Core Function	→	Personalized Learning: Blended Learning		Effective Practice	→	Mix traditional classroom instruction with online delivery of instruction and content, granting the student a degree of control over time, place, pace, and/or path

Indicator: Instructional teams determine which blended learning model is appropriate for the school or individual classroom. (5313)

Explanation: Blended learning enables personalized learning at scale, offering students both traditional classroom and online learning experiences. Rotation models provide examples of hybrid models that combine online instruction with the best features of traditional classroom instruction. Flex, A-La-Carte, and Enriched Virtual models are examples of more "disruptive" innovation that varies more dramatically from the traditional school model, and are more commonly found at the secondary level. Instructional teams should consider their students' likely levels of successfully engaging independently with online content when selecting models, as well as possible infrastructure barriers that may hinder online learning.

Questions: What blended learning models are being used within K-12 education? What should instructional teams consider when selecting blended learning models?

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). Blended learning models grant students some degree of control over their learning pathway, and provide a mix of traditional classroom instruction and online delivery of instruction and content (Staker & Horn, 2012). Technology used with blended learning models 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); while K-12 blended learning research is limited (Sparks, 2015), some evidence suggests that students with access to blended learning models outperform those experiencing only one type of instruction (Means, Toyama, Murphy, Bakia, & Jones, 2010; Bakia, Shear, Toyama, & Lasseter, 2012; Means, Toyama, Murphy & Baki, 2013; Pane, Griffin, McCaffrey, & Karam, 2014; Pane, Steiner, Baird, & Hamilton, 2015). Several blended learning models have become prevalent in recent years; instructional teams must select the blended learning model that is most appropriate for their individual classroom and/or school context.

What Blended Learning Models Are Being Used Within K-12 Education?

Blended learning is defined as "a formal education program in which a student learns at least in part through online learning, with some element of student control over time, place, path, and/or pace, and at least in part at a supervised brick-and-mortar location away from home… the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience" (Christensen, Horn, & Staker, 2013, p. 10).

Blended learning is designed to be a "delivery mechanism" for personalized learning (Patrick, et al., 2013). Through their research on blended learning schools and programs, researchers at the Christensen Institute have identified four blended learning models that are most prevalent within K-12 schools:

Rotation Model: Students rotate among learning modalities (e.g., online learning, whole-group class discussion, projects, small-group instruction) on either a fixed schedule or at the teacher's discretion. Rotation models include four sub-models: 1) Station Rotation: students must move through all of the stations within a contained classroom or group of classrooms; 2) Lab Rotation: students rotate to a computer lab for the online learning station; 3) Flipped Classroom: students engage in online learning off-site in place of homework, and receive face-to-face teacher guidance, practice, and projects at school; or 4) Individual Rotation: Each student has an individualized "playlist" based on learning needs and is not required to rotate to every station or modality.

Flex Model: Online learning at the brick-and-mortar campus is the core vehicle for student learning, and students progress along an individualized, custom and fluid schedule among learning modalities. Teachers provide face-to-face support as needed by providing group projects, tutoring or small-group instruction. The degree of face-to-face support varies, with some offering daily extensive support and others offering only minimal support.

A-La-Carte Model: Students take a course entirely online that is designed to support and/or complement learning experiences at the brick-and-mortar school. The course may occur at the school or off-site; students typically take some courses A La Carte and some face-to-face at the school.

Enriched Virtual Model: Students are required to have face-to-face learning experiences (typically not daily) with their teacher but complete their remaining classwork remotely. Many programs using this model began as full-time online schools and then transitioned to blended programs to provide students with brick-and-mortar school experiences. (Clayton Christensen institute, n.d.)

What Should Instructional Teams Consider When Selecting Blended Learning Models?

The Rotation Models described above are considered to be "sustaining" innovation models in that they are less disruptive and offer a best-of-both-worlds "hybrid" model combining the traditional classroom with online learning (Staker, 2014). These models are more widely used, particularly at the elementary level, and offer the benefits of allowing teachers to work with smaller student groups, making differentiated instruction more cost-effective and efficient (Christensen, et al., 2013; Staker, 2014). The Flex, A-La-Carte, and Enriched Virtual Models are examples of "disruptive" innovation models. Disruptive models involve more dramatic changes to traditional school models; these models are more often used at the middle and high school levels, where students presumably may be more capable of self-regulated online learning (Means, et al., 2013). They may enable students to better learn at their own pace, engage with teachers more effectively, and recover more dropouts by removing traditional classroom barriers; they also can allow more students to take electives, foreign language, and advance placement classes which may not be available in their brick-and-mortar school (Staker, 2014).

Blended learning is about the instructional shift towards personalized, student-centered learning rather than the technology in and of itself; educators must reconsider their roles and build students' self-regulated learning in order to foster the student agency and responsibility that is critical for blended learning to be successful (Murphy, Snow, Mislevy, Gallagher, Krumm, & Wei, 2014; Powell, et al., 2015). Murphy, et al., recommend that in order for students to fully benefit from blended learning schools must establish productive and self-directed learning cultures by activities such as setting weekly progress goals. Powell, et al., (2013) also suggest that schools and districts considering implementing blended learning programs should first clearly define blended learning goals and communicate them to all stakeholders, examine and update professional development needs, and address school- and system-level implementation barriers. Identifying a small core group of teachers to begin blended learning implementation prior to whole-school adoption allows these teachers to be more easily supported as the program unfolds (Darrow, Friend, & Powell, 2013). Instructional teams must also consider common potential implementation barriers such as insufficient connectiv-

ity/broadband; providing for a site-based blended learning coordinator/manager may help address these issues (Darrow, et al., 2013; Murphy, et al., 2014).

References and other resources

Bakia, M., Shear, L., Toyama, Y., & Lasseter, A. (2012). *Understanding the implications of online learning for educational productivity.* Washington, DC: U.S. Department of Education.

Clayton Christensen Institute (n.d.). *Blended learning model definitions.* Retrieved from http://www.christenseninstitute.org/blended-learning-definitions-and-models/

Christensen, C. M., Horn, M. B., & Staker, H. (2013). *Is K-12 blended learning disruptive? An introduction to the theory of hybrids.* Retrieved from http://www.christenseninstitute.org/wp-content/uploads/2013/05/Is-K-12-Blended-Learning-Disruptive.pdf

Darrow, R., Friend, B., & Powell, A. (2013, October). *A roadmap for implementation of blended learning at the school level: A case study of the iLearnNYC lab schools.* International Association of K-12 Online Learning (iNACOL). Retrieved from http://www.inacol.org/wp-content/uploads/2015/02/a-roadmap-for-implementation.pdf

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies.* Retrieved from http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf

Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record, 115*, 1-47.

Murphy, R., Snow, S., Mislevy, J., Gallaher, L., Krumm, A., & Wie, X. (2014). *Blended learning report*. Michael & Susan Dell Foundation. Retrieved from https://www.msdf.org/app/uploads/2016/01/MSDF-Blended-Learning-Report-May-2014.pdf

Pane, J. F., Griffin, B. A., McCaffrey, D. F., & Karam, R. (2014). Effectiveness of Cognitive Tutor Algebra I at scale. *Educational Evaluation and Policy Analysis, 36*(2), 127-144.

Pane, J. F., Steiner, E. D., Baird, M. D., & Hamilton, L. S. (2015). *Continued progress: Promising evidence on personalized learning.* Santa Monica, CA: RAND Corporation. Retrieved from http://www.rand.org/pubs/research_reports/RR1365.html

Patrick, S., Kennedy, K., & Powell, A. (2013). *Mean what you say: Defining and integrating personalized, blended and competency education.* International Association for K-12 Online Learning. Retrieved from http://www.inacol.org/wp-content/uploads/2015/02/mean-what-you-say.pdf

Powell, A., Watson, J., Staley, P., Patrick, S., Horn, M., Fetzer, L., Hibbard, L., Oglesby, J., & Verma, V. (2015, July). *Blended learning: The Evolution of online and face-to-face education from 2008-2015*. International Association for K-12 Online Learning. Retrieved from http://www.inacol.org/wp-content/uploads/2015/07/iNACOL_Blended-Learning-The-Evolution-of-Online-And-Face-to-Face-Education-from-2008-2015.pdf

Redding, S. (2014). *Personal competency: A framework for building students' capacity to learn*. Philadelphia, PA: Center on Innovations in Learning. Retrieved from http://www.centeril.org/publications/Personal_Competency_Framework.pdf

Redding, S. (2016). Competencies and personalized learning. In M. Murphy, S. Redding, & J. Twyman (Eds.), *Handbook on personalized learning for states, districts, and schools*. Retrieved from www.centeril.org

Sparks, S. (2015, April 13). Blended learning research yields limited results. *Education Week, 34*(27), 12-14.

Staker, H., & Horn, M. (2012). *Classifying K-12 blended learning.* Retrieved from http://www.christenseninstitute.org/wp-content/uploads/2013/04/Classifying-K-12-blended-learning.pdf

Staker, H. (2014, January 10). *Which blended model should K-12 schools choose?* Retrieved from http://www.christenseninstitute.org/which-blended-model-should-schools-choose/

Tamin, R., Bernard, R., Borokhovski, E., Abrami, P., & Schmid, R. (2011). What forty years of research says about the impact of technology on learning: A second-order meta-analysis and validation study. *Review of Educational Research, 81*, 4-28.

Wolf, M. (2010). *Innovate to educate: System [re]design for personalized learning.* A report from the 2010 symposium. Washington, DC: Software & Information Industry Association. Retrieved from http://www.ccsso.org/Documents/2010%20Symposium%20on%20Personalized%20Learning.pdf