

REVIEW PROTOCOL FOR COMMUNITY COLLEGES

Highlights

- The objective of this systematic review is to determine the quality of existing causal evidence on the effectiveness of community college policies and programs to improve academic persistence, degree/certificate completion, and labor market outcomes.
- The review focuses on community colleges, which are public, two-year postsecondary institutions that account for approximately one-quarter of all higher education institutions and more than one-third of all enrolled students.¹
- This topic area currently includes research with causal analyses but may later be expanded to include research that describes lessons learned from the implementation of community college policies and programs. The Clearinghouse for Labor Evaluation and Research (CLEAR) reviewers assess the quality of causal evidence presented in studies with causal designs.
- The topic area currently focuses on linked learning communities, accelerated learning, and paid performance incentive programs. The topic area also focuses on community college bridge programs for students in Science, Technology, Engineering, and Math (STEM) and could later be expanded to include other types of community college programs.

Introduction

This review protocol addresses the effectiveness of interventions designed to improve community college students' academic persistence and achievement, credential completion, and post-enrollment labor-market outcomes. Postsecondary credentials, especially four-year degrees, are often high school graduates' essential first steps to middle-income lifestyles. By some estimates, nearly two-thirds of all U.S. jobs will require a postsecondary certificate or degree by 2018.² Unfortunately, rising tuition and increased competition for admission keep college out of reach for many low- and middle-income students. With tuition costs less than half those of public four-year colleges, open admissions, flexible course schedules, and convenient locations, community colleges attract nearly one-third of the nation's undergraduate students.

¹Knapp, L. G., Kelly-Reid, J. E., & Ginder, S. A. (2012). *Enrollment in postsecondary institutions, fall 2011; financial statistics, fiscal year 2011; and graduation rates, selected cohorts, 2003–2008* (p. 4, Table 1). Washington, DC: Institute of Education Sciences, National Center for Education Statistics.

Dougherty, K. J. (2010). U.S. community colleges and lessons for British further education. In T. Dolphin & J. Clifton (Eds.), *Colleges 2020*. London: Institute for Public Policy Research.

² Carnevale, A. P., Smith, N., & Strohl, J. (2010). *Help wanted: Projections of jobs and education requirements through 2018*. Washington, DC: Georgetown University Center on Education and the Workforce.

Approximately 36 percent of degree-seeking students who begin their postsecondary studies at community colleges complete at least one certificate or degree within six years.³ Community colleges are often smart investments for these graduates. Nevertheless, most do not complete a postsecondary credential for a variety of reasons, which often include the difficulty of overcoming academic unpreparedness while shouldering adult financial and family responsibilities.⁴ As a result, community colleges have launched a broad array of interventions to promote students' success. The CLEAR community colleges topic area review considers two such types of interventions:

1. **Strategies to improve persistence.** Students who are entering community college take one of several brands of skill assessment exams in math, reading, and writing (often the ACCUPLACER or COMPASS). Based on these scores, they are referred to either college-level coursework or one of five levels of developmental coursework; this could include Adult Basic Education and/or English for Speakers of Other Languages. Sixty percent of first-year students who begin their postsecondary studies at community colleges take at least one developmental course in their first academic year (compared with 24 percent of those at public four-year colleges and 10 percent at private four-year colleges). Yet, less than one-quarter of students who enroll in developmental education complete a degree or certificate within eight years.⁵ Developmental education is costly for colleges to offer, and even more so for students to complete, as it often does not earn credits and consequently might not qualify for financial aid.

A variety of strategies to address this issue have emerged recently, many focusing on integrating developmental curricula with mainstream college coursework. Other strategies include defining career pathways, a series of connected education and training programs that enable individuals to secure a job or advance in a high-demand industry or occupation. Although the implementation of career pathways programs varies, many focus on facilitating students' transitions from high school to community college, from developmental courses to for-credit courses, and from community college to university or employment. Another strategy of interest is performance-based scholarships, which offer scholarships to students conditional on them making adequate progress in school. For example, two New Orleans-area community colleges offered a performance-based scholarship program to low-income parents through which students could receive \$1,000 per semester in three installments, provided that they maintained an average grade of C or better.⁶

³ Note that the six-year degree completion rate among *all students* who begin at community colleges is much lower (approximately 15 percent). *Degree-seeking students* are defined as those of any age who completed at least one term full-time or two terms part-time within their first year of enrollment. Shapiro, D., & Dundar, A. (2012). *Completing college: A national view of student attainment rates* (pp. 9, 16, and 32). Herndon, Virginia: National Student Clearinghouse Research Center.

⁴ Matus-Grossman, L., & Gooden, S. (2002). *Opening doors: Students' perspectives on juggling work, family, and college*. New York: MDRC.

⁵ The Beginning Postsecondary Students Longitudinal Study (BPS) surveys a large, nationally representative sample of beginning college students at one, three, and six years after beginning postsecondary education. The April 2009 BPS cohort captures the experiences of 16,700 students. Retrieved June 16, 2014, from <http://nces.ed.gov/datalab/quickstats/createtable.aspx>

⁶ Richburg-Hayes, L., Brock, T., LeBlanc, A. J., Paxon, C., Rouse, C. E., & Barrow, L. (2009). *Rewarding persistence: Effects of a performance-based scholarship program for low-income parents*. New York: MDRC.

- 2. Support services.** For most entering community college students, college is an entirely new experience, one that poses unusual expectations of time management, independent study habits, and resource navigation (such as financial aid, course registration, library services, blackboard instructional aids, computer labs, and tutorial services).⁷ Community colleges invest significantly in instructional supports, such as student success centers that often combine computer labs, one-on-one tutoring and writing services, and self-paced instructional software. These supports are often administered by student success deans along with nonacademic student support services, which include career and financial aid advising.

One of the most prominent programmatic student success interventions tries to foster students' engagement with peers, faculty, and course content by assigning groups of 20 to 30 students to a common sequence of related courses taught by the same instructors. The strategy has been practiced since the 1970s, but learning communities have only recently been rigorously evaluated. Understanding how to integrate these instructional supports and student services with the in-classroom experience and make them more responsive to student needs has been a major component of recent student success initiatives.

To assess the evidence of effectiveness of interventions to promote student success, this review examines outcomes in the following domains:

- **Progress toward degree completion.** Outcome measures in this domain may vary depending on the specific research question but generally include measures of academic performance and persistence. For example, outcome measures for students enrolled in remedial education include developmental requirements fulfilled, gatekeeper courses completed, and post-developmental credits attempted and earned. Outcomes for students enrolled in college-level courses include continued enrollment; the number of credits attempted and earned; and the proportion of students who are in good or poor academic standing.⁸
- **Completion of a degree.** Outcome measures in this domain include completion or attainment of a certification, licensure, credential, and/or transfer to a four-year college. While transfer to a four-year college may not necessarily indicate attainment of a two-year degree, it is considered a substantively important educational outcome for community college students.
- **Short- and long-term earnings.** Outcome measures in this domain include wages, earnings, and benefits. Short-term earnings outcomes are defined as those measured at 12 months or earlier. Long-term earnings are defined as those measured after 12 months. Ultimately, a major goal of community colleges is to improve students' labor market outcomes.

⁷ Mechur Karp, M., & Hare Bork, R. (2002). *They never told me what to expect so I didn't know what to do: Defining and clarifying the role of a community college student*. New York: Community College Research Center.

⁸One outcome measure that is occasionally reported in studies that focus on community college students' academic performance is grade point average (GPA). For this review protocol, GPA is not considered an eligible outcome measure because it is a non-standardized performance measure that is difficult to interpret for students who take courses of varying difficulty levels.

- **Short- and long-term employment.** Outcome measures in this domain include employment, hours worked, and reported job satisfaction. Short-term employment outcomes are those measured at 12 months or less. Long-term employment outcomes refer to any employment outcomes measured after 12 months.

The rest of this evidence review protocol sets forth the criteria by which research is determined to be eligible for review and the topic area-specific causal evidence guidelines used to evaluate the quality of the causal evidence. Appendix A describes the methods used to identify the research for this topic area and CLEAR Policies and Procedures, available at <http://clear.dol.gov>, provides details about review procedures.

Eligibility Criteria

CLEAR conducted a broad literature search to identify all the research papers and reports that examined one of the research questions of interest. It then screened the identified research against the eligibility criteria described next; studies meeting these criteria received a profile review.

1. **Does it evaluate a community college program, policy, or intervention designed to encourage academic success?** The research eligible for review under this protocol must evaluate linked learning communities, accelerated learning, paid performance incentives, or STEM bridge programs, all of which are designed to improve students' persistence and academic success in community colleges.
2. **Was it conducted in a relevant time and place?** To be the most relevant to current practitioners, policymakers, and other stakeholders, the research must have taken place since 1994 in community colleges within the United States, including the 50 states, the District of Columbia, territories, and tribal entities.
3. **Does it contain an impact analysis?** Research that uses quantitative methods to assess the effectiveness of a program (and other eligibility criteria) receives a profile review as long as it contains relevant education or short- or long-term employment or earnings outcomes, such as those mentioned previously.⁹

Causal Evidence Guidelines

This topic area includes reviews of both experimental and nonexperimental causal research. CLEAR assesses the quality of evidence for randomized controlled trials (RCTs) using an adaptation of the Institute for Education Science's What Works Clearinghouse (WWC) standards.¹⁰ RCTs can receive a High causal evidence rating if there are no obvious confounds to the RCT design and if the RCT's attrition level is low. If CLEAR determines that an RCT cannot be rated as providing High causal evidence, the research is reviewed using CLEAR's nonexperimental causal evidence guidelines.

Nonexperimental Causal Evidence Guidelines Specific to the Topic Area

Mathematica Policy Research and a technical work group of experts collaborated to develop a set of evidence guidelines to use in reviewing nonexperimental studies with causal designs. These

⁹ Causal studies in this topic area were reviewed according to CLEAR Causal Evidence Guidelines, Version 2.0. The full set of guidelines can be found at <http://clear.dol.gov>.

¹⁰ See <http://ies.ed.gov/ncee/wwc/InsidetheWWC.aspx> for details.

causal designs include instrumental variables, difference-in-differences, fixed and random effects, and other types of regression analyses. Nonexperimental research designs that meet the causal evidence guidelines receive a Moderate causal evidence rating. This rating indicates that there is evidence that the study establishes a causal relationship between the intervention being examined and the outcomes of interest, but there might be other factors that were not included in the analysis that also could affect the outcomes of interest. Designs that do not meet the guidelines receive a Low causal evidence rating, which indicates that CLEAR cannot confidently attribute the estimated effects to the intervention being examined.

Causal evidence guidelines for nonexperimental studies are tailored to the topic area of interest. In particular, the topic area protocol sets forth the specific types of control variables that must be included in nonexperimental regression analyses (other than those using fixed effects) for a study to receive a Moderate causal evidence rating. The topic area protocol also describes whether changes in group composition should be a concern for the review.

Control Variables

The following are the control variables for the community colleges topic area:

- Age
- Race/ethnicity
- Gender
- State (of community college, for studies that include more than one state)
- At least one *pre-intervention measure of degree of financial disadvantage*, such as receipt of need-based financial aid (Pell grant or subsidized loans), student's tax status (dependent or independent), student's household composition (number of adults and number of children), student's household income, public benefit receipt, and parents' highest education
- At least one *pre-intervention measure of academic achievement*; this could include prior grade point average; standardized test scores (American College Test or Scholastic Assessment Test); placement test scores (for example, the Florida College Entry Placement Test, ACCUPLACER, COMPASS, and so on); high school completion status (none, diploma, general education diploma, or non-U.S. degree equivalent to high school); and prior postsecondary credits attempted and completed.

Regression methods that incorporate a matching design, which uses statistical methods to create a comparison group that is as similar as possible to the group receiving the intervention, must match on the previously listed control variables or, if they do not match on them, must include them as controls in the regression.

Changes in Group Composition

This is relevant for nonexperimental research designs that use aggregate data. Although uncommon in this topic area, the change in group composition as a result of the intervention may be a concern for studies with this design type. For instance, a difference-in-differences analysis that compares the average change in earnings of program participants to nonparticipants could be biased

if the earnings for participants who did not complete the program were not included in the post-intervention outcome measure.

APPENDIX A LITERATURE SEARCH

The Clearinghouse for Labor Evaluation and Research (CLEAR) conducted comprehensive literature searches to identify research meeting the eligibility criteria described in the review protocol, with a particular focus on identifying research with causal designs. This included keyword searches of Scopus, which covers more than 19,000 titles, articles in press, conference proceedings, and e-books; as well as Academic Search Premier, Education Research Complete, ERIC, E-Journals, PsychINFO, SAGE Journals Online, and SocINDEX.¹¹ CLEAR also created a custom Google search engine to examine information posted by 51 select organizations conducting research in these areas.

The following search parameters applied to both searches:

- Limited geographically to the United States
- Limited to the English language
- Limited to articles published from 1994 to the present
- Excludes editorials, letters, newspaper articles, and commentary
- Limited to causal studies, impact studies, regression analyses, quasi-experimental analyses, effectiveness studies, and statistical analyses

CLEAR used combinations of the following search terms (asterisks indicate truncation):

- Community college OR two-year college OR 2-year college OR junior college
- Intervention OR evaluation OR demonstration OR pilot OR strategy OR practices OR model OR curriculum OR program OR policy
- Student success OR student development OR academic success OR academic achievement OR educational attainment OR transfer OR graduation rate OR retention rate OR student retention OR completion rate OR academic persistence OR student persistence OR course completion OR degree completion OR college completion OR re-enrollment OR college readiness
- Developmental education OR developmental program OR developmental course OR remedial OR remediation OR adult basic education (ABE) OR English as a Second Language (ESL) OR English for Speakers of Other Languages (ESOL) OR gatekeeper course OR gatekeeper college algebra OR gatekeeper college mathematics OR gatekeeper college English OR developmental mathematics OR developmental English OR developmental writing OR Integrated Basic Education and Skills Training [I-BEST] OR ACCUPLACER OR COMPASS OR Accelerated Learning Program [ALP] OR Instructional Supports OR Tutoring OR Mentoring OR Counseling OR Mandatory Student Success Course OR Intrusive Advising OR Early alert OR Learning Community OR Performance Based Scholarship

¹¹ For information about Scopus, see <http://www.info.sciverse.com/scopus/scopus-in-detail/facts>.

In addition, CLEAR identified relevant research by searching the websites of organizations conducting research in this area through a Custom Google Search tool, including:

- Abt Associates, Inc.
- Achieving the Dream Community Colleges Count
- ACT
- American Association of Community Colleges
- American Association of Women in Community Colleges
- American Enterprise Institute
- American Institutes for Research
- American Student Achievement Institute
- Aspen Institute
- Association for Public Policy and Management
- Berkeley Policy Associates
- Bill and Melinda Gates Foundation
- Brookings Institute
- Carnegie Foundation for the Advancement of Teaching
- Cato Institute
- Center for Law and Social Policy (CLASP)
- College Board
- College Spark Washington
- Community College Journal of Research and Practice
- Community College Leadership Program at the University of Texas at Austin
- Community College Research Center
- Complete College America
- Congressional Research Service
- Education Commission of the States
- Educational Testing Service
- Fund for the Improvement of Postsecondary Education
- Heritage Foundation
- Institute for Research on Poverty
- Institute of Policy Research

- JBL Associates, Inc.
- Jobs for the Future
- Joint Center for Political and Economic Studies
- League for the Innovation in the Community College
- Lumina Foundation for America
- Manpower Demonstration Research Corporation (MDRC)
- Mathematica Policy Research
- National Bureau of Economic Research
- National Center for Education Statistics
- National Center for Postsecondary Improvement (Stanford University)
- National Center for Postsecondary Research
- National Conference of State Legislatures
- NORC
- Office of Community College Research and Leadership
- RAND Corporation
- Resources for the Future
- RTI International
- SRI International
- Urban Institute
- U.S. Bureau of Labor Statistics
- U.S. Government Accountability Office
- W.K. Kellogg Foundation

APPENDIX B REFERENCES

Studies with a high quality of evidence rating

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Studies with a moderate quality of evidence rating

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