



**Indicator:** Online programs generate accessible and actionable student data about their use, per-formance, and progress. (5305)

**Explanation:** Personalized and competency-based learning systems should incorporate data that are easily accessible for students, teachers and parents, and that help teachers differentiate instruction and encourage student agency for their own learning. Personalized learning plans may include data dashboards that contain data relevant to student learning goals and mastery of standards; these dashboards can also serve as early warning systems for students needing interventions. Teachers and school staff need plenty of professional development centered on effective ways to interpret and use student data within these systems.

**Questions:** How can data be used to support student learning within personalized learning systems? What are considerations for school leaders in developing or identifying data-driven online learning programs?

Learner-centered, or personalized learning refers to “tailoring learning for each student’s strengths, needs and interests—including enabling student voice and choice in what, how, when and where they learn—to provide flexibility and supports to ensure mastery of the highest standards possible” (Patrick, Kennedy, & Powell, 2013, p. 4). The student is actively involved with the teacher in co-constructing their individualized learning pathway, and the location, time and pace of learning may vary from student to student (Redding, 2016). Technology makes personalized learning approaches possible at scale and can assist in all areas of teaching and learning, including student data and assessment, curriculum selection and alignment to standards, and instruction and learning (Wolf, 2010; Redding, 2014). A good deal of research evidence has supported the use of technologies and online instruction to increase student achievement (e.g., Tamin, Bernard, Borokhovski, Abrami, & Schmid, 2011), and evidence is mounting that supports the use of personalized, or student centered approaches to teaching and learning (Glowa & Goodell, 2016). Personalized learning approaches, particularly those that are competency-based, require frequent and ongoing checks of student progress data by teachers and the students themselves, as well as dynamic teacher responses to the data provided within these systems (Hanover Research, 2012).

*How Can Data Be Used to Support Student Learning Within Personalized Learning Systems?*

Glowa and Goodell (2016) explain how student data can be used within personalized and competency-based learning approaches:

Teachers use technology to analyze and utilize real-time data to differentiate instruction, customize learning and engage students in deeper learning. Students use technology to consider their real-time progress data in focusing their learning, to access resources, to collaborate and communicate with others and to demonstrate evidence of their learning. (p. 1)

In these systems student data is easily accessible to students and teachers (and often parents), and is used to drive instruction as students master goals and achieve standards; student agency is built as students monitor their progress and set learning goals, with some flexibility allotted to determine their individual learning path. Some schools

and districts have developed online personalized learning plans that consist of daily actionable goals, action steps and competencies. Students develop these plans in partnership with their teachers, and document how they will meet established goals. These plans can contain assessment data and are used to document academic growth; they also may allow teachers (and school leadership) to capture data on non-academic skills and competencies (Educause, 2016). Data or learning dashboards provide a single place that “integrates information from assessments, learning tools, educator observations, and other sources to provide compelling, comprehensive visual representations of student progress in real-time” (U.S. Department of Education, 2016). These dashboards can provide data in easily accessible formats tailored to various stakeholders (e.g., students, parents, etc.); they can also suggest resources to help students continue their learning and provide early detection of students who are struggling and may be at risk for failure or drop-out. For example, the Summit Public Schools use learning dashboards accessible to both students and parents; these dashboards allow students to view their individual learning data, set learning and personal goals in collaboration with their teachers, track their progress and receive feedback, and access relevant learning resources to help them meet goals (Bill and Melinda Gates Foundation, 2015).

#### *What Are Considerations for School Leaders in Developing or Identifying Data-Driven Online Learning Programs?*

School districts using data dashboards within personalized or competency-based learning systems will need to establish and nurture a data-driven learning culture through transparency with stakeholders and adequate professional development (Powell, Rabbitt, & Kennedy, 2014). Teachers must enhance their technical skills and capacity to use both qualitative and quantitative data for personalization purposes, adjust individual student instruction and grouping based on data from multiple sources, develop ways to encourage student ownership of their learning data, and engage in ongoing evaluation of the effectiveness of technologies, tools and instructional strategies (Sturgis, 2015). Personalization within education “relies heavily on the teacher’s ability to conduct ongoing formative assessment and progress checks...attentiveness to real-time data is especially critical” (Hanover Research, 2012).

Student-centered, personalized learning typically will generate an abundance of data, and requires an organized and well-designed data management strategy; school and district leaders should address questions regarding the purposes, format, and audiences for the various data collected (Glowa & Goodell, 2016). Careful planning around these issues can yield student data that are easily accessible and actionable, as explained by Sturgis (2015):

An effective and well-designed information system is an important tool for educators to input and analyze data about their students; to curate instructional materials; to track student mastery; to support students in documenting their work and progress towards mastery; and to communicate with students and their families about their progress. An integrated learning information system can also provide data to school and district staff on the use of instructional materials and their impact on student performance. (p. 69)

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