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CLASSIFYING K–12 BLENDED LEARNING

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INTRODUCTION

The growth of online learning in the K–12 sector is occurring both remotely through virtual schools and on campuses through blended learning. In emerging fields, definitions are important because they create a shared language that enables people to talk about the new phenomena. The following blended-learning taxonomy and definitions expand upon and refine our previous work in helping to create a shared language for the K–12 blended-learning sector.

In our report titled, "The rise of K–12 blended learning," we observed that there were six main blended-learning models emerging in the sector from the perspective of the student. This paper introduces a number of changes to that taxonomy based on feedback from the field and the need to update the research to keep pace with new innovations that are occurring in blended learning. Most importantly, the paper eliminates two of the six blended-learning models—Face-to-Face Driver and Online Lab—because they appear to duplicate other models and make the categorization scheme too rigid to accommodate the diversity of blended-learning models in practice. By moving from six to four overarching models, we have created more breathing room in the definitions. We hope these new models will better describe the majority of programs so that nearly all blended-learning programs will fit comfortably within one of the four. **Appendix A** explains the differences between the new four-model taxonomy and the old six-model taxonomy in greater detail.

Two design principles governed the process of updating and expanding upon the blended-learning definitions:

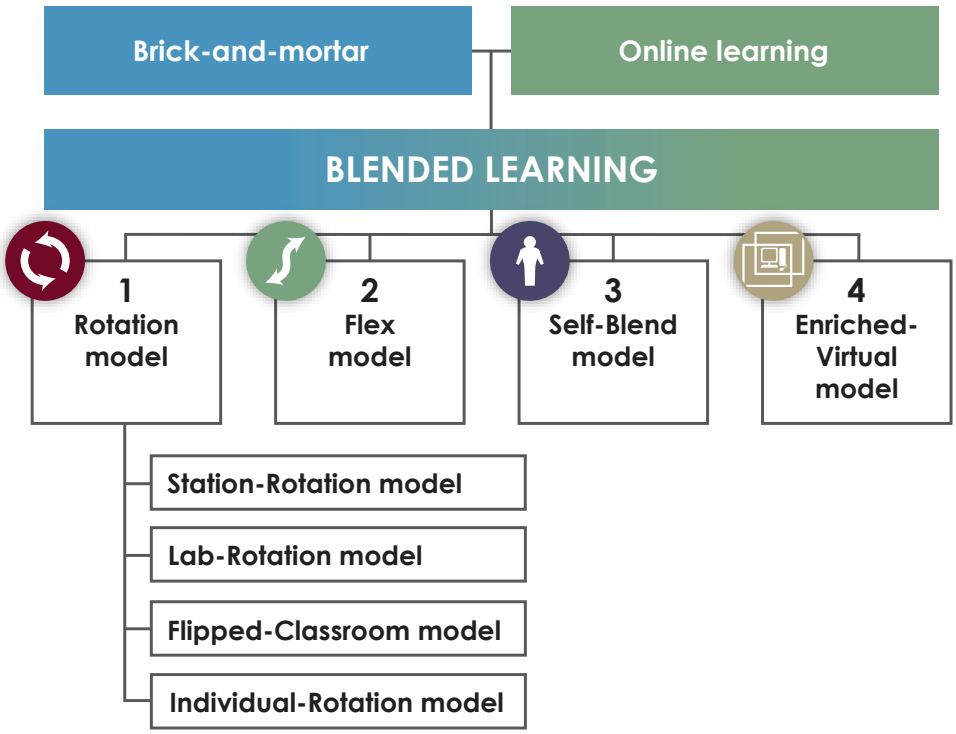
1. **Develop flexible definitions so that they can still be useful even as the field continues to innovate.** The definitions are intentionally broad and open, rather than specific. They set forth basic patterns that are emerging, but avoid setting tight parameters about how a model "has to be."

2. **Exclude normative qualifiers.** This principle is a holdover from the last report. Some blended programs are high in quality and some are not. Some use dynamic content, whereas others have more static content. Some are more expensive than the traditional schooling model; others are less costly. The definitions in this taxonomy leave out such appraisals. Just as a hybrid car can be either efficient or a clunker and still be a hybrid car, blended learning can be both good and bad.

In defining blended learning and identifying its emerging models, we looked at examples of over 80 programs in the K–12 sector.[1] In addition, in November 2011 roughly 100 educators met during a pre-conference at the International Association for K–12 Online Learning's (iNACOL) Virtual School Symposium[2] and critiqued the taxonomy.[3]

The taxonomy in **Figure 1** depicts a preliminary categorization scheme for the blended-learning landscape as it currently exists based upon an analysis of programs that either are preparing to launch or are already in existence. It is important to note that many school operators have implemented more than one blended-learning model for their students. Accordingly, the models represent particular programs within a school, not a typology for whole-school design.

Figure 1. *Blended-learning taxonomy*



Later sections of this paper define each of the elements in **Figure 1** and provide examples. As stated in the first report, we continue to believe that these categories will evolve and expand. We invite others to contribute to this research by offering improvements and additions.

DEFINITION OF BLENDED LEARNING

In 2011 Innosight Institute suggested a preliminary definition of blended learning. This paper introduces a slightly refined definition to incorporate feedback from the field. **Figure 2** depicts the revised definition.

Figure 2. *Definition of blended learning*

Blended learning is…

a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace

and

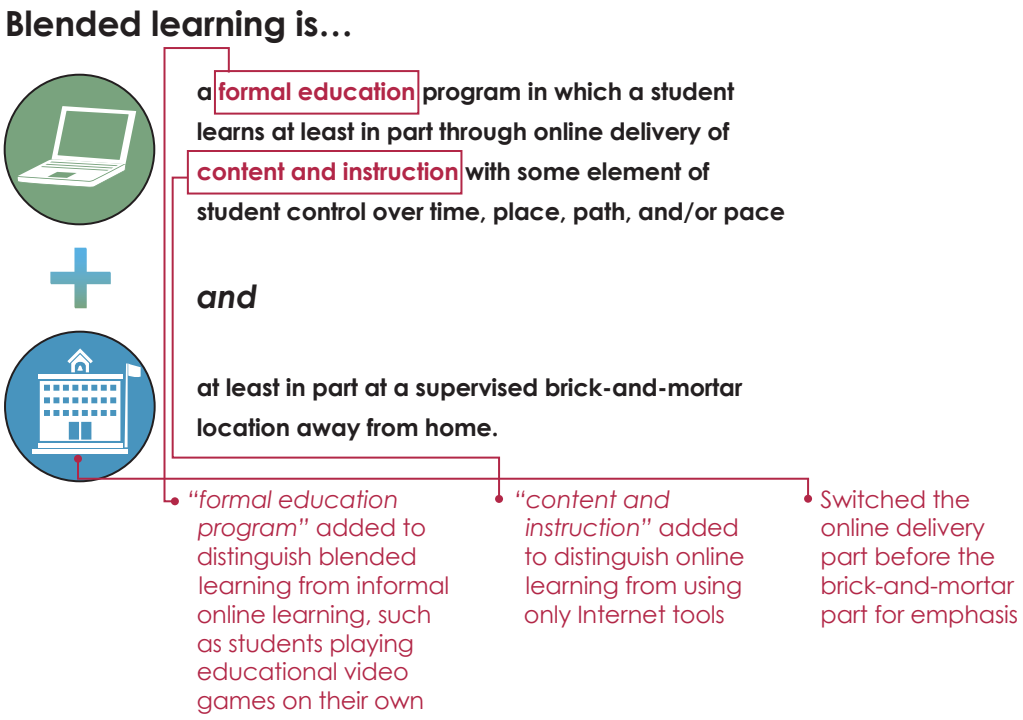
at least in part at a supervised brick-and-mortar location away from home.

The first component of the definition—online delivery of content and instruction with some element of student control over time, place, path, and/or pace—incorporates language from Evergreen Education Group's and iNACOL's definitions of online learning. They define online learning as education where content and instruction are delivered primarily over the Internet.[4] The term online learning is used interchangeably with virtual learning, cyberlearning, and e-learning. We included the phrase "with some element of student control over time, place, path, and/or pace" to distinguish blended learning from technology-rich instruction (see the definition of technology-rich instruction and the text box on page 6).

The second component of the definition specifies that the learning must be "supervised" and take place "away from home." This is to distinguish it from students learning full-time online at a brick-and-mortar location such as a coffee shop, public library, or home. Someone associated with the brick-and-mortar setting provides the supervision, rather than a parent or other adult who is associated primarily with the student.

Figure 3 provides an annotated view of the definition to show the changes from the original definition we proposed in 2011.

***Figure 3**. Annotated definition of blended learning*



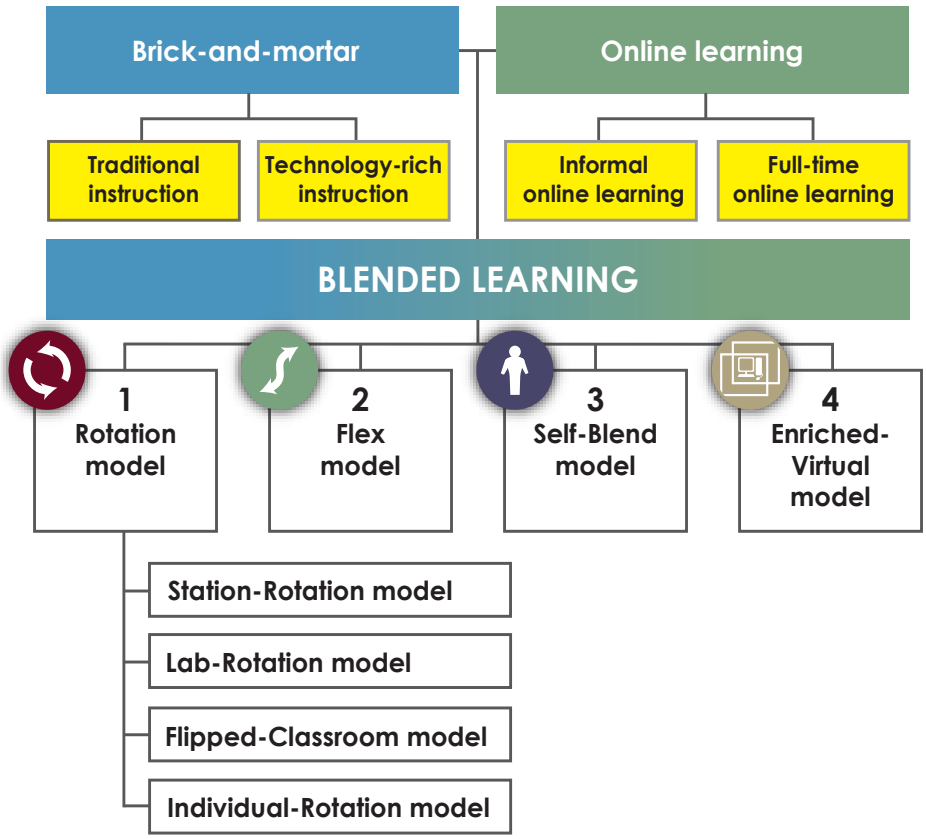
One common feature of blended learning is that when a course takes place partly online and partly through other modalities, the various modalities are usually connected. In other words, what the students learn online informs what they learn face-to-face, and vice versa. Furthermore, if students have control over their pace, this control often extends to the entire subject that is blended, not only to the online-learning portion of the coursework. Some researchers believe this connection between modalities within a course or subject is fundamental to blended learning and should be included in the definition itself. We believe that there are strong reasons for its inclusion as well and note it here as an optional addendum.

The definition is from a student's perspective. Even if the school itself is not offering online or blended courses, students may still experience blended learning if they are engaged in a formal online learning program on their own while also attending a brick-and-mortar school. They are participating in the combination of both experiences, regardless of whether they initiated the convergence or their school did.

The language in the blended-learning definition is intended to distinguish the definition from other common forms of learning that many confuse with blended learning. The confusion arises

because certain education practices—such as traditional instruction, technology-rich instruction, informal online learning, and full-time virtual learning—share some features of blended learning but differ in key ways that exclude them from fitting precisely in the category. **Figure 4** depicts where these practices fit in relation to online and blended learning. The text following this figure provides definitions of each of the highlighted education practices.

***Figure 4**. Blended learning in relation to other education practices**



The following are suggested definitions for traditional instruction and technology-rich instruction. These practices are not in and of themselves forms of blended learning, but they can

* The education practices highlighted in Figure 4 are neither mutually exclusive nor collectively exhaustive. For example, students attending a brick-and-mortar school could be part of a program that has both traditional and technology-rich elements. Furthermore, their program could center on an entirely different education practice, such as project-based learning, which this figure does not include, as project-based learning could occur in all four of these categories. The intent of Figure 4 is to situate blended learning among a few other education practices for the purpose of differentiation.

One critical part of the definition of blended learning is that it involves "some element of student control of time, place, path, and/or pace." Digital Learning Now! describes each dimension:

- **Time:** Learning is no longer restricted to the school day or the school year.
- **Place:** Learning is no longer restricted to the walls of the classroom.
- **Path:** Learning is no longer restricted to the pedagogy used by the teacher. Interactive and adaptive software allows students to learn [in a method that is customized to their needs].
- **Pace:** Learning is no longer restricted to the pace of an entire classroom of students.

Source: "Roadmap for Reform," http://digitallearningnow.com/wp-content/uploads/2011/10/Roadmap-for-Reform-.pdf

combine with online learning to create a blended-learning experience for students. For example, students could rotate between online learning and traditional instruction, or they could attend a technology-rich classroom for certain subjects and take online courses for others.

- **Traditional instruction** – a structured education program that focuses on face-to-face teacher-centered instruction, including teacher-led discussion and teacher knowledge imparted to students.[5] Students are matched by age, and possibly also ability. Instructional materials are based on textbooks, lectures, and individual written assignments. All students in the classroom generally receive a single, unified curriculum. Subjects are often individual and independent instead of integrated and interdisciplinary, particularly in secondary school.[6]
- **Technology-rich instruction** – a structured education program that shares the features of traditional instruction, but also has digital enhancements such as electronic whiteboards, broad access to Internet devices, document cameras, digital textbooks, Internet tools,* and online lesson plans. The Internet, however, does not deliver the content and instruction, or if it does, the student still lacks control of time, place, path, and/or pace.

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* Internet tools are software applications and programs available on the Internet that provide students with digital functionality but do not deliver online instruction and content. For example, a student may use an Internet tool like Google Docs for document creation or Edmodo for social networking. These tools help accomplish a task, but do not provide instruction and content as an online course does.

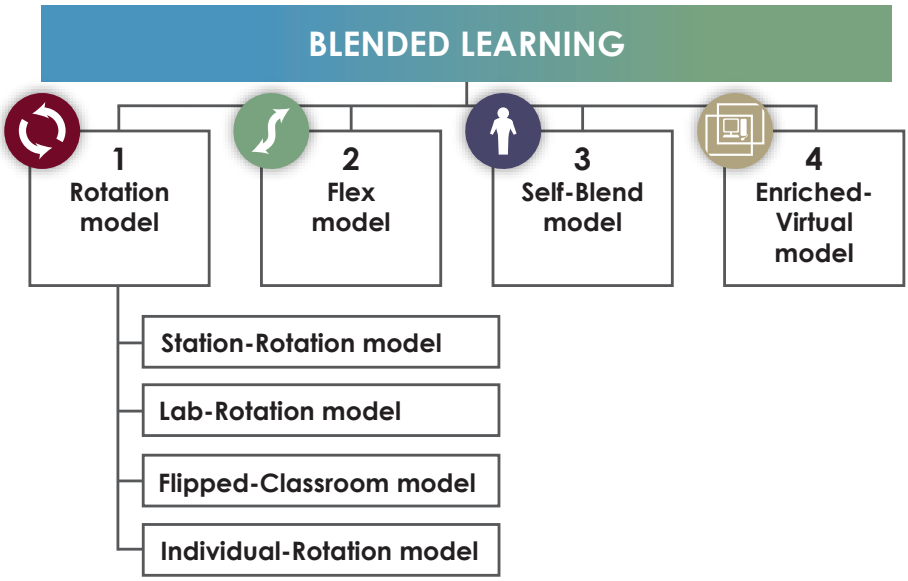
The following are suggested definitions for two types of online learning that are distinct from blended learning. Like blended learning, these practices use the Internet to deliver content and instruction and allow students some element of control of time, place, path, and/or pace. But they fall outside the scope of blended learning in significant ways.

- **Informal online learning –** any time a student uses technology to learn outside of a structured education program. For example, students could play educational video games or watch online lectures on their own outside of any recognized school program.
- **Full-time online learning** – a structured education program in which content and instruction are delivered over the Internet and the students do not attend a supervised brick-and-mortar location away from home, except on a very limited basis in some cases, such as for proctored exams, wet labs, or social events.[7]

FOUR MODELS OF BLENDED LEARNING

The diagram in **Figure 5** depicts four models of blended learning that categorize the majority of blended-learning programs emerging across the K–12 sector today. See **Appendix A** for the rationale behind eliminating two of the six models from our previous report, titled "The rise of K–12 blended learning."

***Figure 5**. Blended-learning models*



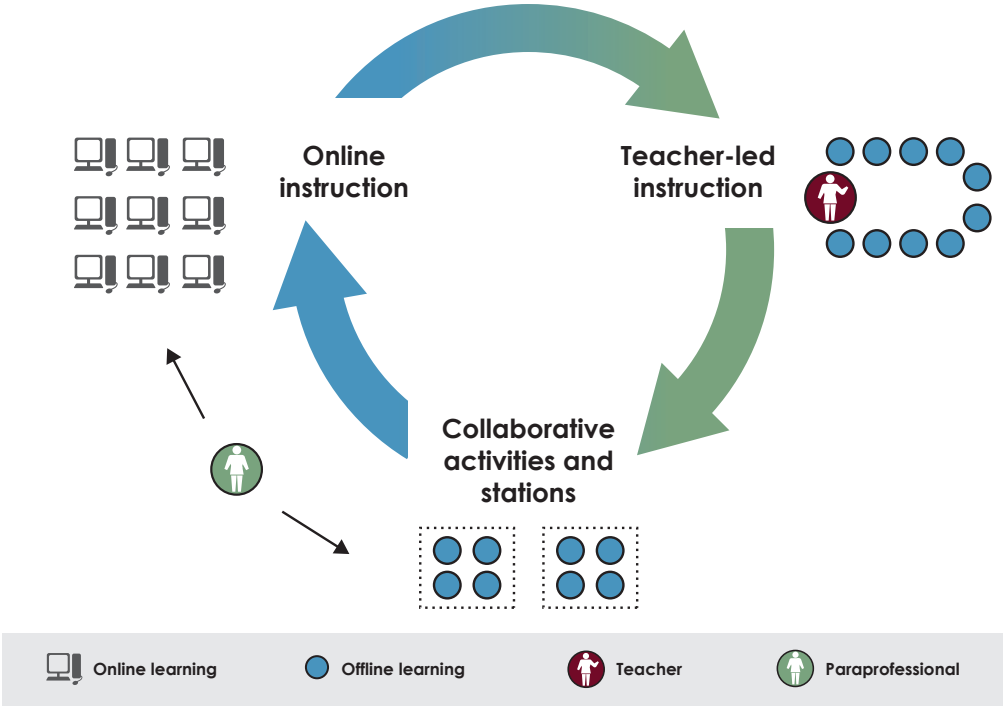
The following are definitions of the models and sub-models from **Figure 5**, as well as an example of each model.

1. **Rotation model –** a program in which within a given course or subject (e.g., math), students rotate *on a fixed schedule or at the teacher's discretion* between learning modalities, at least one of which is online learning. Other modalities might include activities such as small-group or full-class instruction, group projects, individual tutoring, and pencil-and-paper assignments.
    a. **Station Rotation** – a Rotation-model implementation in which within a given course or subject (e.g., math), students rotate *on a fixed schedule or at the teacher's discretion* among classroom-based learning modalities. The rotation includes at least one station for online learning. Other stations might include activities such as small-group or full-class instruction, group projects, individual tutoring, and pencil-and-paper assignments. Some implementations involve the entire class

alternating among activities together, whereas others divide the class into small-group or one-by-one rotations. The Station-Rotation model differs from the Individual-Rotation model because students rotate through all of the stations, not only those on their custom schedules.

Example: The KIPP LA Empower Academy equips each kindergarten classroom with 15 computers. Throughout the day the teacher rotates students among online learning, small-group instruction, and individual assignments.[8] **Figure 6** depicts one of KIPP Empower Academy's station rotations (the rotations differ somewhat based on subject; this figure illustrates one example).

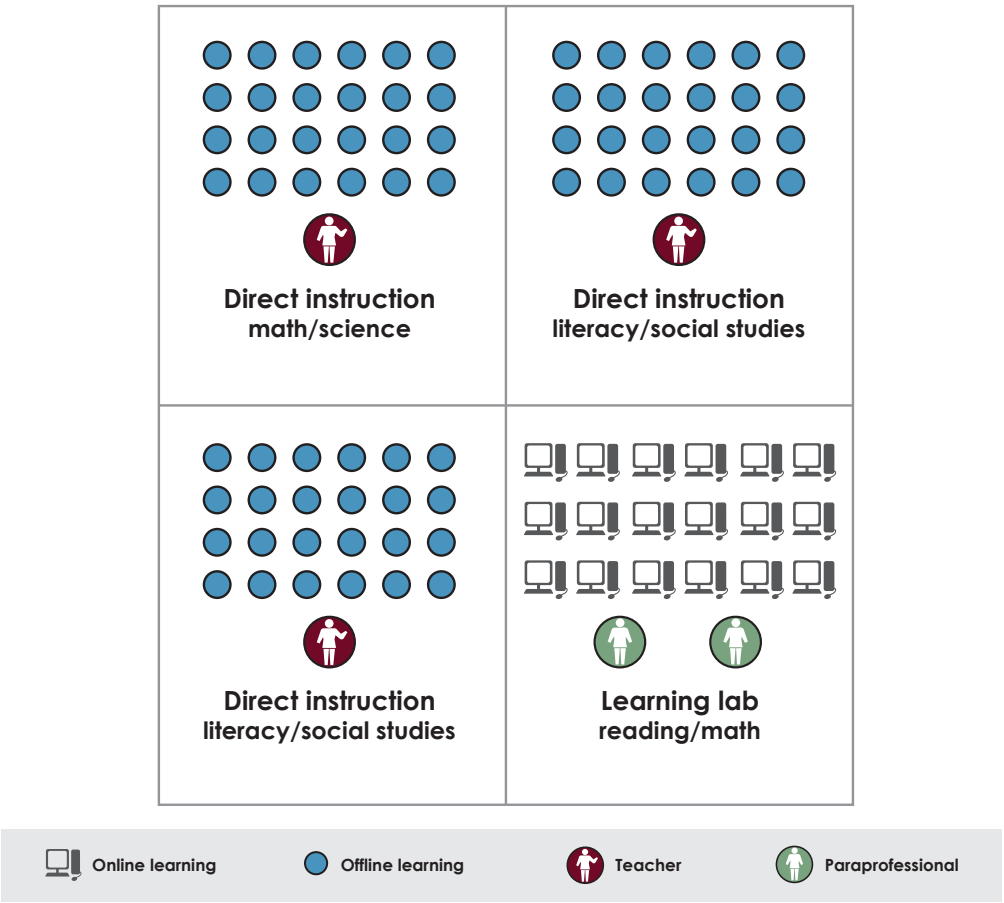
Figure 6. *Station-Rotation model, KIPP LA Empower Academy*



b. Lab Rotation – a Rotation-model implementation in which within a given course or subject (e.g., math), students rotate *on a fixed schedule or at the teacher's discretion* among locations on the brick-and-mortar campus. At least one of these spaces is a learning lab for predominantly online learning, while the additional classroom(s) house other learning modalities. The Lab-Rotation model differs from the Station-Rotation model because students rotate among locations on the campus instead of staying in one classroom for the blended course or subject.

Example: At Rocketship Education, students rotate out of their classrooms to a learning lab for two hours each day to further their instruction in math and reading through online learning.[9] **Figure 7** illustrates this rotation.

***Figure 7**. Lab-Rotation model, Rocketship Education*

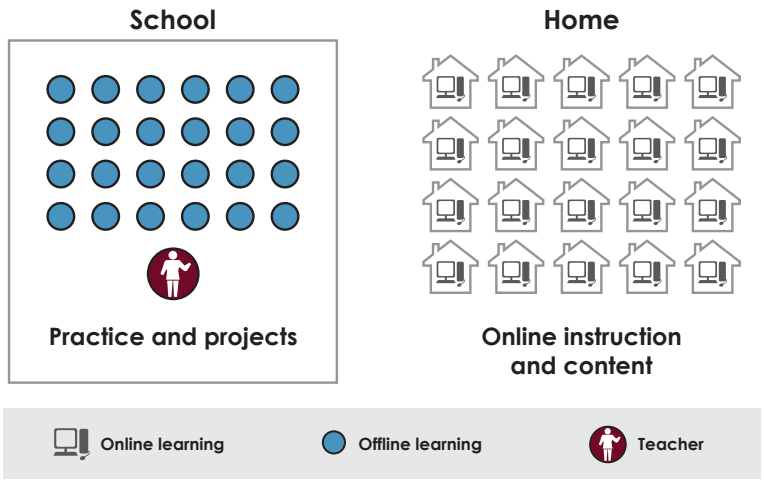


c. **Flipped Classroom** – a Rotation-model implementation in which within a given course or subject (e.g., math), students rotate *on a fixed schedule* between face-to-face teacher-guided practice (or projects) on campus during the standard school day and online delivery of content and instruction of the same subject from a remote location (often home) after school. The primary delivery of content and instruction is online, which differentiates a Flipped Classroom from students who are merely doing homework practice online at night. The Flipped-Classroom model accords with the idea that blended learning includes some element of student control over time, place, path, and/or pace because the model allows students to choose the location where they receive content

and instruction online and to control the pace at which they move through the online elements.

Example: At Stillwater Area Public Schools along the St. Croix River in Minnesota, students in grades 4–6 math classes use Internet-connected devices after school at the location of their choice to watch 10- to 15-minute asynchronous instruction videos and complete comprehension questions on Moodle. At school they practice and apply their learning with a face-to-face teacher.[10] **Figure 8** illustrates a Flipped-Classroom rotation.

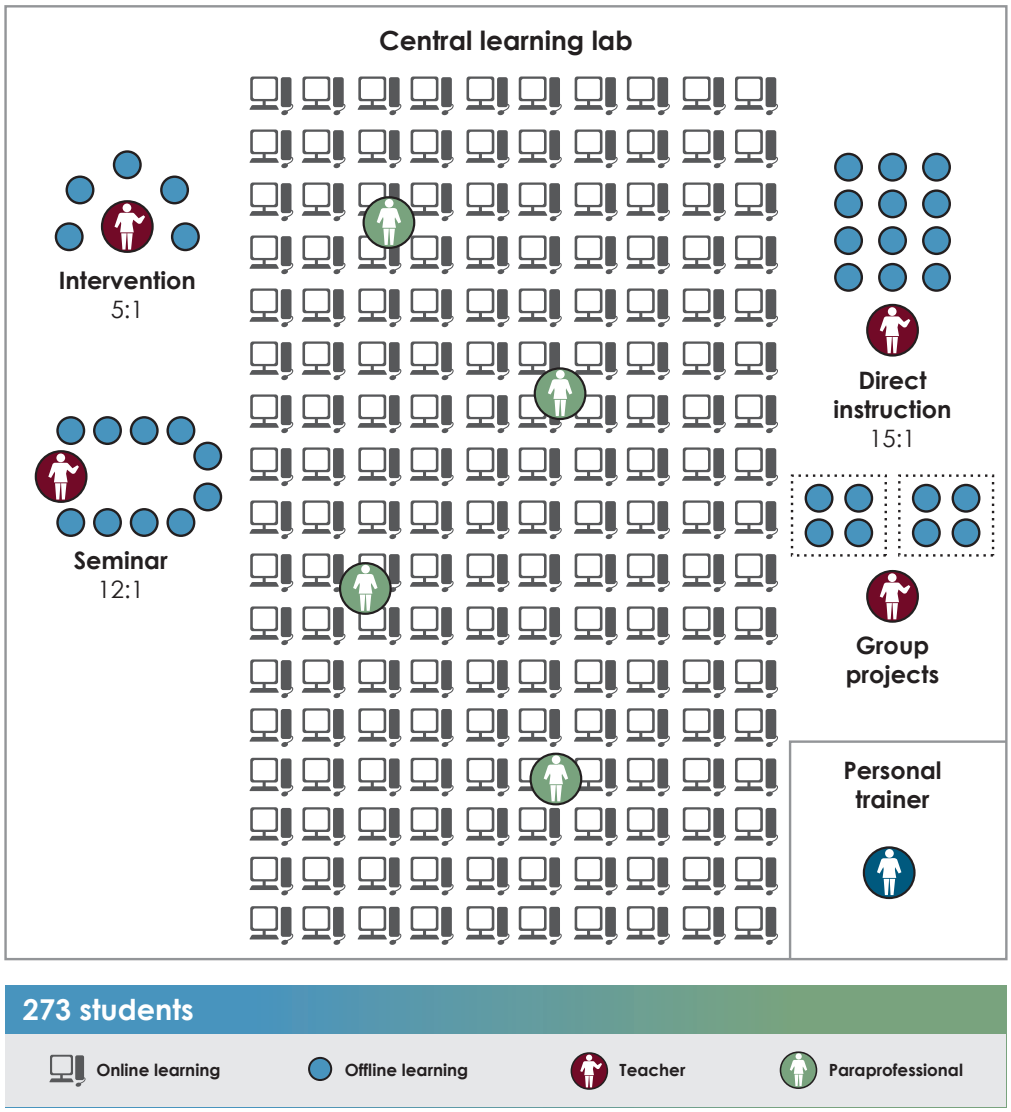
Figure 8. *Flipped-Classroom model, Stillwater Area Public Schools*



d. Individual Rotation – a Rotation-model implementation in which within a given course or subject (e.g., math), students rotate on an *individually customized, fixed schedule* among learning modalities, at least one of which is online learning. An algorithm or teacher(s) sets individual student schedules. The Individual-Rotation model differs from the other Rotation models because students do not necessarily rotate to each available station or modality.

Example: Carpe Diem Collegiate High School and Middle School assigns each student a specific schedule that rotates them between online learning in the learning center and offline learning. Each rotation lasts 35 minutes.[11] **Figure 9** illustrates the Carpe Diem model.

Figure 9. *Individual-Rotation model, Carpe Diem Collegiate High School and Middle School*

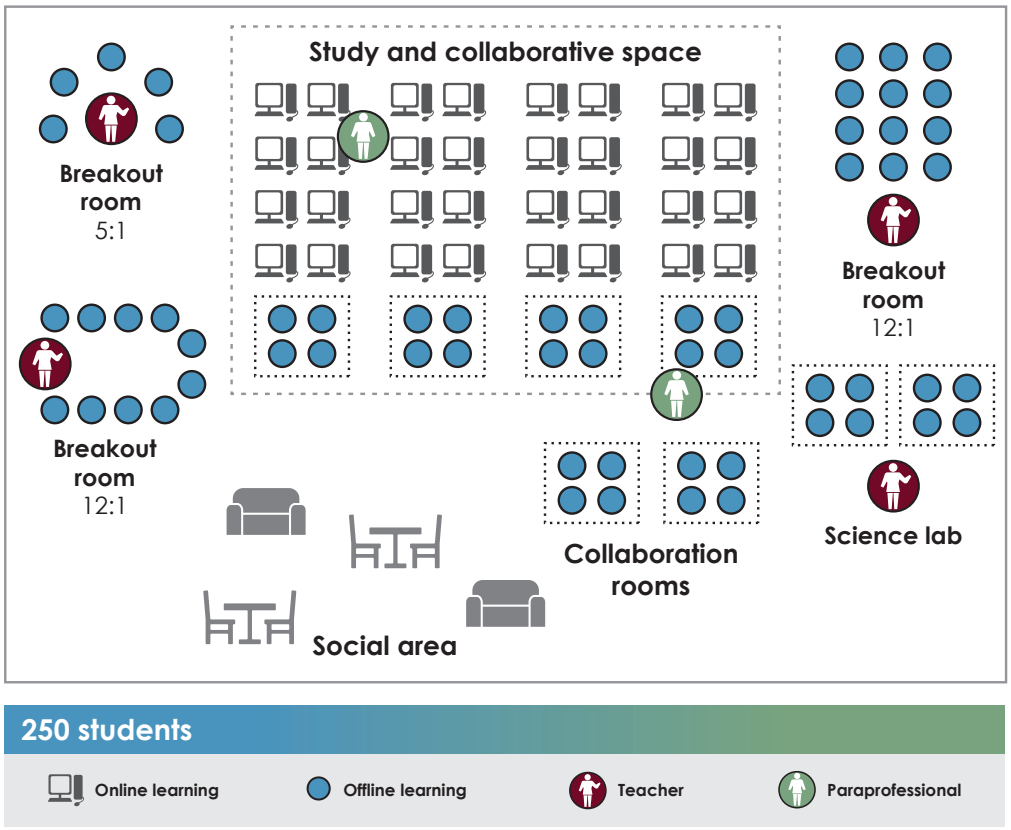


2. **Flex model** – a program in which content and instruction are delivered primarily by the Internet, students move on an *individually customized, fluid schedule* among learning modalities, and the teacher-of-record is on-site. The teacher-of-record or other adults provide face-to-face support on a flexible and adaptive as-needed basis through activities such as small-group instruction, group projects, and individual tutoring. Some implementations have substantial face-to-face support, while others have minimal support. For example, some flex models may have face-to-face certified teachers who supplement the online learning on a daily basis, whereas others may provide little face-to-

face enrichment. Still others may have different staffing combinations. These variations are useful modifiers to describe a particular Flex model.

Example: At San Francisco Flex Academy, the online-learning provider K12, Inc. delivers the curriculum and instruction, while face-to-face teachers use a data dashboard to offer targeted interventions and supplementation throughout the day for core courses. The teachers-of-record for the core courses are the face-to-face teachers. (Many of the elective courses have online K12, Inc. teachers who serve as the teachers-of-record instead of the face-to-face teachers. These elective courses are part of the Self-Blend model, which the next section of this paper discusses.)[12] **Figure 10** illustrates the San Francisco Flex Academy model.

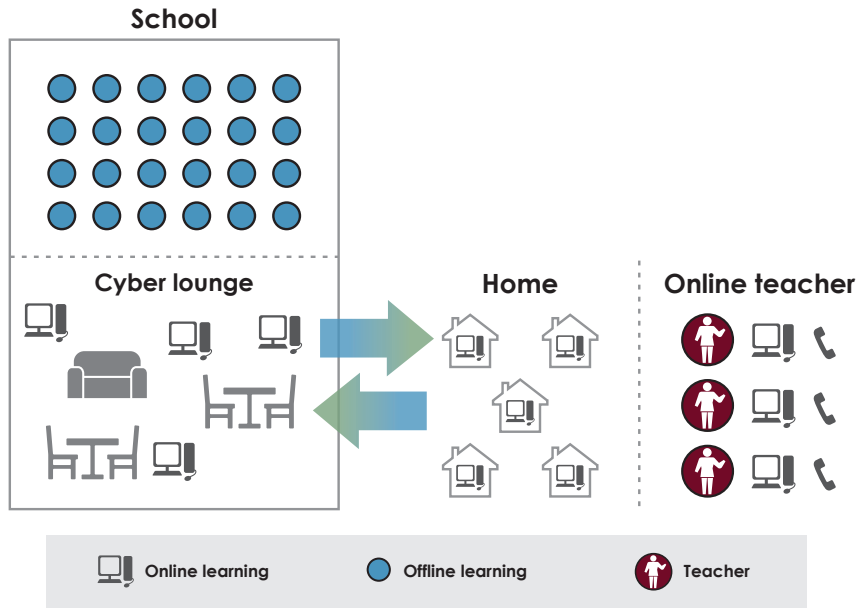
***Figure 10**. Flex model, San Francisco Flex Academy*



3. **Self-Blend model** – describes a scenario in which students choose to take one or more courses entirely online to supplement their traditional courses and the teacher-of-record is the online teacher. Students may take the online courses either on the brick-and-mortar campus or off-site. This differs from full-time online learning and the Enriched-Virtual model (see the next definition) because it is not a whole-school experience. Students self-blend some individual online courses and take other courses at a brick-and-mortar campus with face-to-face teachers.

   Example: Quakertown Community School District (QCSD) in Pennsylvania offers students in grades 6–12 the option of taking one or more online courses. All students complete a cyber orientation course prior to enrollment. Courses are asynchronous and students can work on them any time during the day. QCSD has created "cyber lounges" where students can work on their online courses at school, but they are also free to complete the courses remotely if they prefer. The teachers-of-record for the courses are the online teachers, most of whom also teach face-to-face courses for QCSD.[13] **Figure 11** illustrates the QCSD model.

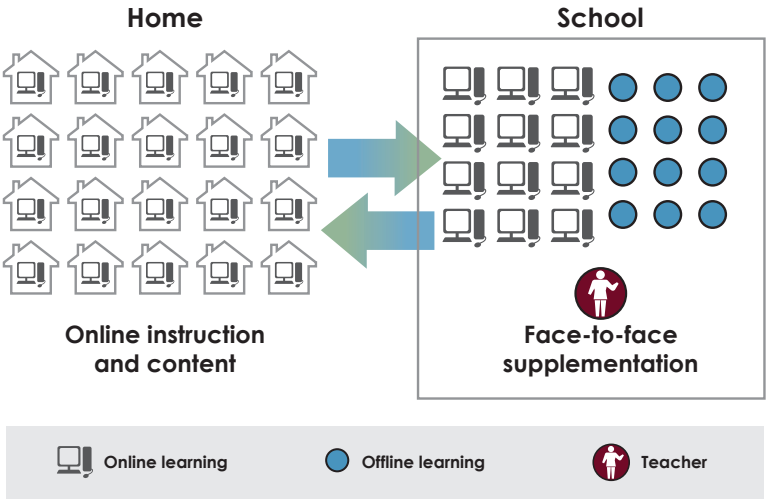
Figure 11. *Self-Blend model, Quakertown Community School District*



4. **Enriched-Virtual model** – a whole-school experience in which within each course (e.g., math), students divide their time between attending a brick-and-mortar campus and learning remotely using online delivery of content and instruction. Many Enriched-Virtual programs began as full-time online schools and then developed blended programs to provide students with brick-and-mortar school experiences. The Enriched-Virtual model differs from the Flipped Classroom because in Enriched-Virtual programs, students seldom attend the brick-and-mortar campus every weekday. It differs from the Self-Blend model because it is a whole-school experience, not a course-by-course model.

   Example: At the Albuquerque eCADEMY, students in grades 8–12 meet face-to-face with teachers for their first course meeting at a brick-and mortar location. They can complete the rest of their coursework remotely, if they prefer, as long as they maintain at least a "C" grade point average in the program.[14] **Figure 12** illustrates eCADEMY's Enriched-Virtual model.

Figure 12. *Enriched-Virtual model, Albuquerque eCADEMY*



Appendix A: Notes about how this taxonomy differs from the taxonomy in "The rise of K–12 blended learning," January 2011

This paper revises the preliminary blended-learning taxonomy that we introduced in "The rise of K–12 blended learning," published in January 2011, and its follow-on report, "The rise of K–12 blended learning: Profiles of emerging models," published in May 2011. Its most notable change is the condensing of the six blended-learning models to four. Numerous education experts provided feedback to help us arrive at the four models. The following is a discussion of some of the rationale behind the changes.

First, we eliminated the Face-to-Face Driver model because it was not substantively different from the Flex and Rotation models, except that the students in Face-to-Face-Driver programs often engaged with online content for shorter bursts of time. We also eliminated the Online-Lab model. It was the same as the Self-Blend model, except that it described students who took courses on campus, whereas the Self-Blend described students who took courses off campus. This distinction did not work because too often students did a little of both. We combined the two in Self-Blend to encompass any time students take an online course—either on-site or off-site—to supplement their face-to-face courses.

Second, we changed the definition of the Flex model to allow it to encompass some elements of the excised Online-Lab model. The old definitions of Flex and Online Lab tried to distinguish the two by specifying that Online-Lab implementations involved less face-to-face support for students. That distinction was problematic because the dividing line between the two was hard to pinpoint. The new Flex definition is broader and allows for both types of staffing models. Some implementations have substantial face-to-face support, and others have significantly less. The broader Flex definition makes clear, however, that in all Flex programs the teacher-of-record is on-site, even if that teacher provides little face-to-face enrichment of the online coursework.

Third, we subdivided the Rotation model into four common implementations. The other models will likely develop subcategories also as they mature and researchers deepen their understanding of the phenomena.

Fourth, we changed the name of the Online-Driver model because it was easily confused with aspects of the other models or with full-time virtual learning. Instead, we suggested the newly named "Enriched-Virtual" model, which we think has a more precise and specific definition than did the Online-Driver model.

Notes

[1] Many organizations have submitted profiles of their blended-learning program(s) to Innosight Institute's database at http://www.innosightinstitute.org/media-room/publications/blended-learning/. We invite school operators and others with an eye on blended-learning programs not profiled in our report to add their profiles to this set of case studies, which will in turn appear on our website.

[2] iNACOL hosts the Virtual School Symposium each year. The 2011 pre-conference session that included a review of the blended-learning taxonomy was titled, "Blended/Hybrid Learning 101: From Inception to Implementation."

[3] Special thanks also to suggestions from numerous other experts, including leaders from the Alliance for Excellent Education, California Learning Resource Network, Charter School Growth Fund, Education Elements, Evergreen Education Group, Foundation for Excellence in Education, Getting Smart, iNACOL, Plato, and Public Impact.

[4] See John Watson and Steven Kalmon, "Keeping pace with K–12 online learning: A review of state-level policy and practice," 2005, Learning Point Associates, http://www.learningpt.org/pdfs/tech/Keeping_Pace2.pdf; and iNACOL, "The Online Learning Definitions Project," October 2011, http://www.inacol.org/research/docs/iNACOL_DefinitionsProject.pdf.

[5] Martha Elaine Needham, "Comparison of standardized test scores from traditional classrooms and those using problem-based learning," Dissertation presented to the University of Missouri-Kansas City, 2010, https://mospace.umsystem.edu/xmlui/bitstream/handle/10355/9609/NeedhamComStaTesSco.pdf?sequence=1, accessed April 9, 2012.

[6] Wikipedia, "Traditional Education," http://en.wikipedia.org/wiki/Traditional_education, accessed Apr 9, 2012.

[7] iNACOL does not provide a definition of full-time virtual learning. It does, however, reference Evergreen Education Group's useful definition of a full-time online program: "Full-time online schools, also called cyberschools, work with students who are enrolled primarily (often only) in the online school. Cyberschools typically are responsible for their students' scores on state assessments required by No Child Left Behind, which is the primary way in which student outcomes, and school performance, are measured. In some states most full-time online schools are charter schools." See John Watson, Amy Murin, Lauren Vashaw, Butch Gemin, and Chris Rapp, "Keeping pace with K–12 online learning: A review of state-level policy and practice," Evergreen Education Group, 2010, http://www.kpk12.com/cms/wp-content/uploads/KeepingPaceK12_2010.pdf.

[8] A profile of KIPP Empower Academy is available at "Kipp LA," Innosight Institute, http://www.innosightinstitute.org/blended-learning-2/blprofiles-innosight/kipp-la/.

[9] A profile of Rocketship Education is available at "Rocketship Education," Innosight Institute, http://www.innosightinstitute.org/blended-learning-2/blprofiles-innosight/rocketship-education/.

[10] A profile of this district is available at "Stillwater Area Public Schools," Innosight Institute, http://www.innosightinstitute.org/blended-learning-2/blprofiles-innosight/stillwater-area-public-schools/.

[11] A profile of Carpe Diem is available at "Carpe Diem Collegiate High School and Middle School (CDCHS)," Innosight Institute, http://www.innosightinstitute.org/blended-learning-2/blprofiles-innosight/carpe-diem-collegiate-high-school-and-middle-school-cdchs/.

[12] A profile of the San Francisco Flex Academy is available at "Flex Public Schools: San Francisco Flex Academy in partnership with K12, Inc.," Innosight Institute, http://www.innosightinstitute.org/blended-learning-2/blprofiles-innosight/flex-public-schools/.

[13] A profile of QCSD is available at "Quakertown Community School District: Infinity Cyber Academy," Innosight Institute, http://www.innosightinstitute.org/blended-learning-2/blprofiles-usersubmissions/quakertown-community-school-district-2/.

[14] A profile of the eCADEMY is available at "eCADEMY," Innosight Institute, http://www.innosightinstitute.org/blended-learning-2/blprofiles-innosight/ecademy/.

About Innosight Institute

Innosight Institute, founded in May 2007, is a 501(c)(3) not-for-profit think tank whose mission is to apply Harvard Business School Professor Clayton Christensen's theories of disruptive innovation to develop and promote solutions to the most vexing problems in the social sector.

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