REL Appalachia Ask A REL Response

College and Career Readiness November 2019

Question:

How do performance-based diplomas and education programs (also known as proficiency-based, competency-based, and mastery-based programs) affect student outcomes?

Response:

Thank you for your request to our REL Reference Desk regarding evidence-based information about performance-based diplomas and education programs (also known as proficiency-based, competency-based, and mastery-based programs). Ask A REL is a collaborative reference desk service provided by the 10 Regional Educational Laboratories (RELs) that, by design, functions much in the same way as a technical reference library. Ask A REL provides references, referrals, and brief responses in the form of citations in response to questions about available education research.

Following an established REL Appalachia research protocol, we searched for peer-reviewed articles and other research reports on performance-based diplomas and education programs. We focused on identifying resources that specifically addressed the effects of performance- based, proficiency-based, competency-based, and mastery-based diplomas and education programs on student outcomes (for example, academic achievement, academic engagement, and experiences with these types of education programs). The sources included ERIC and other federally funded databases and organizations, research institutions, academic research databases, and general Internet search engines. For more details, please see the methods section at the end of this document.

The research team did not evaluate the quality of the resources provided in this response; we offer them only for your reference. Also, the search included the most commonly used research databases and search engines to produce the references presented here, but the references are not necessarily comprehensive, and other relevant references and resources may exist.
References are listed in alphabetical order, not necessarily in order of relevance.

References

Brodersen, R. M., & Randel, B. (2017). *Measuring student progress and teachers' assessment of student knowledge in a competency-based education system* (REL 2017-238). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Central. Retrieved from https://eric.ed.gov/?id=ED572995.

From the key findings: "This report examines the academic progress of elementary and middle school students enrolled in competency-based education in one Colorado district. In competency-based education, students are promoted to the next performance level once their teacher determines that they have demonstrated mastery of all the learning targets for a course. The study found that:

- A majority of students completed their math and reading performance levels in approximately one academic year, but 43–47 percent of the students who were behind their traditional grade levels completed their performance levels in three or fewer quarters, less time than it would take in a traditional education system.
- Teachers' assessments of student competencies were only weakly related to student math and reading achievement on the Transitional Colorado Assessment Program, the state's standardized test."

Haynes, E., Zeiser, K., Surr, W., Hauser, A., Clymer, L., Walston, J., … Yang, R. (2016). *Looking under the hood of competency-based education: The relationship between competency- based education practices and students' learning skills, behaviors, and dispositions*. Quincy, MA: Nellie Mae Education Foundation. Retrieved from https://www.air.org/sites/default/files/downloads/report/CBE-Study%20Full%20Report.pdf

From the introduction and conclusion: "The goal of this study was to rigorously examine the relationship between CBE practices and changes in such learning capacities (i.e., the skills, behaviors, and dispositions that enhance student capacity to learn in school). Researchers administered surveys to Grade 9 students, core content teachers, and administrators in high schools identified by state education administrators and local school administrators as implementing CBE and a set of comparison high schools identified as not implementing CBE in three states…

This study revealed that school-level CBE implementation is neither comprehensive nor uniform in schools that may be identified or self-identify as practicing competency-based approaches; a school's designation as CBE may reflect a wide range of policies and practices. In some cases, we found that CBE schools were simply raising the bar for students—expecting high student attendance and timely completion of work in addition to mastery of competencies. This finding suggests that the CBE model is still evolving and may not be consistently interpreted or practiced in many schools using the CBE label. To best understand how CBE may be positively influencing the learning of students, we need to more closely examine the implementation of specific CBE practices. Taking that approach, this study found promising evidence that students' experiences of specific CBE practices are indeed associated with positive changes in learning dispositions, skills, and behaviors."

Priest, N., Rudenstine, A., Weisstein, E., & Gerwin, C. (2012). *Making mastery work: A close-up view of competency education*. Quincy, MA: Nellie Mae Education Foundation. Retrieved from https://www.competencyworks.org/wp-content/uploads/2012/11/Making-Mastery- Work-NMEF-2012-Inline.pdf

From the executive summary: "While competency-based principles have a history in vocational education, a growing number of typical high schools now are adopting competency-based programs. As is typical of any emerging field, a wide array of approaches is currently underway. This report focuses on the experiences of students, teachers, and administrators in a select, but varied, group of schools that are ahead of the curve in implementing competency education (sometimes called proficiency-based pathways).

A team of researchers spent a year and a half examining 11 high schools in New England that already had started this work and wanted to expand their efforts…The authors provide a window into state-of-the-art strategies in New England and across the country. The report documents each school's experiences, highlighting the key components, benefits, and challenges of the work already done and the work left to do.

Key conclusions from this project include… Many students find competency education more motivating and engaging than traditional approaches. The chance to progress at one's own pace is particularly important to struggling students."

Ryan, S., & Cox, J. (2016). *Guide to the competency-based learning survey for students* (REL 2016-165). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Northeast & Islands. Retrieved from https://eric.ed.gov/?id=ED568164

From the abstract: "Many states are moving away from approaches that base student advancement on credits and 'seat time' toward competency-based learning approaches that provide schools with the flexibility to link a student's advancement to mastery of content. Regional Educational Laboratory Northeast & Islands, in partnership with the Northeast College and Career Readiness Research Alliance, has developed a new survey— the Competency-based Learning Survey for Students—to help high schools and school districts collect data on student experiences with competency-based learning. Policymakers and practitioners need this information to improve implementation of and communication about competency-based learning with students. The survey is designed to be administered to students attending high schools in which competency-based learning is being implemented. It collects information on students' beliefs about, exposure to, and understanding of key elements of competency-based learning. These elements include instructional practices that allow students to progress through demonstration of mastery, receive personalized instruction and learning opportunities, demonstrate mastery through flexible assessment, and develop specific skills and dispositions that may be especially critical under competency-based learning."

Shakman, K., Foster, B., Khanani, N., Marcus, J. and Cox, J. (2018). *"In theory it's a good idea": Understanding implementation of proficiency-based education in Maine*. Waltham, MA: Education Development Center. Retrieved from https://www.edc.org/sites/default/files/uploads/Understanding%20implementation%20of%20PBE%20in%20Maine_EDC%2020180917.pdf

From the abstract: "Student-centered learning encompasses four overlapping and complementary principles (JFF, 2014): competency-based progression, personalization, flexibility in where and when learning takes place, and facilitation of key skills and dispositions such as agency and ownership. To date, few studies have attempted to quantitatively characterize implementation of student-centered learning in order to investigate the relationship between variability in implementation and student outcomes— particularly outcomes among high-need student subgroups (Steele, Lewis, Santibañez, et al., 2014). Education Development Center (EDC) partnered with 10 districts in rural Maine that were in the process of implementing the state's requirement that students graduate with a proficiency-based diploma, to study students' exposure to student-centered, proficiency- based education and the relationship between exposure and student academic performance and engagement. Using Latent Profile Analysis, a statistical technique used to uncover hidden subgroups (i.e., latent profiles) based on the similarity with which a group of individuals responds to a set of survey questions, we found that three distinct proficiency-based education (PBE) exposure profiles existed, in similar proportions across all the participating schools and within every school. Analyses of district level administrative data showed that having an IEP was associated with higher exposure to PBE practices but that other student characteristics, including free and reduced-price lunch status and gender were not associated with more exposure to PBE practices. We also observed a positive relationship between exposure to PBE practices and increased levels of student engagement, and a negative association between exposure to PBE practices and SAT scores. Finally, qualitative analyses revealed that implementation to date has largely focused on identifying graduation standards and implementing new proficiency-based grading practices, with traditional classroom practices still fairly commonplace."

Silvernail, D. L., Stump, E. K., Duina, A. A., & Gunn, L. M. (2013). *Preliminary implementation of Maine's proficiency-based diploma program*. Portland, ME: Maine Education Policy Research Institute, University of Southern Maine. Retrieved from https://digitalcommons.usm.maine.edu/cgi/viewcontent.cgi?article=1000&context=mepri_proficiency

From the executive summary: "Analysis of the case study data from the nine sample schools revealed that the schools were using a variety of strategies as they began to make their transition to a proficiency-based diploma system. The data also revealed varying levels of progress in developing the different components of the system. It was clear from schools in this study that Maine educators and leaders were working diligently to embrace and implement the core elements of LD 1422, including the development of a standards-based education system and a proficiency-based diploma program. The initial work of this reform appeared to require significant understanding of the need for change in a school if it did not already have strong student engagement and a positive school climate.

Building this type of educational environment is requiring 'paradigm shifts' around beliefs about student learning, teacher role, collaboration, and even the structure of many traditional elements of American public schooling. Once beyond the initial stages of changing belief structures, moral imperatives and school culture, the logistics of rolling out a curriculum with 'student choice' and 'multiple pathways' is proving very complex and difficult within existing structures of traditional public school teacher certifications, student achievement reporting, school grade configurations, daily scheduling, existing learning management technology, limited external or community supplemental resources, and current levels of personnel capacity."

Note: Pages 40–41 describes impacts related to increased student engagement.

Steele, J., Lewis, M., Santiabanez, L., Faxon-Mills, S., Rudnick, M., Stecher, B., & Hamilton, L. (2014). *Competency-based education in three pilot programs: Examining implementation and outcomes*. Santa Monica, CA: RAND Corporation. Retrieved from https://www.rand.org/content/dam/rand/pubs/research_reports/RR700/RR732/RAND_RR 732.pdf

From the preface: "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. Competency-based education is education that meets students where they are academically, provides students with opportunities for choice, and awards credit for evidence of learning, not for the time students spend studying a subject. The grants supported the development and implementation of technology-enabled curricula, online learning management systems, and teacher professional development during the 2011– 2012 and 2012–2013 academic years. The three recipient organizations—which included two large school districts and one intermediary organization—carried out their pilot programs in a total of 12 public secondary schools distributed across five school districts in four states. The Foundation asked RAND to evaluate these efforts in terms of implementation, students' experiences, and student performance. This report presents final results from that evaluation. It provides an overview of competency-based education and the Project Mastery grant projects and describes the implementation of competency-based educational features under each project. It also reports on student survey data from each of the projects. Finally, it describes the academic performance of students exposed to the sites' competency-based models relative to similar students or schools. The report concludes with six lessons for policy, partnerships, and practice. The results should be of interest to educational policymakers and practitioners interested in competency-based education models as an approach to K–12 education reform."

Additional Ask A REL Responses to Consult

Ask A REL Midwest at American Institutes of Research. (2017). *What does the research say about effective school- and district-level practices to support competency-based learning?* Retrieved from https://ies.ed.gov/ncee/edlabs/regions/midwest/askarel/2017/competency-based-education-policy.aspx

Ask A REL Midwest at American Institutes of Research. (2017). *What resources are available to help practitioners initially develop and grow/deepen their skills to implement competency- based educational practices in their classrooms?* Retrieved from https://ies.ed.gov/ncee/edlabs/regions/midwest/askarel/2017/competency-based- education-practices.aspx

Ask A REL Northeast & Islands at Education Development Center. (2017). *1. How does proficiency-based grading and reporting impact students? 2. What are the strengths and challenges of grading and reporting when schools move to proficiency-based assessment and reporting?* Retrieved from https://ies.ed.gov/ncee/edlabs/regions/northeast/AskAREL/Response/20

Ask A REL West at WestEd. (2018). *Standards and proficiency-based grading*. Retrieved from https://ies.ed.gov/ncee/edlabs/regions/west/Ask/Details/66

Additional Organizations to Consult

ACT Research: https://usm.maine.edu/cepare

From the website: "CEPARE's mission is to provide independent, nonpartisan research to inform education policy and practice, and to systematically identify, analyze, and continually evaluate education strategies that significantly improve education outcomes for students in the context of fiscal realities."

- Proficiency-Based Education: https://usm.maine.edu/cepare/proficiency-based-education

CompetencyWorks: https://www.competencyworks.org/

From the website: "CompetencyWorks is an online resource dedicated to providing information and knowledge about competency-based education in the K-12 education system. Drawing on lessons learned by innovators and early adopters, CompetencyWorks shares original research, knowledge, and a variety of perspectives through an informative blog with practitioner knowledge, policy advancements, papers on emerging issues, and a wiki with resources curated from across the field. CompetencyWorks is a collaborative initiative drawing on the knowledge of its partners and an advisory board. iNACOL is the lead organization. We are deeply grateful to the leadership and support from the Nellie Mae Education Foundation. Their vision and creative partnership has been instrumental in the development of CompetencyWorks."

U.S. Department of Education: https://www.ed.gov/

From the website: "ED's mission is to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access."

- Competency-Based Learning or Personalized Learning: https://www.ed.gov/oii-news/competency-based-learning-or-personalized-learning

Methods

Keywords and Search Strings

The following keywords and search strings were used to search the reference databases and other sources:

- ("performance based" OR proficiency-based OR competency-based OR mastery-based) AND education AND "student outcome*"
- ("performance based" OR proficiency-based OR competency-based OR mastery-based) AND education AND impact
- ("proficiency based" OR "competency based" OR "mastery based" OR "performance based") AND diploma
- ("proficiency based" OR "competency based" OR "mastery based" OR "performance based") AND diploma AND "student outcome*"

Databases and Resources

We searched ERIC, a free online library of more than 1.6 million citations of education research sponsored by the Institute of Education Sciences (IES), for relevant resources. Additionally, we searched the academic database ProQuest, Google Scholar, and the commercial search engine Google.

Reference Search and Selection Criteria

In reviewing resources, Reference Desk researchers consider—among other things—these four factors:

- Date of the publication: Searches cover information available within the last ten years, except in the case of nationally known seminal resources.
- Reference sources: IES, nationally funded, and certain other vetted sources known for strict attention to research protocols receive highest priority. Applicable resources must be publicly available online and in English.
- Methodology: The following methodological priorities/considerations guide the review and selection of the references: (a) study types—randomized controlled trials, quasi experiments, surveys, descriptive data analyses, literature reviews, policy briefs, etc., generally in this order; (b) target population, samples (representativeness of the target population, sample size, volunteered or randomly selected), study duration, etc.; (c) limitations, generalizability of the findings and conclusions, etc.
- Existing knowledge base: Vetted resources (e.g., peer-reviewed research journals) are the primary focus, but the research base is occasionally slim or nonexistent. In those cases, the best resources available may include, for example, reports, white papers,

  guides, reviews in non-peer-reviewed journals, newspaper articles, interviews with content specialists, and organization websites.

Resources included in this document were last accessed on November 4, 2019. URLs, descriptions, and content included here were current at that time.