A Solution-Finding Report

Title*: Micro-credentials for Competency-Based Learning*
Date: February 23, 2018

This solution-finding report provides information, requested by Kerri White, Arkansas/Louisiana Technical Assistance Coordinator for the South Central Comprehensive Center, on behalf of Kevin Beaumont, Director of Professional Learning at the Arkansas Department of Education's Division of Educator Effectiveness. According to the Fall 2017 issue of *Arkansas Educator*, "Beaumont is working to engage educators in competency-based learning through micro-credentials, a new way to demonstrate mastery of a subject." He said that more than 1,000 micro-credentials were awarded in the 2016-2017 school year. He said that the Arkansas General Assembly passed Act 745 last year, which allows micro-credentials to be recognized for professional development credit, and that Arkansas is currently networking with other states for universal recognition.

Beaumont's request was seeking resources for seven topics to be included in a micro-credential for competency-based learning:

1. Developing measurable competencies
2. Designing competency-based lessons
3. Flexibility in time, pace, and place of learning
4. Formative assessment
5. Differentiating support
6. Transparent progress monitoring
7. Demonstrating mastery

In these references, the terms 'competency-based learning' and 'competency-based education' are used interchangeably. We will offer some resources that deal with competency-based learning more generally, then offer resources for each of the seven topics. A few resources appear under more than one heading, where appropriate. Finally, there is a list of documents dealing with Personal Competencies, which include the student's cognitive, metacognitive, motivational, and social-emotional competencies.

Solution-finding Reports are intended to provide a quick response to the request for information; they are not intended to be a definitive literature survey or synthesis of the topic.

Table of Contents

Competency-Based Learning

Alliance for Excellent Education. (2013). *Strengthening High School Teaching and Learning in New Hampshire's Competency-based System*. Washington, DC: Author.

https://all4ed.org/reports-factsheets/strengthening-high-school-teaching-and-learning-in-new-hampshires-competency-based-system/

Sanborn Regional School District in New Hampshire switched to a competency-based model after years of poor performance on state assessments. Sanford Regional High School, which serves 754 students in Grades 9 through 12, saw a significant drop in discipline issues after the state moved to a competency-based system in 2005; the number of freshmen reported for discipline issues fell from 433 during the 2007–2008 school year to just 84 in 2011–2012. Course failures among the freshman class dropped from 53 students to just 2 students during the same time frame. Additionally, according to this report, the New Hampshire Department of Education's "support of policies that encourage competency-based learning and different approaches to professional development spurred substantial innovation across the state....Local high school redesign initiatives yielded positive results at specific sites and demonstrated that a competency-based model is possible and can produce increased student learning and graduation rates."

CompetencyWorks. (2014). *Aligning K-12 Federal Policy with Competency Education*. Vienna, VA: International Association for K-12 Online Learning.

https://www.inacol.org/wp-content/uploads/2015/02/CWorks-Aligning-Federal-Policy.pdf

This brief provides an introduction to competency education and insight into how federal policy can remove barriers and catalyze competency education. The report provides a snapshot of competency-based state policy throughout the U.S., and it explains what individual states are doing to advance competency education.

CompetencyWorks. (2014). *Aligning K-12 State Policy with Competency Education*. Vienna, VA: International Association for K-12 Online Learning.

https://www.competencyworks.org/wp-content/uploads/2014/09/CWorks-Aligning-State-Policy.pdf

This brief provides an introduction to competency education, a snapshot of competency education state policy across the country, how states are advancing competency education, and eight ways to upgrade state policy.

CompetencyWorks. (2015). *CompetencyWorks Wiki*. Vienna, VA: The International Association for K–12 Online Learning.

http://competencyworks.pbworks.com/w/page/66734498/Welcome%20to%20the%20CompetencyWorks%20Wiki

The CompetencyWorks Wiki is a website where you can find resources and tools on competency-based innovations at the classroom, school, district, and state levels. The homepage focuses on K-12, but there is a link to a higher education webpage, and under "Navigating the CompetencyWorks Wiki" it says, "Besides accessing the wiki through the links below, you can also use the search function in the upper right hand corner." Contributions of resources are appreciated.

Steele, J. L., Lewis, M. W., Santibanez, L., Faxon-Mills, S., Rudnick, M., Stecher, B. M., & Hamilton, L. S. (2014). *Competency-based Education in Three Pilot Programs: Examining Implementation and Outcomes*. Santa Monica, CA: RAND Corporation.

http://www.rand.org/content/dam/rand/pubs/research_reports/RR700/RR732/RAND_RR732.pdf

In 2011, the Bill & Melinda Gates Foundation created the Project Mastery grant program to support competency-based education initiatives in large school systems that serve a high proportion of disadvantaged youth. The three recipient organizations – which included two large school districts and one intermediary organization – carried out their pilo0t programs in a total of 12 public secondary schools distributed across five districts in four states. The Foundation asked RAND to evaluate these efforts in terms of implementation, students' experiences, and student performance, and this report represents the final results from that evaluation. Those conducting the study found that "we can describe the patterns observed, but our observational research design does not permit us to conclude that differences in the competency-based approaches at each site were entirely responsible for differences in student outcomes in each site."

Surr, W., & Redding, S. (2017). *Competency-Based Education: Staying Shallow or Going Deep? A Deeper, More Personal Look at What It Means to Be Competent*. Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/publications/CBE_GoingDeep.pd.pdf

This paper examines the growing trend of competency-based education (CBE) and its link to college and career readiness standards; explores varying notions of what it means to be competent; and offers two learner competency frameworks that encompass the range of knowledge, skills, and dispositions that many states associate with college and career readiness.

Twyman, J. S. (2014). *Competency-based Education: Supporting Personalized Learning*. Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/connect/resources/Connect_CB_Education_Twyman-2014_11.12.pdf

Intended as a guide for school leaders, the author overviews key features of competency-based education (CBE) and obstacles to its implementation, which may "involve systemwide change." Topics addressed include funding, seat time, competencies and mastery, student academic credits and student grades, personalization, technology, standards, assessments, the academic calendar, and traditional grade levels.

Developing Measurable Competencies

Colby, R. (2012). *Is a Standard a Competency: Part 1*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/how-to/is-a-standard-a-competency-part-1/

This article begins by answering the question in the title: "The answer simply is 'no'. Standards represent the 'what' of school—what we need to know, and what we need to be able to do. These standards may be identified as essential or important and may be mapped using local, state, or national frameworks. When New Hampshire mandated that a high school student could only gain credit for a course when mastery of the course competency was demonstrated, teachers had to write course competencies. It forced the question: What is a competency?" This article goes on to explain why a standard is not a competency and the importance of understanding the distinction.

Colby, R. (2012). *Is a Standard a Competency: Part 2*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/how-to/is-a-standard-a-competency-part-2/

This article follows up on the article above, and the author goes deeper in looking at the relationship between standards and competencies.

CompetencyWorks. (2015). *Detailed Definition of Competency Education*. Vienna, VA: The International Association for K–12 Online Learning.

http://competencyworks.pbworks.com/w/page/67945372/Detailed%20Definition%20of%20Competency%20Education

The five design principles discussed are: Students Advance upon Demonstrated Mastery; Explicit and Measurable Learning Objectives Empower Students; Assessment Is Meaningful and a Positive Learning Experience for Students; Students Receive Rapid, Differentiated Support; and Learning Outcomes Emphasize Include Application and Creation of Knowledge.

Green River College. (2010). *What Is A Competency?* Auburn, WA: Author.

https://sph.uth.edu/content/uploads/2012/01/Competencies-and-Learning-Objectives.pdf

This brief guide describes the differences between competencies and learning objectives and provides some models and simple guidance on how to write a competency.

Maine Department of Education. (2017). *NECAP Standards*. Concord, NH: Author.

NECAP Standards in Reading, Writing, and Mathematics:
http://www.maine.gov/education/necap/standards.html
Released Items:
http://www.maine.gov/education/necap/released.html\

In 2009, Maine joined New Hampshire, Vermont, and Rhode Island as a member of the New England Common Assessment Program (NECAP) to assess reading, writing, and mathematics in Grades 3–8. Consequently, the NECAP content standards, known as Grade Level Expectations (GLEs) were adopted as part of the Maine Federal, State, and Local Accountability Standards. NECAP results in reading and mathematics are used to certify achievement of these standards and are used as Maine's federal accountability reporting required under the No Child Left Behind Act of 2001. Designers may find it more efficient to adopt and adapt some of these standards than to reinvent the wheel.

Next Generation Science Standards. (2013). *Next Generation Science Standards: Get to Know the Standards*. Washington, DC: Author.

https://www.nextgenscience.org/get-to-know

Here the Next Generation Science Standards, developed under the leadership of the National Research Council (NRC) and the American Association for the Advancement of Science (AAAS), can be viewed in three ways: by discipline core idea, topic arrangement, or performance expectation. Designers may wish to review measurable competencies that have already been developed rather than starting from scratch to develop new measurable competencies.

Pace, L. (2013). *Competency Education Series: Policy Brief One: An Emerging Federal Role for Competency Education*. Cincinnati, OH: KnowledgeWorks.

http://www.knowledgeworks.org/sites/default/files/Competency-Education-Series%20-Policy-Brief-One.pdf

This report includes examples of states doing groundbreaking work in the area of competency education and an appropriate role for the federal government to remove policy barriers and to create diagnostic and assessment tools to measure effectiveness.

Partnership for 21st Century Skills. (2009). *Framework for 21st Century Learning*. Washington, DC: Author.

http://www.p21.org/storage/documents/1.__p21_framework_2-pager.pdf

Instructional Leaders looking to develop competencies will find helpful this two-page overview of the Partnership for 21st Century Skills (P21) approach to Learning Outcomes and Skills. The P21 model integrates cross-cutting and content-specific competencies into an over-arching framework that allows stakeholders to easily see how they are interdependent.

reDesign. (2017). *Building a Mastery Learning Framework: Competency Adoption Guide*. Boston, MA: Author.

http://www.redesignu.org/sites/default/files/uploads/MMA%20-%20Competency%20Adoption%20Guide%20150723.pdf

reDesign is an education design company, whose work is organized around three key levers of impact: strategic design, educator capacity-building, and knowledge-building. This design guide describes a four-step process to support the development of sound college- and career-aligned competencies: Plan, Goal Definition, Source & Review, and Adapt & Iterate. Readers will also find profiles of the competencies developed and used by the School District of Philadelphia and NYC's Bronx Arena High School.

reDesign. (2017). *Competencies*. Boston, MA: Author.

http://www.redesignu.org/design-lab/mastery-learning/resource-bank/competencies

reDesign is an education design company, whose work is organized around three key levers of impact: strategic design, educator capacity-building, and knowledge-building. This page begins with a definition of competencies, then presents Designer's Tips, Tips for a Short Implementation Time-Line, and Curated Resources.

reDesign. (2017). *Competency-Based Education (CBE)*. Boston, MA: Author.

https://www.redesignu.org/design-lab/mastery-learning/resource-bank/competency-based-education-cbe

This article says the competency-based education that approach to education is grounded in five key design principles, the first two of which are: "Students advance upon achieving a pre-determined level of mastery" and "Explicit and measurable competencies empower students." It then offers Designer's Tips, Tips for a Short Implementation Time-Line, and Curated Resources.

School District of Philadelphia. (2017). *Competency Education Toolkit*. Philadelphia, PA: Author.

https://sites.google.com/a/philasd.org/competencyeducation/home

The School District of Philadelphia's created this Toolkit to support their competency-based education efforts. It features resources and tools designed around its six essentials for mastery learning: Learning Targets, Scoring Rubrics, Performance-Based Assessments, Promotion Policy, Transparent Data Display, and Personalized Learning Experiences.

Stack, B. (2012). *Assessment of Learning with Competency-Based Grading*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/how-to/assessment-of-learning-with-competency-based-grading/

After members of a high school administrative team presented their school's competency-based grading and reporting system to admissions representatives from New Hampshire colleges and universities, "a very interesting conversation unfolded when the team passed out two competency-based report cards from two students at our school." Both students had a final grade of 80, but their grades for certain competencies were very different. "The ability to be able to 'dig deeper' into what a final grade represents and how it can be used to report learning not only intrigued the admissions officers, but it generated an entire discussion around what else a competency-based grading and reporting system could do for students. Indeed, this model should be the way of the future for all high schools. Our school made the leap from a traditional to a competency-based model over a period of about three years, and I challenge you to explore how you might make the same leap at your school."

Stack, B. M., Turmelle, M., Hadwen, A., Catena, M., & Parady-Guay, V. (2012). *Using Competencies as a Blue Print to Personalize Learning*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/uncategorized/using-competencies-as-a-blue-print-to-personalize-learning/

The article mentions that Sanborn Regional High School "strives to become one of the premiere high schools in the State of New Hampshire and beyond. Using a competency-based grading and reporting system is one way the school personalizes learning for all students, but it is only part of a bigger picture. To move forward, the school has developed a master plan for redesign that is based on three pillars for success."

Stecher, B. M., & Hamilton, L. S. (2014). *Measuring Hard-to-Measure Student Competencies: A Research and Development Plan*. Santa Monica, CA: RAND Corporation.

https://www.rand.org/content/dam/rand/pubs/research_reports/RR800/RR863/RAND_RR863.pdf

According to this report, "Efforts to prepare students for college, careers, and civic engagement have traditionally emphasized academic skills, but a growing body of research suggests that interpersonal and intrapersonal competencies, such as communication and resilience, are important predictors of postsecondary success and citizenship."

Sturgis, C. (2016). *Creating a Common Language of Learning: A Continuum of Learning*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/insights-into-implementation/creating-a-common-language-of-learning-a-continuum-of-learning/

This article says, "The task at hand is to create a learning continuum for each domain that has been determined as important to graduation expectations, stretching from K through 12, with a clear indication of what it means to advance upon mastery. In thinking about the definitional elements of competency education, this is where districts create a transparent set of explicit and measurable learning objectives and a system of assessments that are designed to advance student learning."

U.S. Department of Education, Office of Planning, Evaluation, and Policy Development. (2010). *Evaluation of Evidence-based Practices in Online Learning: A Meta-analysis and Review of Online Learning Studies*. Washington, DC: Author.

https://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf

A systematic search of the research literature from 1996 through July 2008 identified more than a thousand empirical studies of online learning. Analysts screened these studies to find those that (a) contrasted an online to a face-to-face condition, (b) measured student learning outcomes, (c) used a rigorous research design, and (d) provided adequate information to calculate an effect size. This report is the resultant meta-analysis and review.

Weed, B. (2012). *Measure What Matters*. Vienna, VA: International Association for K–12 Online Learning.

https://www.competencyworks.org/how-to/measure-what-matters/

This article begins, "Teachers need to make sure that they are measuring the right elements of student work. Teacher training places a lot of emphasis on curriculum, but not a lot on assessment. The result is that we teachers become comfortable, invested even, in the materials that we design for instruction. We share lesson plans and ideas, but there is little discussion about what we are measuring. Those of us who routinely create rubrics for our students' lessons are moving in the right direction, but we need to make sure that we are actually measuring competencies. Too often, our rubrics are nothing more than quantitative lists that don't really articulate the complex thinking skills that students are being asked to learn."

Designing Competency-Based Lessons

GetSmarter. (2011). *GetSmarter's Learning Design Plan*. Chicago, IL: Author.

https://www.learningdesignplan.com/

According to this website, GetSmarter's Learning Design Plan is the "most effective visualisation tool to systematically design competency-based lessons, courses and programmes." It adds, "The learning design plan is a highly collaborative tool that has evidence-based pedagogical considerations embedded into its design and functionality. Use this tool to work through the phases of ADDIE, articulate measurable exit-level outcomes and sub-outcomes, check for alignment and gain a complete overview of the teaching strategies that you have employed on a course or programme." The learning design plan is free.

Glowa, L. (2013). *Re-Engineering Information Technology: Design Considerations for Competency Education*. Vienna, VA: The International Association for K–12 Online Learning.

http://www.competencyworks.org/wp-content/uploads/2013/02/iNACOL_CW_IssueBrief_ReEngineeringCompEd_final.pdf

This CompetencyWorks issue brief analyzes and examines components and elements of effective competency-based information systems. Based on interviews and research, the ideas in the brief build upon the lessons learned in analyzing information systems developed by competency education innovators, best practices of systemic approaches to information management, and emerging opportunities. The paper is designed for readers to find those issues that are of most interest to them in their role and be used to catalyze strategies, support new competency-based instructional models, and inform decision making for continuous improvement.

Griffith, J. (2012). *Is the Creation of Competencies Unnecessary Work?* Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/reflections/is-the-creation-of-competencies-unnecessary-work/

Asking why educators are creating something new by grouping the standards and benchmarks from the Common Core differently, the author then asks, "What if we allowed our students to group the standards and benchmarks in a way that makes sense to them, fits their personal interests, and supports their vision of their future?"

Harvey-Moseley, D. (2017). *Five Lessons from a Social Studies Teacher: How Competency-Based Education Has Been a Game Changer*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/resources/five-lessons-from-a-social-studies-teacher-how-competency-based-education-has-been-a-game-changer/

Under Lesson #2: Focus on the big ideas and the big picture, the author writes, "The beautiful thing about competencies is they offer targets to aim for but do not prescribe the path to take to get there. As a teacher, I have the freedom to be creative and selective when I am designing lessons, activities, and assessments. I am no longer bound by the textbook."

Sturgis, C. (2012). *Gathering the Tools for Designing Competencies*. Vienna, VA: International Association for K–12 Online Learning.

https://www.competencyworks.org/how-to/gathering-the-tools-for-designing-competencies/

In describing the process that innovators use to develop competencies, the author discusses a few of the tools they use: Essentials of the Discipline, Rooted in the Conditions of Industry, Knowledge Frameworks, and Habits of Mind.

Sturgis, C. (2012). *The Art and Science of Designing Competencies*. Vienna, VA: The International Association for K–12 Online Learning.

http://www.competencyworks.org/wpcontent/uploads/2012/08/CompetencyWorks_IssueBrief_DesignCompetencies-Aug-2012.pdf

This CompetencyWorks issue brief brings together insights from a number of leading practitioners from around the country. Listen to the voices of innovators as they share their insights and lessons learned on how to build powerful competencies, engage teachers, and integrate lifelong learning competencies.

Sturgis, C., & Patrick, S. (2010). *When Success Is the Only Option: Designing Competency-based Pathways for Next Generation Learning*. Vienna, VA: The International Association for K–12 Online Learning.

http://www.competencyworks.org/wp-content/uploads/2012/04/iNACOL_SuccessOnlyOptn.pdf

This paper draws on interviews and site visits with innovators and the limited literature that has been developed on the topic of competency-based approaches. It includes a section highlighting a number of challenges facing states and districts as they explore competency-based approaches.

Flexibility in Time, Pace, and Place of Learning

Digital Promise. (2013). *Competency-based Education at Work: An In-depth Look*. Washington, DC: Author.

https://dpromise.bsd.net/page/-/dpdocuments/league/CBEatWork_InDepthLook.pdf

According to this report, teachers who use competency-based education in their classrooms "are quick to point out that empowering students to move at their own pace increases student engagement and performance. There are measurable outcomes to support this. Below are stories from districts across the country that have garnered results from competency-based education."

Foundation for Excellence in Education. (2016). *Competency-Based Education: Fundamental Principles*. Tallahassee, FL: Author.

https://www.excelined.org/wp-content/uploads/CBE-2016-Fundamental-Principles1.pdf

According to this paper, to realize the full benefits of CBE, states should: provide flexibility from time-based systems in statute or rule; transition to competency-based diplomas; design a state assessment system that supports competency-based learning; align accountability systems to competency-based learning environments; and facilitate acceptance of competency-based diplomas and credits by higher education.

Generation Schools Network (2014). *Linking Learning to Life: How Expanded Learning Time Creates the Opportunity for College and Career Readiness Programming*. Brooklyn, NY: Author.

http://generationschools.org/assets/resourcefiles/pdfs/GSN%20College%20&%20Career%20Readiness.pdf

This paper discusses the Generation Schools Model where, for two months out of every school year, students transition from their typical course sequence to explore and create an academic connection to high-growth industries and careers, and cultivate personal and professional competencies in the classroom, in workplaces, on college campuses, and at other locations throughout the community.

Patrick, S., & Sturgis, C. (2015). *Maximizing Competency Education and Blended Learning: Insights from Experts*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/wp-content/uploads/2015/03/CompetencyWorks-Maximizing-Competency-Education-and-Blended-Learning.pdf

According to this issue brief from CompetencyWorks, "Blended learning has the potential for improving instructional delivery to underserved students in several ways. It allows flexibility in pace and place so that students can access instruction beyond the classroom, and, when efficiently deployed, allows teachers to direct their time toward helping students who are struggling or need more guidance. Adaptive systems can also provide more intensive learning experiences by helping students build skills, especially at the lower knowledge levels of recall and comprehension."

Saxberg, B. (2017). *What the Learning Sciences Tell Us About Competency Education*. Vienna, VA: CompetencyWorks.

https://www.competencyworks.org/analysis/what-the-learning-sciences-tell-us-about-competency-education-2/

The author finds that the learning science lines up with the idea of personalizing instruction, and the pace of instruction, for individual learners: they're likely to be more motivated, and more successful, if they can work and master at different rates, doing different things, to get to the same competencies.

Sota, M. S. (2016). Co-designing Instruction With Students. In M. Murphy, S. Redding, & J. Twyman (Eds.), *Handbook on Personalized Learning for States, Districts, and Schools* (pp. 57–71). Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/2016handbook/resources/Sota_co-design_chapter_web.pdf

In this book chapter, the author not only provides a number of lists and suggestions to guide the reader through implementation of suggested strategies for personalization via student choice, but also considers how to maximize the positive effects of learner choice while minimizing the potential risks for students who may not be able to choose in their own best interests. She mentioned that, although varying time, pace, place, content, goals, instructional methods, and especially learner choice, define personalized learning, it is also important to note that instruction can be more or less personalized, involving different levels of choice within different aspects of an instructional episode.

Sota, M. S. (2017). *Variation in Time, Place, Pace: Blended Learning and Flipped Classrooms*. Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/publications/BlendedLearning.pdf

This practice guide discusses the benefits of the flipped model and suggests a timeline for implementation. It delves into such practical matters as personalized content instruction for emergent bilinguals (EBs), curating vs. creating content, ensuring that students watch the videos, teaching students how to watch videos effectively, and accessibility, then offers some flipping DOs and DON'Ts.

Stack, B. (2014). *Flexible Learning Time Provides System Approach to Differentiation in a Competency Education School*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/how-to/flexible-learning-time-provides-system-approach-to-differentiation-in-a-competency-education-school/

According to the author, one of the keys to the early success of his school's competency education model has been the inclusion of a flexible grouping period that is built into the school's daily bell schedule. "For the past four years, our Freshman Learning Community teachers have benefited from having this flexible time to personalize instruction and provide students with support for intervention, extension, and enrichment as needed throughout the school year."

Sturgis, C. (2016). *Time Matters: How We Use Flexible Time to Design Higher and Deeper Learning*. Vienna, VA: International Association for K–12 Online Learning.

https://www.competencyworks.org/reflections/time-matters-how-we-use-flexible-time-to-design-higher-and-deeper-learning/

This article suggests that schools take advantage of flexible time by thinking about how they are structuring learning within the school day, semester, and year so they have more options for deeper learning with greater integration of standards and skills: formative assessment, complex tasks, project- or problem-based learning that is open-ended knowledge utilization, extended learning into the community, and capstone projects co-designed by students.

Sturgis, C., Patrick, S., & Pittenger, L. (2011). *It's Not a Matter of Time: Highlights from the 2011 Competency-Based Learning Summit*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/wp-content/uploads/2012/04/iNACOL_Its_Not_A_Matter_of_Time_full_report.pdf

This paper says, "What does competency-based flexibility really look like? Kids with different start and ending dates for courses; kids who are slower in some courses, faster in others; kids in online, hybrid, and classroom environments for different parts of the day; kids doing internships tied to learning outcomes (augmented with online homework to drive home conceptual and skill pieces tied to their daily internship experiences), etc."

U.S. Department of Education, Office of Innovation and Improvement. (2012). *Schools, Districts, and States Transform Seat-Based Requirements into Competency-Based Pathways to College- and Career-Readiness*. Washington, DC: Author.

https://innovation.ed.gov/2012/03/13/schools-districts-and-states-transform-seat-based-requirements-into-competency-based-pathways-to-college-and-career-readiness-2/

This USDOE article defines personalized learning and describes competency-based efforts at the state, regional, and local levels. It states, "With the recent advances in educational technology, American public schools increasingly have the means to respond to individual needs and learning styles and to turn the heretofore constants of time, place, pace, and curriculum into variables."

Valent, A. (2013). *Lingering Questions #2: Flexibility in Instruction and Delivery*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/resources/lingering-questions-2-flexibility-in-instruction-and-delivery/

Webinar participants weighed in on the question, "Competency-based learning calls for more flexibility in terms of how content is delivered and an emphasis on project-based learning opportunities that often require interdisciplinary approaches. How have states thought about this type of instruction in competency-based systems and what implications might it have for teacher preparation, ongoing professional development, and even teacher credentialing?"

Formative Assessment

Belolan, C. (2012). *Understanding Formative Assessment Using the Teaching and Learning Möbius Strip*. Vienna, VA: International Association for K–12 Online Learning.

https://www.competencyworks.org/uncategorized/understanding-formative-assessment-using-the-teaching-and-learning-mobius-strip/

This article likens formative assessment to a Möbius strip, an object with only one side and no beginning or end. "I see it as a direct analogy for teaching and learning. Practice, instruction, assessment, and application are. These elements cannot be arranged into a definite pattern with a definite beginning or a definite end. Nor can they be teased out from one another without losing their effectiveness. Teaching and learning is a continuous loop with each aspect supporting and strengthening the other."

Education First. (2016). *Formative Assessment in the Classroom*. Seattle, WA: Author.

http://formativeassessmentpractice.org/wp-content/uploads/2017/10/MSDF-Formative-Assessment-Study-Final-Report.pdf

In 2015, the Michael & Susan Dell Foundation engaged Education First to work with teachers in the Austin, Denver, and Metro Nashville school districts to learn how, and how well, teachers in these districts use data to inform instruction on a daily basis. Data was gathered from this project and detailed in *Formative Assessment in the Classroom: Findings from Three Districts*, published May 2016. This publication tackled four basic questions: To what extent do teachers engage in true formative assessment practice? To what extent do technology tools aid teachers in collecting, analyzing and/or acting upon formative data? What kind of support do districts and schools provide for formative assessment? What barriers exist to classroom instruction that is routinely adjusted based on formative data? The first phase of the work led to the development of *How I Know: Designing Meaningful Formative Assessment Practice* (see next entry).

Education First. (2016). *How I Know: Designing Meaningful Formative Assessment Practice*. Seattle, WA: Author.

http://formativeassessmentpractice.org/

This is an interactive website. Austin ISD, Dallas ISD, and Tulsa Public Schools are participating in this new project to identify, scale, and share successful approaches for designing formative assessment practice in classrooms participating in the *How I Know* initiative. Joining the Michael & Susan Dell Foundation in supporting these districts are several partners, including Brookhart Enterprises, Education First, Getting Smart, and WestEd.

Gunn, L., & Griffin, B. (2017). *Creating a Culture of Relearning in Your CBE Classroom*. Washington, DC: Education Elements.

https://www.edelements.com/blog/creating-a-culture-of-relearning-in-your-cbe-classroom

According to this article, "A classroom paradigm shift has to take place. In a competency-based classroom where students only proceed upon mastery of content, the pattern 'learn, test, remediate' can no longer be the norm. Such a pattern is incredibly teacher-centric, as students often don't know what they don't know until the test. Additionally, the onus for remediation (and tracking the student down to retest) rests on the shoulders of the teacher. Ideally, students would feel responsible for their own re-learning and test when they've mastered the content. Instead, the pattern should be 'learn, formative check, remediate (repeat), and then test/demonstrate mastery'."

Mead, M. (2015). *Formative Assessment To Initiate Personalized Learning*. Tacoma, WA: Getting Smart.

http://www.gettingsmart.com/2015/07/formative-assessment-to-initiate-personalized-learning/

This article on "how personalization powers competency-based learning" contains sections on The Difference Between Formative Assessment and Summative Assessment, Formative Assessment in the Classroom, 5 Ways to Quickly Check for Student Understanding, and Technology as a Tool for Efficient Formative Assessment.

Mead, M. (2015). *From Formative Assessment to Tracking Student Mastery: The Road to Competency-Based Instruction*. Tacoma, WA: Getting Smart.

http://www.gettingsmart.com/2015/07/from-formative-assessment-to-tracking-student-mastery-the-road-to-competency-based-instruction/#

According to this article, "Fundamental to competency-based learning and any attempt to personalize is mastery tracking, fed by formative assessment." It says that formative assessment is an ideal starting point on the path to personalization, then dives into why using these results to track mastery is so important.

Ryerse, M. (2018). *Keys to Success for Formative Assessment: A Professional Learning Guide*. Tacoma, WA: Getting Smart.

http://www.gettingsmart.com/2018/02/keys-to-success-formative-assessment-learning-guide/

According to this article, "In order for formative assessment to be effective, several conditions must be met by and for practitioners. For example, practicing formative assessment requires understanding that it is a process, and not an event. Further, formative assessment is best practiced where there is a long-term commitment to supporting implementation. Such commitment is often reflected in the provision of and supports for professional learning for teachers, principals and district leaders."

Sturgis, C. (2014). *Progress and Proficiency: Redesigning Grading for Competency Education*. Vienna, VA: International Association for K–12 Online Learning.

https://www.inacol.org/wp-content/uploads/2015/02/progress-and-proficiency.pdf

This report was written to help education leaders think through how to design grading policies that communicate academic performance to students and parents. As more schools and districts begin to develop competency-based pathways that allow students to progress based on demonstrated mastery of content knowledge and skills rather than just time spent in a classroom, it is imperative that they rethink their grading systems around competency.

Thoeming, B. (2017). *New to Competency-Based Learning? Here're Five Ways to Assess It*. Burlingame, CA: EdSurge.

https://www.edsurge.com/news/2017-05-22-new-to-competency-based-learning-here-re-five-ways-to-assess-it

In this article, the first of the five ways to approach competency-based learning assessment is, "Formative Assessments—Happening in Real Time. CBE takes students on a journey to demonstrate their knowledge, helping them prepare for the world and jobs that await them. When teachers use formative assessments to measure that knowledge, they gather information necessary to adjust teaching and learning as needed. Formative assessments support competency-based education by making sure teachers understand students' needs, so that they can modify instruction as it is happening. Tasking students with submitting a video essay, for example, provides teachers with the opportunity to assess students' understanding of a topic. Teachers can then provide real-time feedback to students that will help them to identify the areas in which they need to improve."

Differentiating Support

CompetencyWorks. (2015). *Detailed Definition of Competency Education*. Vienna, VA: The International Association for K–12 Online Learning.

http://competencyworks.pbworks.com/w/page/67945372/Detailed%20Definition%20of%20Competency%20Education

The five design principles discussed are: Students Advance upon Demonstrated Mastery; Explicit and Measurable Learning Objectives Empower Students; Assessment Is Meaningful and a Positive Learning Experience for Students; Students Receive Rapid, Differentiated Support; and Learning Outcomes Emphasize Include Application and Creation of Knowledge.

Pace, L., Moyer, J., & Williams, M. (2015). *Building Consensus and Momentum: A Policy and Political Landscape for K–12 Competency Education*. Cincinnati, OH: KnowledgeWorks.

http://www.knowledgeworks.org/sites/default/files/policy-political-landscape-k12-competency-education.PDF

In this e-book, the authors address three policy areas to focus on in building an educational system that supports competency education. By focusing on these areas, states would be given the flexibility needed to innovate, evaluate, and build systems that positively impact student achievement. The three areas are: Shared Accountability, Productive Assessment, and Personalized and Adaptive Supports.

Pace, L., & Worthen, M. (2014). *Laying the Foundation for Competency Education: A Policy Guide for the Next Generation Educator Workforce*. Cincinnati, OH: KnowledgeWorks Foundation; & Vienna, VA: The International Association for K–12 Online Learning.

http://www.knowledgeworks.org/sites/default/files/laying-foundation-competency-education-policy-guide.pdf

This report begins, “Growing numbers of states and districts are embracing competency education, focusing on student mastery of critical competencies instead of seat-time requirements that communicate little about the quality of learning. This approach provides students with highly personalized learning pathways to ensure mastery of the academic knowledge and skills they will need to succeed in college and careers.” When listing what new skills educators will need, the first listed is: “1. Provide timely, differentiated support to students based on individual learning needs, moving each student along an individual learning trajectory at a sufficient pace to achieve college and career readiness in time for graduation.”

Shubilla, L., & Sturgis, C. (2012). *The Learning Edge: Supporting Student Success in a Competency-Based Learning Environment*. Vienna, VA: International Association for K–12 Online Learning.

https://www.competencyworks.org/wp-content/uploads/2012/12/iNACOL_CW_IssueBrief_LearningEdge_full.pdf

This paper delves into the subject of students receiving timely, differentiated support based on their individual learning needs. Understanding how to structure supports is important because learning in a competency-based environment means that students and adults are often on the edge of their comfort zone and competence — the learning edge. In this paper the reader will learn how innovators are designing school culture, embedding supports, and organizing resources to ensure students are progressing and on pace.

Stack, B. (2014). *Flexible Learning Time Provides System Approach to Differentiation in a Competency Education School*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/how-to/flexible-learning-time-provides-system-approach-to-differentiation-in-a-competency-education-school/

According to the author, one of the keys to the early success of his school's competency education model has been the inclusion of a flexible grouping period that is built into the school's daily bell schedule. "For the past four years, our Freshman Learning Community teachers have benefited from having this flexible time to personalize instruction and provide students with support for intervention, extension, and enrichment as needed throughout the school year."

Twyman, J. S. (2014). *Competency-based Education: Supporting Personalized Learning*. Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/connect/resources/Connect_CB_Education_Twyman-2014_11.12.pdf

Intended as a guide for school leaders, the author overviews key features of competency-based education (CBE) and obstacles to its implementation, which may "involve systemwide change." Topics addressed include funding, seat time, competencies and mastery, student academic credits and student grades, personalization, technology, standards, assessments, the academic calendar, and traditional grade levels.

Transparent Progress Monitoring

Patrick, S., Kennedy, K., & Powell, A. (2013). *Mean What You Say: Defining and Integrating Personalized, Blended and Competency Education*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.inacol.org/wp-content/uploads/2015/02/mean-what-you-say-1.pdf

This paper likens the guidance a student receives as he navigates his way through school to a GPS system. "Just as a car's GPS system provides an immediate alert when a wrong turn is made or the driver gets stopped in a traffic jam, a learning system can provide immediate feedback to keep a student aware of the pacing and progress toward their learning goals — and advise them when they need help. Effective blended learning environments provide this GPS for students and teachers, allowing them to navigate with flexibility along individual pathways for truly personalized learning. A next generation education system would offer each student their own GPS-like dashboard for learning so that each student would know if they were on track toward their destination — graduation, college and career-readiness — every moment of every day and every point along the way."

Phillips, K., & Schneider, C. (2016). *Competency-Based Education Can Better Inform Parents, Students & Teachers*. Tacoma, WA: Getting Smart.

http://www.gettingsmart.com/2016/10/competency-based-education-can-better-inform/

The authors of this article "believe that competency-based systems create a more transparent, complete, and accurate picture of student achievement than the traditional time-based and cohort-based system."

Sturgis, C. (2015). *Stop the Nitpicking and Other Things We Are Doing that Are Undermining Our Efforts to Advance Competency-Based Education*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/reflections/stop-the-nitpicking-and-other-things-we-are-doing-that-are-undermining-our-efforts-to-advance-competency-based-education/

This author reacts to the recent tendency of districts to no longer post their competencies, rubrics, and policies, because so many visitors to their websites were nitpicking, questioning why something was set as a kindergarten goal rather than a second-grade goal, or whether something was really written to be measurable. He says that teachers aren't prepared for all the nitpicking, so they've just quit sharing.

Sturgis, C. (2016). *Creating a Common Language of Learning: A Continuum of Learning*. Vienna, VA: The International Association for K–12 Online Learning.

https://www.competencyworks.org/insights-into-implementation/creating-a-common-language-of-learning-a-continuum-of-learning/

This article says, "The task at hand is to create a learning continuum for each domain that has been determined as important to graduation expectations, stretching from K through 12, with a clear indication of what it means to advance upon mastery. In thinking about the definitional elements of competency education, this is where districts create a transparent set of explicit and measurable learning objectives and a system of assessments that are designed to advance student learning."

Sturgis, C. (2017). *E3agle and PACT: Insights from Two New Competency-Based Schools*. Vienna, VA: International Association for K–12 Online Learning.

https://www.competencyworks.org/case-study/e3agle-and-pact-insights-from-two-new-competency-based-schools/

This article begins, "John F. Kennedy High School in the Cleveland Metropolitan School District (CMSD) has been reorganized as two small schools: PACT Problem-Based Academy of Critical Thinking and E3agle Academy. These two schools were part of the effort to develop competency-based schools...PACT and E3agle offer a helpful perspective of how a common infrastructure of transparent competencies and standards provides different designs and mix of pedagogical strategies."

Sturgis, C. (2017). *Introducing an Equity Framework for Competency Education*. Vienna, VA: International Association for K–12 Online Learning.

https://www.competencyworks.org/understanding-competency-education/introducing-an-equity-framework-for-competency-education/

This article explores such questions as: How should we define equity to be meaningful in a personalized, competency-based system? How can competency-based learning systems and schools make outcomes more transparent and take responsibility for addressing equity issues? What do we know about improving equity? What elements should be integrated into competency-based structures?

Demonstrating Mastery

Casey, M. (2015). *Personalized Learning – Part 4: Why Competency-Based Learning Works at Thurgood Marshall Academy*. New York, NY: National Center for Learning Disabilities.

https://www.ncld.org/archives/action-center/what-we-ve-done/personalized-learning-part-4-why-competency-based-learning-works-at-thurgood-marshall-academy

This article begins, "It takes a lot to create a personalized learning system at any school, but many schools have figured out how to do it well. One of those schools is Thurgood Marshall Academy in Washington, DC. There, students move through their courses only upon demonstrating mastery. This model is known as 'competency-based' education."

Edwards, L. (2014). Young Women's Leadership Charter School Recognized by City Hall. Chicago, IL: *Citizenship Weekly*.

http://thechicagocitizen.com/news/2014/aug/06/young-womens-leadership-charter-school-recognized-/

Chicago's only all-girls public school, Young Women's Leadership Charter School (YWLCS), has moved away from tying credit to seat time and instead awards credit for specific competencies demonstrated at any point in a student's high school career. Students earn credit for classes in which they demonstrate proficiency on at least 70 percent of academic course outcomes. In August 2014, YWLCS was recognized by the Chicago City Council, via a resolution for its academic excellence – most notably for producing a Gates Millennium Scholar for the second consecutive year. After receiving the resolution, YWLCS' Chief Academic Officer, Dr. Ruanda Garth McCullough stated, "This resolution is in honor of our 100 percent graduation rate of all of our Class of 2014. What this means for our school is that this is business as usual, this is not the first year that we've had 100 percent graduation rate, but we wanted to take time to celebrate the students for their continued effort."

Lewis, M. W., Eden, R., Garber, C., Rudnick, M., Santibañez, L., & Tsai, T. (2014). *Equity in Competency Education: Realizing the Potential, Overcoming the Obstacles*. Washington, DC: Jobs for the Future.

http://www.jff.org/sites/default/files/publications/materials/Equity-in-Competency-Education-103014.pdf

This paper examines equity concerns in competency education through the lens of family income, exploring the effects and implications, as well as proposing potential mitigations. It states, in part, "There is little research literature on the competency education models in place today, in part because they are so new; most have been established over the past few years. But the potential for problems is clear. In a system where students have to demonstrate skills and knowledge to move forward, there might as well be a 'rich get richer' and 'poor get poorer' effect: those whose backgrounds afford them a richer array of learning environments and who begin school already having acquired more skills may keep increasing the distance between themselves and their less fortunate peers....Recent research by the authors of this paper found that educators on the ground in competency-based schools share these concerns." The paper pays particular attention to research on metacognitive strategies, self-regulated learning, and academic perseverance. This paper is the second in the Students at the Center's new Competency Education Research Series.

Priest, N., Rudenstine, A., & Weisstein, E. (2012). *Making Mastery Work: A Close-Up View of Competency Education*. Quincy, MA: Nellie Mae Education Foundation.

https://www.competencyworks.org/wp-content/uploads/2012/11/Making-Mastery-Work-NMEF-2012-Inline.pdf

This report examines the work of 10 schools participating in the Proficiency-Based Pathways Project. The report can be used to examine what mastery-based approaches to teaching and learning look like when implemented. It states, "In competency-based schools, students graduate after they are able to demonstrate mastery of a comprehensive list of competencies that are aligned with state standards and/or the Common Core State Standards."

Sturgis, C. (2014). *Progress and Proficiency: Redesigning Grading for Competency Education*. Vienna, VA: International Association for K–12 Online Learning.

https://www.inacol.org/wp-content/uploads/2015/02/progress-and-proficiency.pdf

This report was written to help education leaders think through how to design grading policies that communicate academic performance to students and parents. As more schools and districts begin to develop competency-based pathways that allow students to progress based on demonstrated mastery of content knowledge and skills rather than just time spent in a classroom, it is imperative that they rethink their grading systems around competency.

Vander Ark, T., & Sturgis, C. (2017). *Getting Smart Podcast: Demonstrating Mastery for Future Success*. Tacoma, WA: Getting Smart.

http://www.gettingsmart.com/2017/08/demonstrating-mastery-for-future-success/

In this podcast on Demonstrating Mastery for Future Success, Tom Vander Ark and Chris Sturgis elaborate on what competency-based education is, what it does, and why it's important as part of the continuing conversation sparked from the recent National Mastery Communication Week.

Personal Competencies

Carreker, S., & Boulware-Gooden, R. (2015). *The Personal Competencies: Through the Eyes of the Classroom Teacher*. Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/resources/PCs_and_the_Teacher.pdf

This practice guide is designed to help teachers reflect on and improve their understanding of the four personal competencies--cognitive, metacognitive, motivational, social/emotional--and to help teachers develop these competencies in their students. The competencies help students coordinate and manage new learning. The guide's appendices include theories of action and logic models.

Crean Davis, A. (2016). Converging Qualities of Personal Competencies. In M. Murphy, S. Redding, & J. Twyman (Eds.), *Handbook on Personalized Learning for States, Districts, and Schools* (pp. 37–53). Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/2016Handbook/resources/Crean_Davis_chapter_web.pdf

In this book chapter, the author poses the question, "How do we know that we are measuring what matters most for students?" Before looking at the "how" and a table of some promising measures with certain features which have been shown to be valid, she takes the reader through a discussion of what we are measuring (personal competencies) and some possible reasons to measure.

Layng, T. V. J. (2016). Proceed With Caution: Measuring That "Something Other" in Students. In M. Murphy, S. Redding, & J. Twyman (Eds.), *Handbook on Personalized Learning for States, Districts, and Schools* (pp. 19–36). Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/2016Handbook/resources/Layng_chapter_web.pdf

In this book chapter, the author takes a critical look through the lens of skill hierarchies and examines some of what he sees as overlap and interdependency among the personal competencies—cognitive, metacognitive, motivational, and social/emotional—and discusses how to teach them.

Layng, J., & Redding, S. (2016). *Personal Competencies as Propellants of All Learning*. Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/connect/resources/Personal%20Competencies%20as%20Propellants%20of%20All%20Learning.pdf

Layng and Redding respond to questions and comments at a forum for state education agency and federal comprehensive center personnel. They address, among other topics, the nature of the personal competencies, their relation to standards, how to vary the pace of learning for individual students in personalized learning, students' motivation, and teachers' relationships with students and teachers.

Redding, S. (2014). *Personal Competencies in Personalized Learning*. Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/publications/Personalized_Learning.pdf

This report discusses four different kinds of personal competencies that students employ in achieving mastery, and examines ways they can be strengthened through school community, school culture, and the classroom.

Redding, S. (2014). *Personal Competency: A Framework for Building Students' Capacity to Learn*. Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/publications/Personal_Compentency_Framework.pdf

This report discusses the elements of a Personal Competency Framework, including personal competencies, learning habits, mastery, competency enhancement, competency reinforcement, and contexts. It also discusses putting the pieces together.

Redding, S. (2014). *The Something Other: Personal Competencies for Learning and Life*. Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/publications/The_Something_Other.pdf

This report discusses the "something other": the constellation of personal competencies and the learning habits that flow from them.

Redding, S. (2015). *Why the Personal Competencies Matter*. Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/connect/resources/Connect_WhyPersonalCompetenciesMatter-2015_02.27.pdf

According to this paper, "A student's personal competencies—cognitive, metacognitive, motivational, and social/emotional—propel learning and other forms of goal attainment....They are enhanced by families and teachers and youth groups and other venues that intentionally build them. For schools, the challenge is how to reach each student to ensure that he or she continues constructing this underlying architecture of personal competencies so that school learning is facilitated."

Redding, S. (2016). Competencies and Personalized Learning. In M. Murphy, S. Redding, & J. Twyman (Eds.), *Handbook on Personalized Learning for States, Districts, and Schools* (pp. 3–18). Philadelphia, PA: Center on Innovations in Learning.

http://www.centeril.org/2016Handbook/resources/Redding_chapter_web.pdf

According to this chapter, for the Center on Innovations in Learning, personalization seeks to understand the person of the learner—his or her personal preferences, interests, and aspirations—and to make use of that understanding. In the definition, personalization, understanding the learner, is introduced into education in three ways, through relationships, engagement, and personal competencies.

Rennie Center for Education Research & Policy. (2016). *Toward a More Comprehensive Vision of Student Learning*. Boston, MA: Author.

http://www.renniecenter.org/sites/default/files/2017-01/COE2016ActionGuide.pdf

According to this report, "When schools and their partners address 'social-emotional' competencies, such as self-regulation and interpersonal communication, in addition to skills more traditionally associated with academics, they do a better job at both preparing students for the realities of college and adulthood and helping them master core academic content."

Twyman, J., & Redding, S. (2015). *Personal Competencies/Personalized Learning: Lesson Plan Reflection Guide*. Washington, DC: Council of Chief State School Officers.

http://www.centeril.org/ToolsTrainingModules/assets/personalizedlearninglessonplanreflection.pdf

This resource "serves both as a rubric for evaluating how well a lesson plan addresses personalization and personal competency, as well as a guide for strengthening lessons to foster personalization and personal competencies," that is, cognitive, metacognitive, motivational, and social/emotional competencies.

Twyman, J., & Redding, S. (2015). *Personal Competencies/Personalized Learning: Reflection on Instruction*. Washington, DC: Council of Chief State School Officers.

https://files.eric.ed.gov/fulltext/ED558120.pdf

Reflection on Instruction is a peer-to-peer observation tool designed to help teachers support and learn from one another in the course of personalized learning, including enhancing personal competencies for each and all students and using technology to support instruction.