Core Function	Personalized Learning: Digital Learning

Effective Practice	Using appropriate technological tools and programs to enhance student learning

Indicator: All teachers regularly add new content and teaching suggestions to the online learning content catalog. **(A8)**

Explanation: Online learning content catalogs support and organize digital content created by teachers and other educational professionals and may include teaching suggestions, lesson plans, videos, and other multimedia content. Openly licensed educational resources allow teachers to access, modify, and share their own digital learning content without obtaining permission or paying licensing fees, and allow for collaborations with other teachers within professional networks. Teachers need to be equipped through professional learning experiences with skills to critically evaluate digital content for its appropriateness and benefits for student learning, as well as with skills to develop their own curricular content and teaching suggestions to be added to digital learning communities.

Questions: How can teachers use and contribute to online learning content catalogs? What skills do teachers need to effectively use and contribute to online learning content catalogs?

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 to increase student achievement (e.g., Tamin, Bernard, Borokhovski, Abrami, & Schmid, 2011). Recent preliminary research also suggests that personalized learning practices that incorporate technology and online curricula, when implemented with fidelity, may result in positive and large student achievement gains, particularly for students behind academically (Pane, Steiner, Baird, & Hamilton, 2015).

How Can Teachers Use and Contribute to Online Learning Content Catalogs?

International Society for Technology in Education (ISTE) standards for teachers suggests that teachers should be able to design and develop digital learning experiences and assessments by "incorporating contemporary tools and resources to maximize content learning in context" (ISTE Standards, 2008). Teachers should enhance student learning and creativity by designing or adapting learning experiences that incorporate digital tools and resources, as well as provide personalized learning experiences that allow students to be active participants in their own learning. This requires access to a variety of high quality digital materials, as well as a strong learning infrastructure that allows users to easily curate and share digital learning content (U.S. Department of Education, 2016). Online learning content sites provide a digital space for teachers (and others) to upload, organize, and access educational content. They can also allow teachers to create, edit, and publish digital materials such as lesson plans, teaching videos, teaching sug-

gestions, and other multimedia content. They offer the opportunity for increased collaboration among teachers, with teachers able to share files and provide lesson plan feedback to their colleagues and other educators. Online learning content is often organized around professional communities of practice; for example ISTE's arts and technology network helps educators make explicit connections between art and technology, with members sharing resources, ideas and lesson plan examples (ISTE, n.d.). Project iEARN offers technology-enabled resources that allow teachers to develop and contribute project-based learning curricula and collaborate with other professionals to design projects that engage students in addressing global issues (iEARN, 2013). When teachers are expected to create, refine and update their own curricular resources their role shifts from manager to more of a pedagogical professional (Tonks, Weston, Wiley & Barbour, 2013).

A recent national initiative involves increasing the number of openly licensed educational resources available to teachers. Openly licensed educational resources (OER's) are digital resources that may be used, modified and shared without obtaining permission or paying licensing fees (Graham, LaBonte, Roberts, O'Byrne, & Osterhout, 2014; U.S. Department of Education, 2016). Examples are OER Commons and Khan Academy (Graham et al., 2014). These resources provide cost savings over traditional textbooks and can be kept up-to-date continually; teachers can also tailor the materials creatively to meet their students' individual needs (U.S. Department of Education, 2016). Many states have recently created programs to help teachers retrieve, organize, refine and share openly licensed materials; for example, Illinois' Shared Learning Environment allows teachers to browse and explore learning standards-aligned resources, as well as share their own online resource library (ISLE Open Educational Resources, 2015). The U.S. Department of Education recently launched a campaign to encourage districts and states to move away from traditional textbooks toward openly licensed educational resources to ensure that all students have access to high-quality learning resources (U. S. Department of Education, 2015). The #GoOpen campaign advocates that any copyrightable intellectual property developed using USDE grant funds be required to have an open access license; additionally many states and districts are committing to ensuring that schools have access to open educational

resources (U.S. Department of Education, 2015).

What Skills Do Teachers Need to Effectively Use and Contribute to Online Learning Content Catalogs?

Teachers need professional learning experiences in order to select appropriate online technology resources as well as contribute their own content. With the proliferation of online curricula, some education experts are calling for empowering educators with the capacity to critically analyze available content for its adherence to standards and value for their students (State Educational Technology Director's Association, SETDA, 2015). According to a recent report:

Teachers increasingly use technology and digital content in their classrooms but report challenges in identifying and vetting the materials they discover. States, districts, and educator preparation programs should provide educators with professional learning opportunities on how to select and use (and, in the case of OER, create and modify) digital instructional materials and integrate them into their classrooms. (SETDA, 2015, p. 8)

Rubrics are now available to assist educators with selecting online curricula that are standards-aligned and demonstrate positive impacts to student learning. Achieve's EQuIP Project seeks to expand the availability of online CCSS-aligned lessons and units to all teachers, as well as build educator capacity to evaluate and enhance the quality of online instructional materials. Since high need schools often lack connectivity, resources and support for teachers and leaders to implement digital learning strategies, federal funding through programs such as Title II can be used to help teachers find and adapt relevant open educational resources (U. S. Department of Education, 2014).

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