

Technology Combinations for Competency-Based Education

The tools selected for this section met at least one of the following criteria:

- Utilized by schools that have been identified as promising competency-based models;
- Identified in the “[Re-Engineering Information Technology: Design Considerations for Competency Education](#)” (by Liz Glowa & Susan Patrick, 2013);
- Selected as CODIE Award nominees; and
- Curated in previous technology research and analysis by 2Revolutions.

While **no “complete” solutions exist yet in the market**, we need to assess potentially-relevant competency-based education (CBE) technology tools against three primary feature sets:

- *Student Information System-like Functions*: Any comprehensive CBE approach will need to incorporate (or link to) individual student info systems;
- *Learning Management System-like Functions*: As we move toward competency-based education, we need more robust controls over what learning resources/activities are available to students; and
- *Assessment Functions*: We must link to new/existing formative and summative assessments, and new methods of assessing competencies.

2Revolutions has identified 60+ key features across the three feature sets that are necessary to sustain and scale an efficient CBE model. While all the features are not necessary in and of themselves, completing the jobs done by these feature sets is critical to 1) track and manage students AND groups AND cohorts (i.e., not “OR”); 2) manage student progress and continuous improvement; 3) be integrative and interoperable with other tools and solutions; and 4) have the ability to demonstrate **evidence of learning**.

We also want to be clear that this section is intended to be illustrative, suggesting actual tools (and referencing an example of a using district) such as the ones mentioned rather than endorsing specific tools. All of the tools mentioned reference a school or district in which they are currently utilized. The combinations are encouraging tools that can be integrated to arrive at the core feature sets necessary to move toward a competency-based system. The combinations are not necessarily occurring in the referenced districts.



Emerging

At the emerging level, competency-based technology combinations are often compatible with most modern student information systems (SIS). This allows districts to use their current SIS while they explore competency-based learning. Schools or districts often run a pilot program in a few classrooms or at one school at the Emerging level to test the tool combinations. Each technology combination at the Emerging level facilitates data integration, content management, student portfolios, and competency-based gradebook programs. At this level, schools will be able to develop personalized learning plans, create choices in curricular resources, and let student performance data drive the learning pathway for students.

What follows are four sample technology combinations that would allow schools to operate at the Emerging level in their transformation.

[View Technology Tool Comparison Chart](#)

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Emerging Sample 1

JumpRope (Reporting); **Pathbrite** (Portfolio); **Sakai** (Learning Management System); **Clever** (Data Integration)

- *JumpRope* is a competency-based gradebook application, which allows schools to use traditional, competency-based or hybrid gradebooks/report card formats. The [Metropolitan Expeditionary Learning School](#) in Forest Hills, New York, is a *JumpRope* user.
- *Pathbrite* is an online portfolio for students, which also allows teachers to collect student work and add assessments. *Pathbrite* lets teachers create templates of rubrics, scoring systems, and other assessments and attach those to any assignments. The [School District of Philadelphia](#) is a *Pathbrite* user.
- *Sakai* is a collaborative and open source learning management system (LMS). Schools can use Sakai to develop, deliver and manage courses and content. *Sakai* is used by the [Minisink Valley School District](#) in Slate Hill, New York.
- *Clever* is a data integration tool that can function as a go-between SIS for all other third-party applications. Schools can determine which student data they want to share with third-party applications and integrate just that data into *Clever* from their SIS. The [Miami Dade County Public School](#) system is a *Clever* user.



Emerging Sample 2

ShowEvidence (Mastery-based/Performance Assessment System); **Canvas** (Learning Management System); **Clever** (Data Integration)

- *ShowEvidence* is an assessment tool for project-based learning that allows educators to evaluate student performance based on mastery of core competencies or standards. [Summit Public Schools](#) in Redwood City, California, is a *ShowEvidence* user.
- Instructure's *Canvas* is an open source LMS solution that is interoperable with a range of apps. Teachers can build courses, and review and grade assignments in *Canvas*. The LMS is also a social platform—allowing students to collaborate and receive notifications from teachers. [Naperville Community School District](#) in Illinois is a *Canvas* user.
- *Clever* is a data integration tool that can function as a go-between SIS for all other third-party applications. Schools can determine which student data they want to share with third-party applications and integrate just that data into *Clever* from their SIS. [The Miami Dade County Public School](#) system is a *Clever* user.

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Emerging Sample 3

MasteryConnect (Assessment & Reporting); **Moodle** (Learning Management System); **Clever** (Data Integration)

- *MasteryConnect* is a gradebook and assessment application that lets users track formative assessments and assess student learning in competencies and/or standards. Using student performance data, teachers can build personalized student profiles, as well as share common assessments and develop curriculum maps with other educators. The system integrates with most SISs. [Putnam City Schools](#) in Oklahoma City is a *MasteryConnect* user.
- *Moodle* is a LMS that lets users build online courses for blended or fully virtual learning. Through *Moodle*, students can have access to the courses 24/7, and teachers can share content, resources, and assessments. Entire courses can be copied for other teachers to use, allowing schools or districts to make “master” courses. *Moodle*’s communications tools include an internal email system, forums, blogs, and wikis. [Madison City School District](#) in Alabama is an example of a *Moodle* user.
- *Clever* is a data integration tool, which can function as a go-between SIS for all other third-party applications a school is using. (See earlier description for more details on *Clever*.)



Emerging Sample 4

Blackboard Learn (Learning Management System); **Show Evidence** (Assessment); **Pathbrite** (Portfolio); **Clever** (Data Integration)

- *Blackboard Learn* is a LMS, which lets users create either blended or fully virtual courses. Students can have access to content and assignments 24/7 or teachers can release material on specific dates based on need. Educators can use blogs, journals, live whiteboards, chat features, assessment features, assignment submissions, calendars, and course copies as they create their courses. [Alexandria City Public Schools](#) in Virginia is a *Blackboard* user.
- *ShowEvidence* is an assessment tool for project-based learning that allows educators to evaluate student performance based on mastery of core competencies or standards. (See earlier description for more details on *ShowEvidence*.)
- *Pathbrite* is an online portfolio for students, which also allows teachers to collect student work and add assessments. (See earlier description for more details on *Pathbrite*.)
- *Clever* is a data integration tool, which can function as a go-between SIS for all other third-party applications a school is using. (See earlier description for more details on *Clever*.)

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Emerging Sample 5

Edmodo (Learning Management System); **JumpRope** (Reporting); **ShowEvidence** (Assessment); **Clever** (Data Integration).

- *Edmodo* is a social LMS with a parent portal, a badging system, and a student profile page that helps differentiate learning types. The LMS also offers an app store featuring CBE tools and products. [Chesterfield County Public Schools](#) in Virginia is an *Edmodo* user.
- *JumpRope* is a competency-based gradebook application, which allows schools to use traditional, competency-based or hybrid gradebooks/report card formats. (See earlier description for more details on *JumpRope*.)
- *ShowEvidence* is an assessment tool for project-based learning that allows educators to evaluate student performance based on mastery of core competencies or standards. (See earlier description for more details on *ShowEvidence*.)
- *Clever* is a data integration tool, which can function as a go-between SIS for all other third-party applications a school is using. (See earlier description for more details on *Clever*.)



Summary

The tool combinations in the Emerging Technologies are packages that can give schools the flexibility needed to explore CBE. With these technologies, schools can create student profiles with standards-based personalized learning plans. The LMS solutions allow students and teachers to have choices in content, which increases the conditions for personalization. In addition, teachers can match resources and content to national and local standards.

Users can round out these Emerging Technology Combinations with course-specific content from 2Revolutions' "**Digital Content - Best of the Web**" catalog, which profiles over 80 high quality content tools across grade spans (K-2, 3-5, 6-8, 9-12), content areas (ELA, Math, Science), and by tool type (OER, Premium, Apps).

[View Technology Tool Comparison Chart](#)

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Adapting

At the adapting level, competency-based technology combinations are more complex and the commitment is whole school or district implementation. In addition to delivering all the functions and processes at the emerging level, districts will also need a SIS that goes deeper than just state-level reporting and district governance. A CBE gradebook and reporting system are necessary, and teachers must be able to match all content delivery and assessments to the College and Career Readiness Standards. Districts will continue to improve data integration, content management, and student portfolios. Schools will continue to develop personalized learning plans, create choices in curricular resources, and let student performance data drive the learning path for students. Districts/schools will have the necessary tools to add classroom interventions for students who are not mastering competencies. These tools will require additional professional development support for all stakeholders.

What follows are four sample technology combinations that would allow schools/districts to operate at the adapting level in CBE.

Adapting Sample 1

Infinite Campus (Student Information System); **BrainHoney** (Learning Management System/Content Management System/Reporting/Assessment)

- *Infinite Campus* is a web-based SIS and LMS that provides districts with tools for student administration, curriculum management, and individualized instruction. The gradebook allows for traditional and CBE grading. [Washoe County School District](#) in Reno, Nevada, is an *Infinite Campus* user.
- *BrainHoney* is an online learning platform for grades K-12 that helps teachers track grades, differentiate instruction, and monitor student progress against state standards. *BrainHoney's* functionality includes course development, course templates, gradebook, objective mastery charts, automated assessments, assignment tracking, and online discussions, and the platform is pre-populated with every state's education standards, so teachers can align their coursework to statewide tests. [Crown Point High School](#) in Crown Point, Indiana, is a *BrainHoney* user.

Adapting Sample 2

PowerSchool (Student Information System); **Desire2Learn** (Learning Management System/Content Management System/Reporting/Assessment)

- *PowerSchool* is a web-based education system with a suite of school management tools including a SIS, classroom management system, reporting tools, and scheduler. *PowerSchool* has a central database so that data flows between systems and tools. [Kershaw County School District](#) in South Carolina is a *PowerSchool* user.
- *Desire2Learn* is an e-learning platform that provides a learning repository, mobile access, and data analytics all aimed at providing personalized pathways toward mastery. [Maplewood Richmond Heights School District](#) in Missouri uses both *Desire2Learn* and *PowerSchool*.

[View Technology Tool Comparison Chart](#)

Technology Combinations for Competency-Based Education



Adapting Sample 3

Genius SIS (Student Information System); **Agilix Buzz** (Learning Management System/Content Management System/Reporting/Assessment)

- *Genius SIS* is a web-based SIS that provides information to students and guardians, tracks student progress, and offers reporting functionality. The platform was specifically designed to help schools operate in a virtual or blended environment, allowing users to facilitate flexible enrollments, pacing, and scheduling. The [Montana Digital Academy](#) is a *Genius SIS* user.
- *Agilix Buzz* is a learning environment that lets students drive their own learning with instructors monitoring and providing interventions when needed. The platform groups students by ability and readiness (not age), and students follow their own pathways to mastery based on their needs. [Michigan's Education Achievement Authority](#) has partnered with *Agilix Buzz* for all of its turnaround schools.



Adapting Sample 4

Genius SIS (Student Information System); **Knewton Adaptive Learning** (Learning Management System/Content Management System/Reporting/Assessment)

- *Genius SIS* is a web-based SIS that provides information to students and guardians, tracks student progress, and offers reporting functionality. (See earlier description for more detail on *Genius SIS*.)
- *Knewton Adaptive Learning* matches lessons, videos, and assessments to students' learning styles and skills. Content is dynamically generated for each student daily. Teachers are available to students via live, video classrooms. (The platform works by organizing and tagging content by structure, difficulty level, and media format.) [John F. Kennedy High School](#) in Minnesota is a school that uses *Knewton Adaptive Learning*.



Summary

The tool combinations in the Adapting Technologies are packages that build upon the Emerging Technologies. In addition to student profiles, individualized plans, content choices, teachers have access to real-time data that is necessary for continuous improvement. The LMSs at this level deliver differentiation of instruction and personalization. All the technologies at this level have good interoperability within existing IT infrastructures.

Users can round out these Adapting Technology Combinations with course-specific content from 2Revolutions' "**Digital Content - Best of the Web**" catalog which profiles over 80 high quality content tools across grade spans (K-2, 3-5, 6-8, 9-12), content areas (ELA, Math, Science), and by tool type (OER, Premium, Apps).

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Transforming

At the transforming level, the complex competency-based technology combinations are scalable to district and state levels. At this level, districts will still deliver all the CBE functions found in the emerging and adapting levels. Districts will also turn to cloud-based and open-source solutions to meet the demands of personalized learning and flexible schedules. Tools will deliver differentiated instruction and greater levels of personalization. Classroom interventions will be administered to students who have not achieved mastery. More options will be available for students to demonstrate mastery.

What follows are three sample technology combinations that would allow districts and schools to operate at the transforming level in a competency-based system.

Transforming Sample 1

it'sLearning (Learning Management System); **eSchoolPlus** (Student Information System/Data/Reporting)

- *itsLearning* is a K-12 LMS designed to deliver personalized learning. The LMS features individual learning plans for students, letting educators set behavioral, social, and academic objectives. The platform also offers “About Me” pages and e-portfolio modules, both of which let students share information with educators. [Forsyth County Schools](#) in Georgia is *itsLearning* district.
- *eSchoolPLUS* is a web-based SMS for K-12 schools with portals for all stakeholders. The Individualized Learning Plan (ILP) module lets districts build learning plans specific to students’ strengths and weaknesses as well as his or her long-term goals. The program also includes modules for special projects for career and social development. [Arlington Public Schools](#) in Virginia is an *eSchoolPLUS* user.

Transforming Sample 2

PowerSchool (Student Information System/Assessment/Reporting); **Educate** (Learning Management System)

- *PowerSchool* integrates a standards-based gradebook with tools to help educators create, manage, and align instructional content, assessments, curriculum, standards, and supplemental resources. The PowerTeacher portal in *PowerSchool* provides features for differentiated instruction, formative assessment, and parent communication. *PowerSchool* has custom reporting, traditional report cards, and standards-based report cards. [Park City School District](#) in Utah is a *PowerSchool* district.
- *Educate* is an instructional management tool that supports standards-based, differentiated instruction. The tool offers a “Learning GPS”—a snapshot of where the student’s learning has been, where they are going and where they need to go next. From this data, students can create multiple learning pathways. [Sanford School Department](#) in Maine is an *Educate* user.

[View Technology Tool Comparison Chart](#)

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Transforming Sample 3

Follett Aspen (Student Information System/Assessment/Reporting); **Schoology** (Learning Management System)

- *Follett Aspen* is a web-based SIS. It has custom fields, screens, workflows, and reports that can be customized to local policies and procedures—and can generate both traditional and competency-based reports. [Everett Public Schools](#) in Massachusetts is a *Follett Aspen* user.
- *Schoology* is a LMS and social network for educators to create and share content. Its analytics help teachers create personalized pathways for students, who then can receive the information through a variety of media options. [Minnetonka Public Schools](#) in Minnesota is a *Schoology* user.



Summary

The tool combinations in the Transforming Technologies are packages that can scale CBE to the district and state levels. Instruction, mastery, learning paths, interventions, and reporting can all be personalized and data driven in this combination.

Users can round out these Emerging Technology Combinations with course-specific content from 2Revolutions' "**Digital Content - Best of the Web**" catalog which profiles over 80 high quality content tools across grade spans (K-2, 3-5, 6-8, 9-12), content areas (ELA, Math, Science), and by tool type (OER, Premium, Apps).

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