Introduction

Competency-based education (CBE) is an approach that has garnered increasing attention in recent years.[1] States—such as New Hampshire, Michigan, Ohio—have begun efforts to reorient their educational systems to CBE in order to create additional flexibility in the way students learn, achieve content proficiency, and master standards.[2] Utah has even developed a Competency-Based Education Framework (located **here**) to advance CBE in its districts and schools.[3]

To support these efforts, Utah Leading through Effective, Actionable, and Dynamic Education (ULEAD) and Hanover Research (Hanover) have published this brief to help Utah's educators learn more about CBE and its relationship to standards-based grading (SBG) and personalized learning.

Recommendations

Should a district or school decide to implement CBE, SBG, or personalized learning, ULEAD and Hanover recommend:

- **Providing targeted professional development** to help teachers and other instructional staff effectively use the chosen approach;

- **Benchmarking implementation challenges and success factors** for the chosen approach at a peer district or school; and

- **Communicating the rationale behind using the chosen approach** to students and families prior to systemwide implementation.

Key Findings

- **When discussing or implementing CBE, SBG, and personalized learning, it is important for educators to understand the core elements of each approach:**
  - **Competency-based education (CBE)** is a framework that bases student progress on demonstrated competencies and skills rather than the amount of time students spend in the classroom.
  - **Standards-based grading (SBG)** aligns instruction, assessment, and grading to specific learning standards for what students are expected to know and do. Grades reflect learning and achievement levels, rather than effort or work habits.
  - **Personalized learning** is a student-centered approach to teaching and learning that tailors learning objectives, the instructional pace and approach, and target content to students' individual needs, strengths, and interests.

- **While CBE, SBG, and personalized learning are distinct approaches, they have many similarities.** All three require clearly defined learning standards and objectives, as well as explicit performance expectations that describe how students demonstrate mastery. Additionally, all three approaches use assessment to determine student progress, though with differences. While they all allow students to progress at their own pace, CBE includes the highest degree of personalization as it individualizes learning objectives, content, instructional approaches, and pacing to each student's particular needs.

- **Despite their similarities, CBE, SBG, and personalized learning possess distinct differences due to scale.** For example, CBE is a larger pedagogical framework that encompasses SBG, which itself focuses more narrowly on grading and may not include all components of CBE. Similarly, personalized learning is a broader approach than CBE, though experts highlight that CBE provides the structure for personalized learning approaches to work at scale.

Defining Approaches

Competency-Based Education

Traditionally, students progress from grade to grade and topic to topic as a function of their "time in seat," age, and the traditional academic calendar.[4] In contrast, **competency-based education (CBE)**—also referred to as mastery-based progression—is an educational framework that bases student progress

on demonstrated competencies and skills rather than the amount of time students spend in class.[5]

Unlike the traditional method of academic progression, **CBE comprises instruction and student advancement based on mastery and demonstration of content knowledge.** Thus, students progress through content at their own pace and only move on to more difficult content when they objectively demonstrate that they can apply critical concepts and skills during assessment. Notably, while some students may progress through the curriculum and standards at an accelerated rate, other students may require additional instruction in different formats and additional time to master the material.[6] Below, Figure A summarizes key differences between the traditional model of academic progression and competency-based progression inherent in CBE.

Figure A: Traditional vs. Competency-Based Education
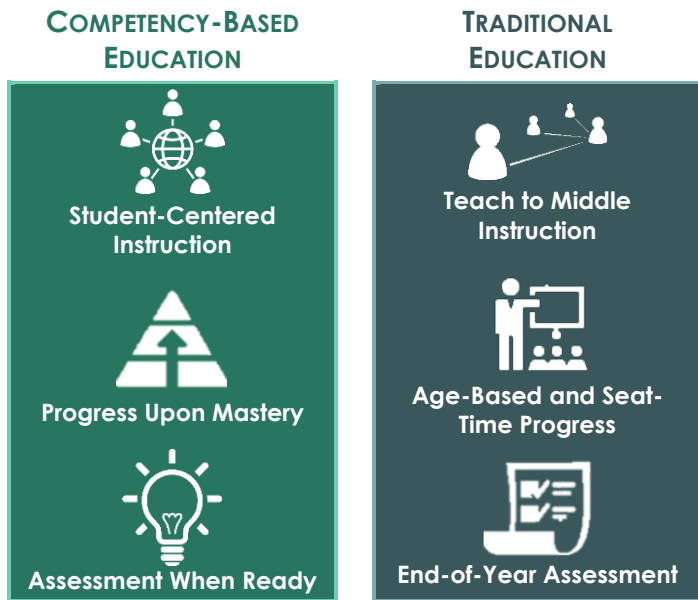
Source: Phillips and Schneider[7]

Experts from Competency Works, the International Association for K-12 Online Learning (iNACOL), and the Council of Chief State School Officers have developed the most widely-cited working definition of high-quality CBE. According to these organizations, CBE consists of five core tenets (which are further described in Figure B on the right): [8]

- Students advance upon demonstrated mastery
- Competencies include explicit, measurable, transferable objectives that empower students
- Assessment is meaningful and a positive learning experience for students
- Students receive timely, differentiated support based on their individual learning needs

- Learning outcomes emphasize application and creation of knowledge, along with the development of important skills and dispositions

Figure B: Core Attributes of CBE

ATTRIBUTE	DESCRIPTION
Demonstrated Learning	Before students can pass a course, progress to the next grade level, or graduate, they must demonstrate that they have learned what they were expected to learn.
Clear Expectations	The learning expectations for the course are clearly described and communicated, and students will know precisely where they stand throughout the course.
Consistent Assessment	The same standards apply to all students, and teachers use consistent methods of evaluating and reporting on student learning.

Source: Multiple[9]

Standards-Based Grading

Standards-based grading (SBG) requires aligning instruction, assessments, and grading to specific learning standards for what students are expected to know and do.[10] Because teaching and learning are linked to standards for knowledge and skills, **student grades reflect learning and achievement levels, rather than effort or work habits.** Teachers ensure that grades reflect learning by assessing students based on their progress toward clearly defined learning objectives, emphasizing what students know rather than compliance with course activities. SBG thus aligns course grades with state or district learning standards. [11]

Figure C synthesizes the essential components of SBG, including defined and articulated standards, alignment between standards, instruction, and assessment, and emphasis on student proficiency.

Figure C: Essential Features of SBG

- Standards are clearly defined with explicit performance expectations and evaluation criteria
- Standards and expectations are transparent and accurately communicated to students and families
- Instructional materials and activities align with and are designed to teach learning standards
- Only student performance on standards-based assessments is used to calculate grades or measure achievement; no penalties or extra credit are given
- Grading and performance evaluation utilize the most recent evidence of learning

- Students progress to the next set of standards after demonstrating proficiency on prior standards

Source: Multiple[12]

Accordingly, students do not receive an overall grade that averages their work performance over time or includes nonacademic factors, such as behavior. Instead, they receive **multiple grades that reflect their proficiency relative to specific expectations**. Teachers also encourage students to practice a concept or skill until they can demonstrate full mastery of each standard.[13] Below, Figure D further distinguishes SBG from traditional grading systems.

Figure D: Standards-Based vs. Traditional Grading

STANDARDS-BASED GRADING SYSTEM
1. Based on learning goals and performance standards. One grade/entry is given per learning goal.
2. Standards are criterion or proficiency-based. Criteria and targets are available to students ahead of time.
3. Measures achievement only or separates achievement from effort/behavior. No penalties or extra credit given.
4. Selected assessments (e.g., tests, projects) are used for grading purposes.
5. The most recent evidence of learning is emphasized when grading.

TRADITIONAL GRADING SYSTEM
1. Based on assessment methods (e.g., tests, homework, projects), with one grade/entry given per assessment.
2. Assessments are based on a percentage system. Criteria for success may be unclear.
3. Uses an uncertain mix of assessment, achievement, effort, and behavior to determine the final grade. May use late penalties and extra credit.
4. Everything goes in the grade book regardless of purpose or of when it was collected.
5. Assessments record the average – not the best – work.

Source: CompetencyWorks[14]

Personalized Learning

Personalized learning is a student-centered approach to teaching and learning designed to prepare all students for college and careers.[15] **It tailors learning objectives, instructional pacing and approaches, and content to students' individual needs, strengths, and interests.**[16] In contrast to the "one-size-fits-all" teacher-centered approach to education, personalized learning's student-centered emphasis provides students with "voice and choice in what, how, when, and where they learn."[17] In a personalized learning environment,

"activities are meaningful and relevant to learners, driven by their interests, and often self-initiated."[18]

Although educators often discuss the concepts of personalization, differentiation, and individualization interchangeably, they represent slightly different approaches to teaching and learning. Personalized learning includes aspects of both differentiated and individualized instruction. In contrast, differentiated instruction adjusts learning approaches, whereas individualized instruction alters the pace of learning.[19] Importantly, personalization extends beyond differentiation and individualization, shifting the focus from a teacher-centered to a student-centered approach.[20] Below, Figure E highlights the key differences between the three approaches.

Figure E: Personalization vs. Differentiation vs. Individualization

APPROACH	DESCRIPTION
Personalized Learning	- Paced by need and tailored to the preferences and interests of learners - Learning objectives, methods, and pace and content may all vary between learners - Differentiated and individualized instruction are components of personalized learning
Individualized Instruction	- Paced to the needs of learners - Objectives are the same for all students, but they progress through material at different speeds - Students may skip topics that cover information they already know or repeat topics as necessary
Differentiated Instruction	- Tailored to the preferences and interest of learners - Objectives are the same for all students, though instruction varies according to individual preferences or what research finds works best

Source: U.S. Department of Education[21]

While specific definitions and components of personalized learning vary, most definitions include the common elements listed in Figure F.[22] Notably, personalized learning often leverages technology to enable many of these components.[23]

Figure F: Key Elements of Personalized Learning

- Student needs, interests, and ownership of learning drive all aspects of instruction
- Student-centered flexible content, pace, and instructional approaches
- Competency-based progression

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- Standards alignment
- Data-based decision-making
- Formative assessments
- Flexible learning environments
- Technology-enabled learning

Source: Multiple[24]

SPOTLIGHT: PERSONALIZED LEARNING IN UTAH

Juab School District

At Juab School District, one of five districts to win Education Elements' Personalized Learning Challenge in 2017, personalized learning means "meeting specific needs of students through individualized pace, differentiated learning approach, and leveraging student voice."[25] In implementing this approach, Juab School District follows Education Elements' four core essential elements of personalized learning:[26]

- Flexible Content and Tools
- Targeted Instruction
- Student Reflection and Ownership
- Data Driven Decisions

Weber Innovation High School, Weber School District

In 2015, Weber School District launched a new high school, Weber Innovation High School (WIHS), with a focus on personalized learning.[27] At WIHS, students progress through the curriculum at their own pace, can earn college credits, and learn through blended learning experiences combining in-person instruction and technology. [28]

The school also offers one-to-one student devices and utilizes technology to personalize learning pathways based on student preferences and adaptive assessments.[29] Additionally, teachers and administrators receive professional development and coaching to support personalized learning implementation fidelity.[30]

Linking Approaches

While CBE, SBG, and personalized learning are distinct concepts and approaches to teaching and learning, they often overlap or include aspects of one another during implementation, as seen in the Summary Comparison Chart on the following page.

Competency-Based Education and Standards-Based Grading

CBE and SBG both rely on specific standards for what students will know and be able to do.[31] The two approaches also share the following features:[32]

- Students learn standards or competencies based on a pre-determined rubric;
- Students take more ownership because learning is communicated rather than associated with the completion of discrete assignments; and
- Formative assessment is the norm rather than the exception.

However, CBE is a more comprehensive pedagogical framework than SBG. While a district using CBE could also implement SBG, SBG focuses more on grading and may not include all the components of CBE.[33]

Competency-Based Education and Personalized Learning

CBE and personalized learning often work as complements to one another. Indeed, many experts identify CBE as a key element to personalized learning, stating that it has "the potential to strengthen teachers' ability to analyze and respond to the individual learning needs of students."[34] Similarly, experts at iNACOL emphasize that "[p]erformance- or competency-based learning is fundamental to personalizing learning at scale"[35] Experts also argue that CBE provides the structure to allow for personalized learning approaches to work, noting that "[CBE] enables personalized learning by opening the system constraints to allow multiple pathways for demonstrating what a student knows and can do."[36]

Summary Comparison Chart

	COMPETENCY-BASED EDUCATION	STANDARDS-BASED GRADING	PERSONALIZED LEARNING
Definition	Competency-based education (CBE) is an educational framework that bases student progress on demonstrated competencies and skills rather than the amount of time students spend in the classroom.[37]	Standards-based grading (SBG) aligns instruction, assessment, and grading to specific learning standards for what students are expected to know and do. Student grades reflect learning and achievement levels, rather than effort or work habits.[38]	Personalized learning is a student-centered approach to teaching and learning that tailors specific learning objectives, pace, approach, and content to students' individual needs, strengths, and interests.[39]
Main Components	Using CBE: [40] • Students advance upon demonstrated mastery • Competencies include explicit, measurable, transferable learning objectives that empower students • Assessment is meaningful and a positive learning experience for students. • Students receive timely, differentiated support based on their individual learning needs • Learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions	Using SBG: [41] • Clearly defined learning standards and objectives with explicit performance expectations • Measures achievement only or separates achievement from effort/behavior; no penalties or extra credit are given • Effective communication of standards and expectations to students and families • Curricula, materials, and activities are aligned to and designed to teach the standards; one grade is given per learning goal • Students progress to the next set of standards after demonstrating proficiency on prior standards	Using personalized learning: [42] • Student needs, interests, and ownership of learning drive all aspects of instruction • Student-centered flexible content, pace, and instructional approaches • Competency-based progression • Standards alignment • Data-based decision-making • Formative assessments • Flexible learning environments • Technology
Students Progress When…	They demonstrate mastery of content.[43]	They demonstrate proficiency on prior standards using assessments aligned to standards.[44]	They demonstrate mastery of content.[45]
Assessment	Students are assessed when ready using common, consistent methods. Teachers use consistent methods of evaluating and reporting on student learning.[46] Assessment of student progress should occur whenever the student is ready to demonstrate proficiency.[47]	Assessments (tests, quizzes, projects, etc.) are used for grading purposes, are aligned to specific standards, and assess student proficiency on specific standards.[48]	Assessment is ongoing and formative in order to provide real-time data for personalizing student learning experiences.[49] Assessment of student progress should occur continually and whenever the student is ready to demonstrate proficiency.[50]
Grading	Grades reflect student mastery of specific knowledge and skills.[51]	Grades only reflect learning and achievement levels and do not include effort or work habits.[52]	Often uses a competency-based approach where grades reflect student mastery of specific knowledge and skills.[53]
Learning Time	Students progress based on demonstrated competence regardless of grade or calendar year.[54]	Learning time can be based on the traditional calendar school year (time-in-seat) or progression-based.[55]	Learning occurs anywhere and anytime in a variety of formats based on students' needs and preferences, and progress is based on demonstrated competence regardless of calendar year or grade.[56]

Caveat

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