology-based curriculum programs that were well-suited for the school context. As a result, many schools tended to rely on multiple technology-based programs and teacher-developed materials, a situation that can make developing lesson plans time-consuming for teachers. In addition, the lack of curriculum materials designed to meet the needs of students performing at different levels can hinder teachers' efforts to personalize instruction. Ensuring that school staff members have the necessary resources (e.g., time, funding, extra staff) and support (e.g., access to curriculum experts or other means of vetting, adapting, or combining materials) could help ease the burden of curriculum development for teachers, allowing them to focus more time on instruction.

Provide resources and support for school staff to integrate multiple data systems. Although technology is a key enabler of PL, another barrier to widespread, effective PL implementation is that some technologies have not yet developed to the point where they support PL by making aspects of teaching more efficient. For example, many school data systems in use in PL schools do not yet integrate academic and behavioral data, shifting the burden of integrating and interpreting those data onto teachers. Providing resources or support could help ease the burden of data entry and integration for teachers, allowing them to focus more time on instruction.

The research described here is fully documented in John F. Pane, Elizabeth D. Steiner, Matthew D. Baird, Laura S. Hamilton, and Joseph D. Pane, *Informing Progress: Insights on Personalized Learning Implementation and Effects*, RR-2042-BMGF, 2017 (available at www.rand.org/t/RR2042). To view this brief online, visit www.rand.org/t/RB9967.



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