

REVIEW PROTOCOL FOR STUDIES OF INTERVENTIONS TO SUPPORT POSTSECONDARY SUCCESS VERSION 3.0

TOPIC AREA FOCUS

This protocol guides the review of research that informs What Works Clearinghouse (WWC) intervention reports in the area of supporting postsecondary success. This review-specific protocol is used in conjunction with the [*WWC Procedures and Standards Handbook \(Version 3.0\)*](#).

This review focuses on interventions for postsecondary students that aim to support postsecondary success, with a primary focus on increasing postsecondary retention and degree attainment.

Enrolling in postsecondary institutions and completing a degree or certificate is one of the primary pathways for economic success and is increasingly required for employment in a variety of fields. Yet, only 22% of students enrolled at public two-year institutions and 44% at private two-year institutions complete their programs within three years. At four-year institutions, only 58% of students who start at public institutions and 69% of students who start at private institutions complete their programs at any institution within six years (Shapiro, D. et al, 2015). The first year of college is critical, with about 20% of first-time full-time students in 4-year institutions and over 40% of first-time full-time students in 2-year institutions failing to return to the same institution for their second year (Kena et al., 2014). Supporting postsecondary students to promote retention and ultimately degree completion is a focus of many postsecondary initiatives.

Eligible Approaches for Supporting Postsecondary Success. For this review, interventions that support postsecondary success for college students must be primarily focused on improving student outcomes during and after college. Thus, programs may be focused on improving the academic performance of students while attending college, increasing the number of students who transfer from 2- to 4-year colleges or attain a degree or certificate, or improving post-college labor market outcomes. This area may include instructional programs that occur in-person or online as part of postsecondary schooling, out-of-classroom practices such as mentoring, classroom practices such as strengths-based learning, adult education activities, and any other strategy focused on supporting student success in college. Within this framework, a number of broad intervention strategies are relevant, as follows:

- **Summer bridge programs.** Many colleges have identified student populations at risk for academic problems in their first year. To better prepare these students, some postsecondary institutions have instituted summer bridge programs, in which eligible students enroll in the summer and are provided with a variety of resources designed to ease their transition from high school into college. These have taken a variety of forms based on the nature of the institution and the targeted student group, but often involve accelerated instruction, college

readiness preparation and skills building, or options for earning college credits. These programs are similar in nature to those interventions designed to support students during the critical first year, but are implemented in the summer bridge period between high school completion and college enrollment.

- **Interventions to support students during the critical first year.** Many students arrive in higher education academically prepared, but may not have the study skills or other coping skills to deal with the learning and social environments in higher education. In addition, many students simply make poor academic and social decisions during their first year of college. Students do not understand the consequences of these decisions for their eventual success in college. Many interventions are designed to ensure that first-year students who are otherwise academically qualified to succeed do so. These include interventions designed to simplify the advising process; interventions designed to increase academic momentum; “study skills” courses or resources; first-year or freshman seminars; programs that orient students to college life and the campus community; and, various student learning community structures (e.g., residential colleges).
- **Interventions to support the retention, academic performance, and completion rates of postsecondary students.** Degree completion rates have consistently been low for postsecondary institutions (Luna & Zienkewicz, 2014). Many institutions have implemented retention initiatives to help and improve retention and completion rates. These initiatives have taken many forms, such as providing academic support, study skills, counseling, mentoring, and other institutional support mechanisms (Luna & Zienkewicz, 2014). These interventions can occur individually or in group settings (i.e., individual counseling, strengths-based education, etc.), in-person or online as part of postsecondary schooling, or in-class or out-of-class.
- **Interventions relating to financing college.** The cost of higher education is a barrier to postsecondary success for many students, most especially those from low income families (Deming & Dynarski, 2009). Rapidly rising costs across all types of postsecondary institutions in recent years, as well as larger numbers of students enrolling in postsecondary institutions than ever before, have increased the number of students for whom financial pressures are an obstacle to attending college and completing a degree. A variety of strategies have been developed to reduce the price of college, with variants on the form of financial aid (e.g., need or merit), loan amounts, and different combinations and “packaging” of aid.

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 reviewed intervention appear to be effective for increasing enrollment persistence, credit accumulation and attainment, improving academic achievement in college, and/or improving labor market outcomes? Is the reviewed intervention more or less effective for certain subgroups of students (including first-generation college students, racial/ethnic minorities, academically underprepared students, students from low socioeconomic status backgrounds (e.g., Pell Grant recipients), and/or community college students)?

IDENTIFYING STUDIES FOR REVIEW

The *WWC Procedures and Standards Handbook* discusses the general procedures for conducting a literature search. For the supporting postsecondary success topic area, a broad search was conducted to identify potentially relevant intervention studies. In addition, for each intervention report 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 supplements 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 via reviewing the bibliographies of literature reviews, meta-analyses, and primary studies of the intervention under review.

The review team will search the WWC database of previously reviewed studies to identify studies that have met standards in prior reviews. Those studies will be re-reviewed using the eligibility criteria and evidence standards described in this protocol. The team will also identify studies that have been rated as ineligible in prior reviews and will confirm that they are ineligible for this review based on the criteria described in this protocol.

The broad search for the supporting postsecondary success topic area is detailed in Appendix A. Each Intervention Report's secondary search will be described in Appendix B.

ELIGIBILITY CRITERIA AND EVIDENCE STANDARDS

Studies must meet several criteria to be eligible for review under the supporting postsecondary success topic area. 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 students who are currently enrolled in a postsecondary institution in the United States or Canada at baseline or at the beginning of the intervention. Postsecondary education is any form of schooling occurring after the secondary level (i.e., after high school) and may include public or private technical colleges, community colleges, four-year institutions, and any other institution offering a postsecondary certificate or degree. Interventions may start as early as the summer immediately following high school and run through a student's entire postsecondary career.

Studies with samples that are comprised primarily of high school students, even those concurrently enrolled in postsecondary education (i.e., dual enrollment), are not eligible for review under this protocol; rather, they should be reviewed under the Transition to College protocol. Studies with samples that are comprised predominantly of postsecondary students in need of developmental coursework should be reviewed under the Review Protocol for Studies of Interventions for Developmental Students in Postsecondary 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 include: (a) gender (e.g., *male*), (b) first-generation college students, (c) racial/ethnic minorities, (d) students from low socioeconomic status backgrounds (e.g., Pell Grant recipients), (e) academically unprepared students (e.g., incoming students with developmental course requirements versus those with no developmental requirements), and (f) community college students. To be eligible for review as a subgroup analysis, impact estimates must be available for all groups in a subgroup analysis (e.g., results for both males *and* females are required, not just males *or* females) and a test of the interaction between subgroup membership and intervention condition must be reported or derivable from reported statistics (using, for example, techniques described in Altman & Bland, 2003).

As discussed in the *WWC Procedures and Standards Handbook* (v. 3.0, see Section III.B.4, p. 17), if a study presents findings separately for several groups of students without presenting an aggregate result, the WWC will query authors to see if they conducted an analysis on the full sample of students. If the WWC is unable to obtain aggregate results from the author, the WWC averages across subgroups within a study to use as the primary finding and presents the subgroup results as supplemental analyses.

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 and well-controlled quasi-experimental designs (defined as studies using a well-matched comparison group). In addition, studies using regression discontinuity designs or single-case designs will be eligible under this topic area; should any studies with these designs be located for review, the pilot standards described in the *WWC Procedures and Standards Handbook* will be used.

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” should be referred to the review team leadership for consultation, to ensure that comparison conditions are similar across studies.

Studies to be reviewed under this protocol for Quick Reviews, Single Study Reviews, and Department of Education funding competitions may include comparison groups that receive other or similar interventions as well as “business as usual” comparison groups.

Eligible Outcomes

To be eligible for review, a study must also report outcomes from a relevant postsecondary outcome domain. These include: (a) access and enrollment, (b) attendance, (c) credit accumulation and persistence, (d) academic achievement, (e) attainment, and (f) labor market outcomes. Operational definitions for each outcome domain are provided below.

The content expert is responsible for grouping outcomes into domains. These are defined as follows:

- **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), (e) timing of enrollment (e.g., immediate vs. delayed enrollment after high school), and (f) FAFSA completion. On a case-by-case basis, the WWC may accept measures of intentions to enroll, though measures of actual enrollment are preferred when both types are available.
- **College attendance**, refers to outcomes that measure attendance rates or absenteeism at school. Ways that attendance might be operationalized include the number or proportion of days absent or in attendance during a school term, proportion of students with excessive absences, referrals for truancy, and the like. Objective measures of attendance, such as those from school administrative records are preferred, but student reported measures are acceptable if a more objective measure is not available.
- **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. On a case-by-case basis, the WWC may accept measures of intentions to persist, though measures of actual persistence are preferred when both types are available.
- **Academic achievement** refers to the extent to which students master academic content. 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, the longest follow-up period available for a variable is selected as primary; findings from any earlier time points are included in the supplemental tables. In the access and enrollment domain (defined above), the *first* measure of enrollment (e.g., enrolled vs. not enrolled) is 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 is selected as the primary measure.

Timeframe for Studies

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

Operational Definitions for Each Intervention/Strategy¹

Academic Tutoring

Academic tutoring refers to instruction in reading, writing, study skills, mathematics, science, and other subjects, typically conducted one-on-one or in small groups of students with a tutor. Tutors may be peers, staff, faculty, or external contributors. Tutoring practices include coaching and support for academic tasks such as completing homework, understanding lecture material, or review of written work. Tutoring interventions vary in length and the types of curricular and instructional tools and practices used (Ritter, Barnett, Denny, & Albin, 2009). Tutors may be professionals or volunteers and are not required to be affiliated with a school. Tutoring programs may be face-to-face or online, may involve 1:1 relationships between tutors and tutees or small groups, and may be tailored to individual students or to the needs of the group.

Credit Recovery Programs

Credit recovery programs for postsecondary students are programs that permit students to take high school, developmental, or transfer courses they may have missed or failed previously. In postsecondary settings, credit recovery programs are often billed as a method for transfer or returning adult students to maximize their transfer credits upon enrollment. Credit recovery programs may be offered in brick-and-mortar settings, but are increasingly offered online. As such, credit recovery programs may employ a variety of instructional formats, including traditional instruction (e.g., lectures), one-on-one instruction or tutoring, or independent study.

¹ This section of the protocol will be updated as the WWC starts new reports summarizing the research on interventions to support postsecondary success. Subsequent versions of the protocol will have different version numbers and will indicate what changes have been made.

First Year Experience Programs

First Year Experience (FYE) programs, often referred to as college success courses or freshman seminars, may be a required or elective course for first-year students in 2-year or 4-year colleges. The general goal of such experiences is to promote students' transition to college, academic performance, social development, persistence, and degree completion (Hunter & Linder, 2005; Pascarella & Terenzini, 2005). While courses vary in terms of content and focus, most First Year Experience programs are designed to introduce students to "campus resources, time management, study skills, career planning, cultural diversity, and student development issues" (Barefoot & Fidler, 1992, p. 2).

First Year Experience programs may be offered to all new students or to targeted groups such as at-risk students or students in a specific department, college, or school. In some universities, the course is required only for those students meeting certain requirements (i.e. athletes, undeclared, or honor students) or those who are at a greater risk for failing to complete college (i.e. those provisionally admitted, developmental students; Tobolowsky et al. 2005).

First Year Experience programs may be offered as extended orientation seminars, academic seminars, or professional or discipline-linked seminars. All such programs are eligible for review by the WWC. However, college or university orientations alone are not considered First Year Experiences, nor are programs or seminars that focus exclusively on teaching students study or test-taking skills.

Mentoring programs

Mentoring programs involve a pairing between a more experienced, skilled, or knowledgeable person (e.g., upper-level student, instructor, or community member) and a less-experienced student. Mentoring may take place in educational or other community settings. Typically, the mentor receives training or support to maintain a reciprocal, personalized relationship with the student, and provides information, support, and guidance to the mentee (Cannata, Garringer, MacRae, & Wakeland, 2005; Crisp & Cruz, 2009). Mentoring programs may focus on interpersonal skills, self-esteem, career maturity and development, psychological and emotional support, as well as academic planning, troubleshooting academic assignments, or tutoring in problem areas (Cannata et al., 2005; Crisp & Cruz, 2009; DuBois, Holloway, Valentine, & Cooper, 2002; DuBois et al., 2013). Typical mentoring programs are characterized by a 1:1 relationship between the mentee and mentor and occur over a period of time (i.e., more than one session). However, group formats in which one or more mentors meets with a small group of students may also be used. Mentoring programs generally involve mentors in a non-professional helping capacity. For example, professional staff who counsel students at a counseling center would not be considered mentors, though these same individuals could serve as mentors outside the counseling center in a non-professional capacity.

Summer Bridge Interventions

Summer bridge interventions are programs that aim to provide postsecondary enrollees with academic and college preparation skills. The goal of summer bridge interventions is to provide students with targeted academic and social supports 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 programs often, but not always, target students deemed at-risk of academic problems in their first year of college. These “summer bridge” programs provide the majority of services in the summer or other period 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.

Supplemental Instruction

Supplemental Instruction (SI) is a structured academic support program or model, which is typically led by more experienced peer leaders, and directly connected to a particular course (Dawson, van der Meer, Skalicky, & Cowley, 2014). Peer leaders facilitate SI sessions by asking leading questions for students to construct their own knowledge about a topic from class or deepen their understanding about a topic from class. Unlike tutoring, SI does not focus on homework, paper editing, or just a question-answer process with the leader. Peer leaders are recruited, trained, and supervised by a program manager or supervisor. SI Leaders prepare learning activities such as problem-solving exercises, mock exams, group work, or worksheets, and serve as role models by attending lectures, taking notes, reading assigned materials, and demonstrating effective study skills (Dawson, van der Meer, Skalicky, & Cowley, 2014).

Review of Studies Against WWC Standards

All studies will be reviewed against the WWC Evidence Standards, using version 3.0 of the *Procedures and Standards Handbook*. 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 relate to sample attrition in RCTs and baseline equivalence in QEDs and high-attrition RCTs are further articulated in this protocol.

Sample Attrition

The *WWC Procedures and Standards Handbook* discusses the sample attrition standards used by the WWC.

This review uses the liberal boundary for attrition. The selection of this boundary was based on the assumption that most attrition in studies of interventions focused on the promotion of postsecondary success is due to factors that are not strongly related to intervention status.

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 should 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 [SES] (e.g., high school grade point average, SAT/ACT scores), and
 - A baseline measure of student socioeconomic 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 should 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 all quasi-experimental studies)

If a pretest 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, only the analysis of reading comprehension must adjust for baseline differences in reading comprehension.

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.

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APPENDIX A—LITERATURE SEARCH STRATEGY FOR THE BROAD SEARCH OF THE TRANSITION TO COLLEGE TOPIC AREA

Search Terms

The following table presents the search terms used for the electronic database search:

<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>	<p>AND</p>	<p>“financial aid” or “college admission*” or “college prep*” or “College plan*” or “college choice” or “college readiness” or “college counsel*” or “Federal student aid” or “college access” or “transition* from high school” or “Transition* to college” or “access to college*” or “educational advancement” or “ready for college” or “readiness for college” or “college ready” or “FAFSA” or “Pathway* to college” or “barrier* to college” or “postsecondary transition*” or “financing college” or “college knowledge” or “college pathway*” or “college pipeline” or “step* to college</p>
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The databases searched were:

- Academic Search Premier
- EconLit with Full Text
- Education Research Complete
- ERIC
- PsycINFO
- Education Full Text (H.W. Wilson)
- Social Sciences Full Text (H.W. Wilson)
- Education Source
- Dissertation Abstracts

The search was conducted on May 12, 2014 by the National Library of Education using the EBSCO interface.

Citations were selected from 1994 onward.

Results:

- Total hits downloaded: 15099
- Total after duplicate removal: 13405
- Removed newspaper and magazine articles and other obvious irrelevant citations (e.g., videos and editorials): 7946
- Title and abstract screening: 838

APPENDIX B.1—SUPPLEMENTARY SEARCHES FOR 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

("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*)

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.

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: 213

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 of 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)

The hand search and reference harvesting activities generated an additional 85 potentially eligible citations.

In total, 281 citations were retrieved in full-text form and screened for eligibility.

APPENDIX B.2—SUPPLEMENTARY SEARCHES FOR SUMMER BRIDGE PROGRAMS

The following table presents the search terms used for the electronic database search. Both abstracts and titles were searched:

AB("summer bridge*" OR "summer-bridge" OR "summer session" OR "summer program" OR "intensive summer" OR "pre-matriculation" OR "pre-freshman support")
AND
AB(university* OR "college" OR "institution of higher learning" OR "institutions of higher learning" OR "liberal arts" OR "Hispanic Serving Institutions" OR freshman OR freshmen OR sophomore OR junior OR senior OR first-year OR beginning OR "pre-freshman")

The databases searched were:

- ERIC
- ProQuest Dissertations & Theses Full Text
- PsycINFO

Limits on the search were:

- Date range of 1994–2014
- Excluded newspaper articles

The original search was conducted on August 11, 2014 using ProQuest Central.

The updated search was conducted on August 5, 2015 using ProQuest Central.

In addition, 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
- 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 from original electronic search: 1520
- Total hits downloaded from the updated search: 97
- Total hits downloaded from supplementary searches: 10
- Total after duplicate removal (including duplicates of materials previously identified via other sources—e.g., websites): 1392
- Passed title and abstract screening: 138