

REVIEW PROTOCOL FOR STUDIES OF INTERVENTIONS FOR DEVELOPMENTAL STUDENTS IN POSTSECONDARY EDUCATION VERSION 3.1

Topic Area Focus

Not all students enrolled in college are prepared to do college-level work in all subjects. Anticipating this need, most colleges have established processes that are intended to identify students who are not prepared to do college-level work (e.g., by establishing a threshold score on an entrance test, such as the SAT or ACT, and/or requiring that students take a placement test). Students who are not prepared for college-level work may be placed into developmental (or remedial) education, which involves taking courses that are intended to help students succeed in college-level courses at their institution. These courses are usually offered on a non-credit basis; therefore, they do not count toward graduation requirements.

This protocol guides the review of research that informs What Works Clearinghouse (WWC) reviews in the area of interventions for developmental students in postsecondary education. The review-specific protocol is used in conjunction with the [*WWC Procedures and Standards Handbook \(version 3.0\)*](#). These reviews focus on interventions for incoming and current postsecondary students that aim to promote successful completion of developmental education, with a primary focus on both increasing developmental education completion rates and increasing the rate of degree or certification attainment.

In order to be eligible for review interventions must have been designed to help students be ready to pursue college-level coursework. Interventions in this area are diverse, and by way of example can include (but are not limited to):

- Learning communities (curricular linkages that provide students with a deeper examination and/or integration of the themes and concepts that they are learning; models include residential learning communities and cohort-based learning communities)
- Bridge interventions (remedial interventions that occur prior to the start of the first semester of postsecondary education)
- College success courses (courses that teach a variety of skills, including, but not limited to, study skills, and that often serve as an orientation to college life)
- Instructional strategies (studies of different instructional techniques, including but not limited to infusing meta-cognitive strategies into class instruction)
- Psychological interventions (interventions based on applied psychology, such as interventions to reduce math anxiety or to increase motivation)
- Specific skill instruction (embedding study skill instruction into a developmental education course)
- Supplemental instruction (providing additional instructional time)

See the section “Specific Intervention Operational Definitions,” below, for the operational definitions for interventions that are the subject (or potentially are the subject) of WWC reviews.

A systematic review of the evidence in this topic area addresses the following questions: Does the intervention appear to be effective? Does the effectiveness of the intervention appear to differ by type of outcome? Which interventions are particularly effective for subgroups of students (including, but not limited to, first generation college students, economically disadvantaged students, and racial/ethnic minority students)?

Identifying Studies for Review

The [*WWC Procedures and Standards Handbook \(version 3.0\)*](#) discusses the general procedures for conducting a literature search. For the interventions for students in developmental education topic area, a broad search was conducted to identify potentially relevant intervention studies. For future WWC intervention reports under this topic area, a secondary search will be performed to identify any studies of the intervention that were not identified in the initial search. Further, once interventions have been identified as being targets for an intervention report, the WWC will supplement the electronic database search with targeted searches of government and non-government agency websites, relevant non-profit organizations that might fund research on the intervention, and by reviewing the bibliographies of literature reviews, meta-analyses, and primary studies of the intervention under review. The broad search for the interventions for students in developmental education topic area is detailed in Appendix A. For future intervention reports, the secondary search will be described in Appendix B.

Eligibility Criteria and Evidence Standards

Studies must meet several criteria to be eligible for review. These relate to the population that was sampled, the study design that was used, the outcomes that were measured, and when the study was conducted. Each of these is discussed below.

Populations to be Included

To be eligible for review under this protocol, a study must include (a) postsecondary students (including students who have been admitted to college but who have not yet started their college careers) (b) in the United States or Canada, (c) at least two thirds of whom are in, have been recommended for, or have been formally identified (e.g., via a placement test) as at risk for being placed into developmental education.

In general, the WWC determines a study rating based on average intervention effects and will report subgroup analyses only for groups that are identified in the protocol as being of theoretical, policy, or practical interest. For studies reviewed under this protocol, the default subgroups will be students who are (a) first-generation college students, (b) racial/ethnic minorities, (c) students from low socioeconomic status backgrounds, e.g., Pell Grant recipients, and (d) community college students. In addition, the WWC will report subgroup effects for gender when they are available, and for the level of academic preparation.

Types of Studies to be Reviewed

In order to be eligible for review a study must be a primary analysis of the effects of an intervention. If a study does not examine the effects of an intervention, or if it is not a primary analysis (e.g., if it is a meta-analysis or other literature review), then it is not eligible for review.

In addition, the study must have an eligible design. Eligible study designs include randomized controlled trials, regression discontinuity designs, nonequivalent comparison group designs, and certain types of single case designs. The WWC currently does not have standards for other types of quasi-experimental designs, such as the instrumental variable approach and interrupted time series designs. Therefore, studies using these types of research designs are not eligible for review under this protocol.

Types of Comparisons to be Included

Studies reviewed under this protocol for Intervention Reports must use “business as usual” comparison groups that are generally similar to each other across studies. "Business as usual" comparison groups are those in which students may attend the same or similar schools as the intervention students and/or they may receive the usual services offered to students in the setting (e.g., advising, tutoring). Comparison groups must not involve explicit assignment of students to other putatively effective interventions or variations of the same intervention that is delivered to the intervention group. Studies for which the type or nature of the comparison group is not clearly "business as usual" will be referred to the review team leadership for consultation, to ensure that comparison conditions are similar across studies.

Studies to be reviewed for Quick Reviews and Single Study Reviews may include comparison groups that receive other or similar interventions as well as "business as usual" comparison groups.

Relevant Outcome Domains

To be eligible for review a study must also assess a relevant outcome domain. The content expert, in consultation with the review team, identified the following domains to guide the review of studies in postsecondary education that do not have a corresponding protocol. These domains relate to the extent to which students enter into, successfully make progress through, and successfully exit from postsecondary education: (a) access and enrollment, (b) credit accumulation and persistence, (c) academic achievement, (d) attainment, and (e) the labor market. Measures of actual behavior are preferred to those that measure intentions and related constructs. When studies present both types of measures for an outcome (e.g., both intention to enroll and actual enrollment), the WWC will focus on the behavioral measure. When measures from an official and an unofficial source are available (e.g., grades reported by the institution vs. self-report) the WWC will focus on the official source.

- **Access and enrollment** refers to the process of applying to, actually enrolling, and attending a postsecondary institution. Examples of ways that enrollment might be operationally defined in studies include: (a) actual enrollment in college; (b) number and/or selectivity of admitted and/or enrolling institutions, (c) enrollment by institution type (2 year vs. 4 year), (d) intensity of enrollment (full time vs. part time), and (e) timing of enrollment (e.g., immediate vs. delayed enrollment after high school).
- **Credit accumulation and persistence** refers to progress toward the completion of a degree, certificate, or program. Examples of ways that credit accumulation might be operationally defined in studies include: (a) number of college-level credits earned, (b) number of terms of continuous enrollment, and (c) enrolled vs. did not enroll the next semester. The number of non-college level credits earned (e.g., developmental credits) is not an eligible measure of credit accumulation.
- **Academic achievement** refers to the extent to which students adequately complete expected coursework. As such, eligible measures of academic achievement are those that arise naturally from student educational experiences. Examples of ways that academic achievement might be operationally defined in studies include (a) final grade in a single college-level course, (b) grade point average in college-level courses, and (c) the ratio of college-level courses passed vs. failed. Scores on professional or industry exams (e.g., the GRE and the NCLEX-RN) are also eligible. With the exception of department-wide final exams, measures that exist below the final course grade level are not eligible (e.g., average test score, score on a particular assignment or project). Also ineligible are measures of academic achievement that do not directly contribute to student grades (e.g., a math test that is given after an experimental manipulation, the performance on which has no implications for a student’s performance in a specific course).

- **Attainment** refers to the completion of a degree, certificate, or program. Examples of ways attainment might be operationally defined in a study include (a) certificate completion rates and (b) degree completion rates.
- **Labor market** refers to outcomes related to employment after the postsecondary experience. Examples of ways that labor market outcomes might be operationally defined in studies include (a) employed vs. not, (b) employed full-time vs. employed part-time, (c) employed in field of study vs. not, and (d) income earned.

Outcomes measured at different points in time. For most outcomes in the postsecondary domain, the longest follow-up period available for a variable should be selected as primary; findings from any earlier time points should also be included in supplemental tables. In the access and enrollment domain (defined above), the *first* measure of enrollment (e.g., enrolled vs. not enrolled) should be selected as primary. Measures of enrollment that occur *after* the first semester or year of college would fall under the credit accumulation domain and the longest follow-up period should be selected as the primary measure.

Timeframe

Studies must have been published or reported in 1994 or later to be eligible for review under this protocol.

Specific Intervention Operational Definitions¹

Learning Communities

Learning communities are curricular linkages that provide students with a deeper examination and/or integration of the themes and concepts that they are learning (Inkelas & Soldner, 2008). There are many different models of learning communities (for example, residential learning communities; see Gabelnick, MacGregor, Matthews, & Smith 1990; Inkelas & Soldner, 2008; Lenning & Ebbers, 1999 for typologies). The WWC review focuses on two types: linked learning communities and residential learning communities.

Linked learning communities involve linked courses with mutually reinforcing themes and assignments. Studies of this version of the learning communities model will have students take at least two courses together (i.e., in the same classroom at the same time). At least two of the linked courses must be taken during the same semester or quarter. Residential learning communities involve students who live together (usually in a residential dormitory), take certain classes together, and engage in structured co-curricular and extra-curricular activities.

Bridge Interventions

Developmental *bridge interventions* are programs that aim to provide postsecondary enrollees with academic and college preparation skills. The goal of developmental bridge interventions is to provide students with targeted academic support and the social capital needed to succeed in college. Typically, these programs will provide accelerated instruction in one or more subject area (e.g., math, English, reading), provide general academic or other student support services, provide information about the academic expectations and cultural contexts of colleges, and expose students to college faculty and administrators. These “summer bridge” programs typically provide services in the summer or other period

¹ This section of the protocol will be updated as the WWC starts new reports summarizing the research on interventions for students in developmental education.

immediately preceding postsecondary enrollment, although additional supplementary or ongoing services may be provided after enrollment. These interventions can be delivered in a residential or non-residential framework, and can involve either mandatory or voluntary participation.

First Year Experience Programs

First year experience courses for students in developmental education are designed to ease the transition to college for students in need of developmental (or remedial) education. First year experience courses (also called success courses, study skills, student development, or new student orientation courses) occur during the first year of students' enrollment in postsecondary education. The aim of these courses is to support the academic performance, social development, persistence, and degree completion of postsecondary students with developmental needs. Although first year experience courses vary in terms of content and focus, most are designed to introduce students to campus resources, provide training in time management and study skills, and address student development issues. For students in developmental education, the courses are often linked with or taken concurrently with developmental courses and the first year experience courses tend to focus more on study skills than those for general education students.

Review of Studies Against WWC Evidence Standards

All studies will be reviewed against the WWC Evidence Standards, using the [*WWC Procedures and Standards Handbook* \(version 3.0\)](#). Generally, these standards assess outcome reliability and validity, attrition, baseline equivalence, and similar methodological and statistical issues. This review determines the overall WWC study rating (see the *Procedures and Standards Handbook version 3.0* for further details). Details related to sample attrition in RCTs and baseline equivalence in QEDs and high-attrition RCTs are outlined below to highlight the way they are operationalized in this topic area.

Sample Attrition

Reviews of studies that are governed by this protocol will use the liberal boundary for attrition. The selection of this boundary was based on the assumption that most attrition in studies of interventions focused on postsecondary students is due to factors that are not strongly related to intervention status. The WWC's postsecondary content expert can change the boundary to use if this assumption seems inappropriate for a given intervention; any such changes will be documented in the associated WWC reports.

Baseline Equivalence

If the study design is a randomized controlled trial or regression discontinuity design with high levels of attrition, or a quasi-experimental design, the study must demonstrate baseline equivalence of the intervention and comparison groups for the analytic sample.

If demonstration of baseline equivalence is required for a study, the following pre-intervention (or baseline) characteristics will be used:

- A pre-intervention measure of the outcome (i.e., a pretest) or a close proxy. In the postsecondary literature, pretests on the outcomes are often not available. When pretests or a close proxy are not available, studies must demonstrate baseline equivalence on the following two domains:
 - A continuously-scaled baseline measure of academic achievement (e.g., high school grade point average, SAT/ACT scores), and

- A baseline measure of student socio-economic status (e.g., FAFSA expected family contribution, family income, free- or reduced-price lunch status, parent education levels, Pell grant eligibility)

In cases where multiple baseline measures of SES and/or academic achievement are available, the content expert is responsible for selecting the variable(s) to be used in the baseline equivalence assessment prior to the equivalence assessment being performed. For example, if both math and verbal scores on a college entrance exam are available, and the primary outcome is whether or not students passed their first college level math course, then the content expert may decide that the score on the math portion of the entrance exam is the only achievement measure on which baseline equivalence will be assessed. However, if the primary outcome is attainment, then the content expert might decide to assess balance on both the math subtest and the verbal subtest.

Procedures for Statistical Adjustment for Studies with Baseline Covariate Imbalance

These procedures apply to all studies for which baseline equivalence must be demonstrated (i.e., RCTs with high attrition and quasi-experimental studies).

If a pretest or close proxy is available for an outcome and the difference between conditions at baseline is shown to be within the range that requires statistical adjustment, the statistical adjustment is only needed for that outcome. For example, if vocabulary, reading comprehension, and reading fluency are available as pre- and post-intervention measures, and the pre-intervention difference in reading comprehension requires statistical adjustment but the others do not, only the analysis of reading comprehension must adjust for baseline differences in reading comprehension (no adjustments are required for the other outcomes).

For outcomes that do not have a pretest or close proxy, if the difference between conditions at baseline on one of the required covariates is shown to be within the range that requires statistical adjustment, then adjustment is required only for the covariate in the adjustment range. For example, if academic achievement is judged to be within the range that requires statistical adjustment and SES is very closely balanced (i.e., it is not in the adjustment range), then all outcomes without pretests must adjust for the measure of academic achievement, and adjustment for baseline SES is not required.

References

- Attewell, P., Lavin, D., Domina, T., & Levey, T. (2006). New evidence on college remediation. *Journal of Higher Education*, 77(5), 886–924. <http://eric.ed.gov/?id=EJ753238>
- Bailey, T., Jeong, D. W., & Cho, S. W. (2010). Referral, enrollment, and completion in developmental education sequences in community colleges. *Economics of Education Review*, 29(2), 255-270. <http://eric.ed.gov/?id=EJ876583>
- Gabelnick, F., MacGregor, J., Matthews, R. S., & Smith, B. L. 1990. Learning communities: Creating connections among students, faculty, and disciplines. *New Directions for Teaching and Learning*, 41(spring). San Francisco, CA: Jossey-Bass.
- Inkelas, K. K. & Soldner, M. (2011). Undergraduate living-learning programs and student outcomes. In J. Smart & M. Paulsen (Eds.), *Handbook of theory and research* (pp. 335–68). New York, NY: Springer.
- Lenning, O. T., & Ebbers, L. H. (1999). The powerful potential of learning communities: Improving education for the future. *ASHE-ERIC Higher Education Report*, 26(6). Washington, DC: Graduate School of Education and Human Development, George Washington University.

Appendix A—Literature Search Strategy²

The following terms were used to search several electronic databases:

Remediation terms: developmental OR non-credit OR basic skills OR compensatory OR under achievement OR underachiev* OR remedia*

Postsecondary terms: Universit* OR “institution of higher learning” OR “community college” OR “technical college” OR “junior college” OR “institutions of higher learning” OR “community colleges” OR “technical colleges” OR “junior colleges” OR “liberal arts” OR “Historically Black Colleges and Universities” OR “Hispanic Serving Institutions” OR freshman OR freshmen OR sophomore OR junior OR senior OR first-year OR beginning

Empirical study terms: “Control group” OR random OR “comparison group” OR regression discontinuity OR “matched group” OR baseline OR ABAB design OR treatment OR experiment OR meta analysis/meta-analysis OR evaluation OR impact OR effectiveness OR causal OR posttest/post-test OR pretest/pre-test OR QED OR single case OR RCT OR alternating treatment OR single subject OR propensity score matching

The three groups were connected by AND.

The databases searched were:

- ProQuest
 - ProQuest Education journals
 - ProQuest dissertations
- EBSCO
 - Education Research complete
 - Academic Search Premier
 - ERIC
 - Wilson Education Full Text
 - Social Science Citation Index
 - PsycInfo

² The supplemental appendices will be updated as the WWC starts new reports summarizing the research on interventions for students in developmental education.

Appendix B.1—Supplemental Searches for Studies on Learning Communities

The following websites were searched for potentially relevant studies for the Learning Communities Intervention Report:

U.S. Department of Education, Institute of Education Sciences, National Center for Educational Research:
<http://ies.ed.gov/ncer/projects/>

The Washington Center: The National Resource Center for Learning Communities:
<http://www.evergreen.edu/washingtoncenter/resources/researchonlearningcommunities.html>

National Center for Postsecondary Research:
<http://www.postsecondaryresearch.org/index.html?Id=About&Info=Overview>

MDRC:
http://www.mdrc.org/search/publications?issue=3673&focus_area=7007#results

The Community College Research Center (Teachers College, Columbia University):
<http://ccrc.tc.columbia.edu/publications/designing-meaningful-developmental-reform.html>

Center for the Study of Higher Education: <http://www.ed.psu.edu/educ/cshe>

One book was also searched:

Taylor, K., Moore, W.S., MacGregor, J., & Lindblad, J. (2003). *Learning community research and assessment: What we know now*. National Learning Communities Project monograph. Olympia, WA: Washington Center.

Appendix B.2—Supplemental Searches for Studies on Developmental Summer Bridge Programs

The following terms were used to search several electronic databases:

Remediation terms (Title/Abstract): developmental OR non-credit OR basic skills OR compensatory OR under achievement OR underachiev* OR remedia*

Intervention terms (Title/Abstract): “summer bridge*” OR “summer session” “intensive summer” “intensive academic support” OR “pre-matriculation” OR “pre-freshman support”

Postsecondary terms: Universit* OR “institution of higher learning” OR “community college” OR “technical college” OR “junior college” OR “institutions of higher learning” OR “community colleges” OR “technical colleges” OR “junior colleges” OR “liberal arts” OR “Historically Black Colleges and Universities” OR “Hispanic Serving Institutions” OR freshman OR freshmen OR sophomore OR junior OR senior OR first-year OR beginning

The three groups of terms were connected by AND.

The databases searched were:

- ProQuest
 - ProQuest Dissertations & Theses
 - PsycINFO
- Social Science eLibrary
- ERIC

Websites mined by hand:

NBER

National Center for Postsecondary Research

National Center for Postsecondary Improvement

Center for the Study of Higher Education

MDRC

CNA

Rand

Mathematica

Cornell Higher Education Research Institute working papers

WISCAPE working papers

Stanford Center for Education Policy Analysis (CEPA)

Center for the Study of Higher Education at Berkeley

Google Scholar

Forward citation searches (Google Scholar) for all studies identified from larger remedial education search

Results of Supplemental Search for Developmental Summer Bridge Programs				
Database	Search Date	Search Terms	Hits	Downloaded for Screening
ProQuest (PDT & PsycINFO & ERIC)	4/14/14	((developmental OR non-credit OR basic skills OR compensatory OR under achievement OR underachiever* OR remedial*) AND ab(summer bridge OR summer session OR "intensive summer" OR "intensive academic support" OR pre-matriculation OR prematriculation OR "pre-freshman support" OR "prefreshman support") AND (university* OR "institution of higher learning" OR "community college" OR "technical college" OR "junior college" OR "institutions of higher learning" OR "community colleges" OR "technical colleges" OR "junior colleges" OR "liberal arts" OR "Historically Black Colleges and universities" OR "Hispanic Serving Institutions" OR freshman OR freshmen OR sophomore OR junior OR senior OR first-year OR beginning)) AND pd(19940101-20131231)	406	406
Social Science eLibrary	4/14/14	Summer bridge (8) Summer session (17) Intensive summer (12) Intensive academic support (11) Pre-matriculation (3) Prematriculation (0) Pre-freshman (4) Prefreshman (0)	55	0 (all irrelevant)
NBER	4/14/14	Summer bridge (1) Summer session (0) Intensive summer (0) Intensive academic support (0) Pre-matriculation (0) Prematriculation (0) Pre-freshman (0) Prefreshman (0)	1	1
National Center for Postsecondary Research	4/14/14	Browsed all publications http://www.postsecondaryresearch.org/index.html?Id=Publications&Info=NCPR+Publications		3
National Center for Postsecondary Improvement	4/14/14	Browsed all publications at http://www.stanford.edu/group/ncpi/unspecified/bytitle.htm		0
Center for the Study of Higher Education	4/14/14	Browsed all publications at http://www.ed.psu.edu/educ/cshe/working-papers		
MDRC	4/14/14	Searched all under 'College students' population and 'Developmental education' focus	18	0
Rand	4/14/14	Browsed all publications at http://www.rand.org/topics/postsecondary-education-programs.html?content-type=report Searched for "summer bridge"		0
Mathematica	4/14/14	Browsed all 'Education' topic under 'College access/postsecondary' subtopics	67	0

Cornell Higher Education Research Institute working papers	4/14/14	Browsed all at http://www.ilr.cornell.edu/cheri/workingPapers/		0
WISCAPE working papers	4/14/14	Browsed all publication types at: http://www.wiscape.wisc.edu/wiscape/publications		0
Stanford Center for Education Policy Analysis (CEPA)	4/14/14	Browsed all at: http://cepa.stanford.edu/publications/college-access-and-success		0
Center for the Study of Higher Education at Berkeley	4/14/14	Browsed all at: http://cshe.berkeley.edu/publications		0
Google Scholar	4/14/14	developmental “summer bridge”, 1994-2014	18,000	6

Appendix B.3—Supplementary Searches for Developmental First Year Experience Programs

The Developmental First Year Experience supplementary search was conducted in parallel with the search for general education first year experience programs. The following table presents the search terms used for the electronic database search. Both abstracts and titles were searched:

<p>(("college adjustment course*" OR "college adjustment program*" OR "college adjustment class*" OR "college adjustment seminar*" OR "college seminar*" OR "college success course*" OR "college success program*" OR "college success class*" OR "college success seminar*" OR "college survival course*" OR "college survival program*" OR "college survival class*" OR "college survival seminar*" OR "college transition course*" OR "college transition program*" OR "college transition class*" OR "college transition seminar*" OR "first semester seminar*" OR "first year college experience" OR "first year experience course*" OR "first year experience program*" OR "first year experience class*" OR "first year experience seminar*" OR "first year new student orientation course*" OR "first year new student orientation program*" OR "first year new student orientation class*" OR "first year new student orientation seminar*" OR "first year orientation course*" OR "first year orientation program*" OR "first year orientation class*" OR "first year orientation seminar*" OR "first year seminar*" OR "freshman experience course*" OR "freshman experience program*" OR "freshman experience class*" OR "freshman experience seminar*" OR "freshman orientation course*" OR "freshman orientation program*" OR "freshman orientation class*" OR "freshman orientation seminar*" OR "freshman seminar*" OR "freshman success course*" OR "freshman success program*" OR "freshman success class*" OR "freshman success seminar*" OR "freshman transition course*" OR "freshman transition program*" OR "freshman transition class*" OR "freshman transition seminar*" OR "freshman year experience course*" OR "freshman year experience program*" OR "freshman year experience class*" OR "freshman year experience seminar*" OR "learning skills course*" OR "learning skills program*" OR "learning skills class*" OR "learning skills seminar*" OR "learning strateg* course*" OR "learning strateg* program*" OR "learning strateg* class*" OR "learning strateg* seminar*" OR "new student orientation course*" OR "new student orientation program*" OR "new student orientation class*" OR "new student orientation seminar*" OR "orientation course*" OR "orientation program*" OR "orientation class*" OR "orientation seminar*" OR "student life skills course*" OR "student life skills program*" OR "student life skills class*" OR "student life skills seminar*" OR "student success course*" OR "student success program*" OR "student success class*" OR "student success seminar*" OR "study skills course*" OR "study skills program*" OR "study skills class*" OR "study skills seminar*" OR "study strateg* course*" OR "study strateg* program*" OR "study strateg* class*" OR "study strateg* seminar*" OR "success course*" OR "University 10* orientation course*" OR "University 10* orientation program*" OR "University 10* orientation class*" OR "University 10* orientation seminar*" OR "university seminar*"))</p>
AND
<p>(Universit* OR "institution of higher learning" OR "community college" OR "technical college" OR "junior college" OR "institutions of higher learning" OR "community colleges" OR "technical colleges" OR "junior colleges" OR "liberal arts" OR "Historically Black Colleges and Universities" OR "Hispanic Serving Institutions" OR freshman OR freshmen OR sophomore OR junior OR senior OR first-year OR beginning)</p>
AND
<p>("control group*" OR random OR "comparison group*" OR "regression discontinuity" OR "matched group*" OR baseline OR treatment OR experiment OR intervention OR evaluation OR impact OR effectiveness OR causal OR posttest OR post-test OR pretest OR pre-test OR QED OR RCT OR "propensity score matching" OR randomized OR quasi-experiment*))</p>

The databases searched were:

- ERIC
- ProQuest Dissertations & Theses Full Text
- ProQuest Education Journals
- ProQuest Psychology Journals
- ProQuest Social Science Journals
- PsycARTICLES
- PsycINFO

The search was conducted on July 29, 2014 using ProQuest Central.

In addition, the bibliographies of all studies screened for review for the first year experience intervention report were mined for additional relevant studies not identified in either the broad or the targeted search.

Finally, the following websites were reviewed for potentially relevant studies:

- National Bureau of Economic Research (NBER)
- National Center for Postsecondary Research
- National Center for Postsecondary Improvement
- Center for the Study of Higher Education and its related—Higher Ed in Review
- MDRC
- Rand
- Mathematica
- Cornell Higher Education Research Institute working papers
- WISCAPE working papers
- Stanford Center for Education Policy Analysis (CEPA)
- Center for the Study of Higher Education at Berkeley (CSHE)

Results:

- Total hits downloaded: 1174
- Total after duplicate removal (including duplicates of materials previously identified via other sources—e.g., websites): 1140
- Title and abstract screening: 49