



WWC Intervention Report

A summary of findings from a systematic review of the evidence



Developmental Students in Postsecondary Education

February 2016

First Year Experience Courses for Students in Developmental Education

Program Description¹

First year experience courses for students in developmental education are designed to ease the transition to college for the large numbers of students in need of developmental (or remedial) education. These courses were developed because approximately 40% of first- or second-year undergraduates in 2-year colleges and almost 30% of first- or second-year undergraduates at 4-year colleges report taking developmental courses; these numbers are higher for first generation and minority students.² First year experience courses (also called success courses, study skills, student development, or new student orientation courses)³ 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.⁴ 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 courses, the courses are often linked with or taken concurrently with developmental courses.⁵

Research⁶

The What Works Clearinghouse (WWC) identified one study of *first year experience courses for students in developmental education* that both falls within the scope of the Interventions for Developmental Students in Postsecondary Education topic area and meets WWC group design standards. This one study meets WWC group design standards without reservations. This study included 911 freshman college students in developmental education enrolled at one technical community college in the United States.

The WWC considers the extent of evidence for *first year experience courses for students in developmental education* to be small for three student-level outcome domains—academic achievement, progress through developmental education, and credit accumulation and persistence. There were no studies that meet WWC group design standards in the three other domains specified as eligible in the review protocol, so this intervention report does not report on the effectiveness of *first year experience courses for students in developmental education* for those domains. (See the Effectiveness Summary on p. 5 for more details of effectiveness by domain.)

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This intervention report presents findings from a systematic review of *first year experience courses for students in developmental education* conducted using the WWC Procedures and Standards Handbook, version 3.0, and Developmental Students in Postsecondary Education review protocol, version 3.0.

Effectiveness

Based on the one study that meets WWC group design standards, *first year experience courses for students in developmental education* were found to have no discernible effects on academic achievement, progress through developmental education, and credit accumulation and persistence for postsecondary students.

Table 1. Summary of findings⁷

Outcome domain	Rating of effectiveness	Improvement index (percentile points)		Number of studies	Number of students	Extent of evidence
		Average	Range			
Academic achievement	No discernible effects	+1	na	1	911	Small
Progress through developmental education	No discernible effects	-1	na	1	911	Small
Credit accumulation and persistence	No discernible effects	-3	na	1	911	Small

Program Information

Background

Large numbers of students arrive at college unprepared for college-level coursework. They also lack the strong study skills and coping strategies required to effectively navigate the learning and social environments in higher education. *First year experience courses for students in developmental education* are designed to help under-prepared postsecondary students transition to college, understand institutional expectations, and make effective academic and career decisions.⁸ Barefoot and Fidler (1992)⁹ identified five types of first year experience courses: extended orientation, academic seminars with uniform or variable content, introduction to a discipline or professional seminars, and basic study skills seminars. *First year experience courses for students in developmental education* tend to emphasize study skills more than first year experience courses for general education students and are often taken concurrently with developmental requirements. As reported by the National Resource Center for the First-Year Experience and Students in Transition, first year experience courses are required for all first-year students at approximately 52% of 4-year institutions in the United States. However, when they are not required for all students, they are frequently required for special populations (e.g., academically underprepared students, students in specific majors, and students taking developmental courses).¹⁰

Program details

The one study of the *first year experience courses for students in developmental education* that met WWC group design standards reviewed in this intervention report examined the basic study skills approach (Rutschow, Cullinan, & Welbeck, 2012). The course was redesigned from an existing study skills course offered at the college. The course focused on helping students take responsibility for their learning and included content on academic skill-building via class presentations, journal writing, quizzes, and an end-of-semester course project. The course was offered to students in need of one or more developmental courses.

Cost

Rutschow, Cullinan, and Welbeck (2012) do not report on the costs of the *first year experience course for students in developmental education* program included in the one study reviewed in this intervention report.

Research Summary

The WWC identified 19 eligible studies that investigated the effects of *first year experience courses for students in developmental education* for college freshmen. An additional 31 studies were identified but do not meet WWC eligibility criteria for review in this topic area. Citations for all 50 studies are in the References section, which begins on p. 7.

The WWC reviewed 19 eligible studies against group design standards.

One study is a randomized controlled trial that meets WWC group design standards without reservations. This study is summarized in this report. The remaining 18 studies do not meet WWC group design standards.

Table 2. Scope of reviewed research

Grade	Postsecondary
Delivery method	Whole class
Program type	Practice

Summary of studies meeting WWC group design standards without reservations

Rutschow, Cullinan, and Welbeck (2012) conducted a randomized controlled trial to evaluate a *first year experience course for students in developmental education* at a technical community college in the southeast United States. The intervention group included 458 students who were at least 18 years of age, were required to take one or more developmental education courses, were new or continuing students with less than 20 credit hours, were not majoring in a degree that required the success course, had not previously participated in the success course, and were willing to participate. The evaluation took place over three semesters (spring 2008 through spring 2009). The two-credit course was designed to assist students in overcoming both academic and personal challenges that might interfere with college success. The curriculum had eight core principles: 1) Accepting personal responsibility, 2) Self-motivation, 3) Self-management, 4) Interdependence, 5) Self-awareness, 6) Lifelong learning, 7) Emotional intelligence, and 8) Belief in self. The course was typically taught by two instructors. Classes were generally collaborative in nature, with group discussions being more common than lectures. Students were often asked to critically reflect on their personal experiences and write journal entries. In addition to socioemotional skill development, the students received study skills instruction, such as note taking, time management, and test preparation. Additional class requirements included traditional classroom assignments such as a term paper, a class presentation, and tests. Students in the comparison group had access to the college's typical student support services, which includes advising, tutoring, career counseling, and assistance in transferring to a 4-year college.

Summary of studies meeting WWC group design standards with reservations

No studies of *first year experience courses for students in developmental education* met WWC group design standards with reservations.

Effectiveness Summary

The WWC review of *first year experience courses for students in developmental education* for the Interventions for Developmental Students in Postsecondary Education topic area includes postsecondary outcomes in six domains: academic achievement, progress through developmental education, credit accumulation and persistence, access and enrollment, attainment, and labor market. The one study of *first year experience courses for students in developmental education* that meets WWC group design standards reported findings in three of the six domains: (a) academic achievement, (b) progress through developmental education, and (c) credit accumulation and persistence. The findings below present the authors’ estimates and WWC-calculated estimates of the size and statistical significance of the effects of *first year experience courses for students in developmental education* on freshman college students. For a more detailed description of the rating of effectiveness and extent of evidence criteria, see the WWC Rating Criteria on p. 19.

Summary of effectiveness for the academic achievement domain

One study that meets WWC group design standards without reservations reported findings in the academic achievement domain.

Rutschow et al. (2012) reported on the percentage of students who passed all courses during the program semester and the percentage of students who received a grade point average (GPA) of “C” or better in nondevelopmental courses three semesters after the program. The authors reported, and the WWC confirmed, that there were no statistically significant differences between *first year experience course* participants and comparison participants on either the percentage of students passing all courses or the percentage of students receiving a GPA of “C” or better. The WWC characterizes this finding as an indeterminate effect. The mean effect reported is neither statistically significant nor substantively important.

Thus, for the academic achievement domain, one study showed neither a statistically significant nor substantively important effect. This results in a rating of no discernible effects, with a small extent of evidence.

Table 3. Rating of effectiveness and extent of evidence for the academic achievement domain

Rating of effectiveness	Criteria met
<p>No discernible effects <i>None of the studies show statistically significant or substantively important effects, either positive or negative.</i></p>	<p>In the one study that reported findings, the estimated impact of the intervention on outcomes in the <i>academic achievement</i> domain was neither statistically significant nor large enough to be substantively important.</p>
Extent of evidence	Criteria met
<p>Small</p>	<p>One study that included 911 students in one technical community college reported evidence of effectiveness in the <i>academic achievement</i> domain.</p>

Summary of effectiveness for the progress through developmental education domain

One study that meets WWC group design standards without reservations reported findings in the progress through developmental education domain.

Rutschow et al. (2012) reported on the percentage of students who passed their developmental math, reading, and English courses (separately). The authors reported, and the WWC confirmed, that there were no statistically significant differences between *first year experience course* participants and comparison participants on the percentage of students who passed their developmental math, reading, or English courses. The WWC characterizes the mean effect across the two measures in this domain as an indeterminate effect.

Thus, for the progress through developmental education domain, one study showed neither a statistically significant nor substantively important effect. This results in a rating of no discernible effects, with a small extent of evidence.

Table 4. Rating of effectiveness and extent of evidence for the progress through developmental education domain

Rating of effectiveness	Criteria met
No discernible effects <i>None of the studies show statistically significant or substantively important effects, either positive or negative.</i>	In the one study that reported findings, the estimated impact of the intervention on outcomes in the <i>progress through developmental education</i> domain was neither statistically significant nor large enough to be substantively important.
Extent of evidence	Criteria met
Small	One study that included 911 students in one technical community college reported evidence of effectiveness in the <i>progress through developmental education</i> domain.

Summary of effectiveness for the credit accumulation and persistence domain

One study that meets WWC group design standards without reservations reported findings in the credit accumulation and persistence domain.

Rutschow et al. (2012) reported on the percentage of students who registered for any courses and the number of credits earned following the third semester after the program. The authors reported, and the WWC confirmed, that there were no statistically significant differences in credit accumulation and persistence between students who participated in the *first year experience course* and those who did not. The WWC characterizes this finding as an indeterminate effect. The mean effect reported is neither statistically significant nor substantively important.

Thus, for the credit accumulation and persistence domain, one study that met WWC group design standards without reservations showed neither a statistically significant nor substantively important effect. This results in a rating of no discernible effects, with a small extent of evidence.

Table 5. Rating of effectiveness and extent of evidence for the credit accumulation and persistence domain

Rating of effectiveness	Criteria met
No discernible effects <i>None of the studies show statistically significant or substantively important effects, either positive or negative.</i>	In the one study that reported findings, the estimated impact of the intervention on outcomes in the <i>credit accumulation and persistence</i> domain was neither statistically significant nor large enough to be substantively important.
Extent of evidence	Criteria met
Small	One study that included 911 students in one technical community college reported evidence of effectiveness in the <i>credit accumulation and persistence</i> domain.

References

Study that meets WWC group design standards without reservations

Rutschow, E. Z., Cullinan, D., & Welbeck, R. (2012). *Keeping students on course: An impact study of a student success course at Guilford Technical Community College*. New York: MDRC. <http://files.eric.ed.gov/fulltext/ED531183.pdf>.

Studies that meet WWC group design standards with reservations

None.

Studies that do not meet WWC group design standards

Barnes, J. (2012). The first-year experience impact on student success in developmental education. *Journal of Applied Research in the Community College*, 20(1), 27–35. The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.

Bement, S. A. (2010). *The effects of first-year experience course on students' grades in remedial English and mathematics courses* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3433121) The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.

Bender, D. S. (2001). Effects of study skills programs on the academic behavior of college students. *Journal of College Reading and Learning*, 31(2), 209–216. The study does not meet WWC group design standards because the measure of effectiveness cannot be attributed solely to the intervention.

Bradfute, R. W. (2011). *Community college counseling and mathematics study skills: Retention and success* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3472675) The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.

Fleischauer, J. P. (1993). *The impact of a developmental reading course: A quantitative and qualitative study* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 9318339) The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.

Frame, B. C. H. (2012). *Developmental mathematics in two-year community colleges and student success* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3540677) The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.

Grunder, P. G., & Hellmich, D. M. (1996). Academic persistence and achievement of remedial students in a community college's College Success Program. *Community College Review*, 24(2), 21–33. The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.

Harroun, D. G. (2005). *An assessment of the first-year experience seminar as a factor of student retention* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3187982) The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.

Houchen-Claggett, D. (2013). *Effectiveness of community college success courses on academic persistence* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3603883) The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.

- Kronenberger, J. L. (2012). *Student success: The effects of a community college first-year course* (Unpublished doctoral dissertation). University of Dayton, OH. The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.
- Lipsky, S. A. (2000). Assessing the effectiveness of a course for developmental probationary freshmen. *Research and Teaching in Developmental Education*, 17(1), 21–30. The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.
- Mercer, B. (1996). *Evaluation of a study skills class at Rochester Community College* (Unpublished practicum report). Nova Southeastern University, Fort Lauderdale, FL. <http://files.eric.ed.gov/fulltext/ED400015.pdf>. The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.
- Pandolpho, K. (2009). *An examination of the academic performance and retention rates of first-time, full-time community college students who participated in a first-year student success course* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3359597) The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.
- Reid, S. M. (2007). *Underprepared college students: Meeting the challenge in a postsecondary reform environment* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3293562) The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.
- Robles, S. Y. (2002). *The influence of a freshman orientation course on the academic performance and retention of new community college students* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3050048) The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.
- Schmidt, M. M. (2004). *An examination of variables associated with student completion at Clovis Community College* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3129906) The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.
- Vosberg, A. M. (2006). *Impact of student success course on retention and academic outcomes at a southwestern community college* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3241825) The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.
- Zeidenberg, M., Jenkins, D., & Calcagno, J. C. (2007). *Do student success courses actually help community college students succeed?* (Brief No. 36). New York: Community College Research Center. <http://files.eric.ed.gov/fulltext/ED499357.pdf>. The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups prior to the intervention was necessary and not demonstrated.

Studies that are ineligible for review using the Interventions for Developmental Students in Postsecondary Education Review Protocol

- Beckert, K. M. (2011). *Individual and combined impact of institutional student support strategies on first-time, full-time, degree-seeking community college students* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3482781) The study is ineligible for review because it does not use an eligible design.
- Borden, V. M. H., Burton, K. L., Evenbeck, S. E., & Williams, G. A. (1997). The impact of academic support programs on student performance and persistence. *Research Brief*, 4(4), 1–16. <http://files.eric.ed.gov/fulltext/ED418609.pdf>. The study is ineligible for review because it does not have an intervention in line with the protocol.

- Brown-Durham, G. (2006). *The effectiveness of the BICUM Study-Reading Instructional Strategy on reading comprehension and self-efficacy levels of first-year, first-semester students enrolled in a three-credit college developmental reading and study skills course* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3221500) The study is ineligible for review because it does not have an intervention in line with the protocol.
- Burley, H. (1994, May). *Persistence: A meta-analysis of college developmental studies programs*. Paper presented at the meeting of the Association for Institutional Research, New Orleans, LA. <http://files.eric.ed.gov/fulltext/ED373855.pdf>. The study is ineligible for review because it is not a primary analysis of the effect of an intervention.
- Candia, P. P. (1998). *An investigation of the effects of orientation and study skills courses on retention and grade point average of first time in college students in a community college in south Texas* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 9915214) The study is ineligible for review because it does not use a sample aligned with the protocol.
- Davis, B. O., Jr. (1992). Freshman seminar: A broad spectrum of effectiveness. *Journal of the Freshman Year Experience*, 4(1), 79–94. The study is ineligible for review because it was not published in the relevant time frame.
- Frakes, J. T. (2005). *Relationship among grade point average, self-reported quality of effort, estimate of gains and successful completion of orientation to college* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3167493) The study is ineligible for review because it does not use a sample aligned with the protocol.
- Gardner, A. F. (2013). *Predicting community college student success by participation in a first-year experience course* (Unpublished doctoral dissertation). Western Carolina University, Cullowhee, NC. The study is ineligible for review because it does not use an eligible design.
- Garza, E., & Bowden, R. (2014). The impact of a first year development course on student success in a community college: An empirical investigation. *American Journal of Educational Research*, 2(6), 402–419. doi:10.12691/education-2-6-13 The study is ineligible for review because it does not use an eligible design.
- Additional source:**
- Garza, E. B. (2013). *The impact of a first year development course on student success in a community college: An empirical investigation* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3588835)
- Green, J. T. (1996). *Effectiveness of Floyd College Studies 101 on subsequent student success* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 9716518) The study is ineligible for review because it does not use a sample aligned with the protocol.
- Harkins, D. R. (1995). *The effectiveness of a required first-term college success course in enhancing academic achievement and persistence at a two-year career college* (Unpublished doctoral dissertation). Georgia State University, Atlanta. The study is ineligible for review because it does not use a sample aligned with the protocol.
- Hendel, D. D. (2006-2007). Efficacy of participating in a first-year seminar on student satisfaction and retention. *Journal of College Student Retention: Research, Theory and Practice*, 8(4), 413–423. The study is ineligible for review because it does not use a sample aligned with the protocol.
- Additional source:**
- Hendel, D.D. (2001, April). *The relative contribution of participating in a first-year seminar on student satisfaction and retention into the sophomore year*. Paper presented at the meeting of the American Educational Research Association, Seattle, WA.
- Henriques, D. I. (2011). *Testing the efficacy of learning communities for underprepared first-semester college students* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3443426) The study is ineligible for review because it does not use an eligible design.
- Kimmel, K. D. (2000). *The effect of specialized orientation programs on high-risk students in a south central Texas community college vocational nursing program* (Doctoral dissertation). Available from ProQuest Dissertations

- and Theses database. (UMI No. 9980168) The study is ineligible for review because it does not use a sample aligned with the protocol.
- Lancaster, S. J. (2011). *An investigation of self-efficacy for learning in an under-prepared college student population* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3455110) The study is ineligible for review because it does not include an outcome within the domain specified in the protocol.
- Lipsky, S. A., & Ender, S. C. (1990). Impact of a study skills course on probationary students' academic performance. *Journal of the Freshman Year Experience*, 2(1), 7–15. The study is ineligible for review because it was not published in the relevant time frame.
- Martinez, M. R. (2007). *An evaluation study of a college success course as a counseling intervention at a south Texas institution of higher education* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3332691) The study is ineligible for review because it does not include an outcome within the domain specified in the protocol.
- Nguyen, Q. T. H. (2013). *Modeling completion at a community college* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 1523327) The study is ineligible for review because it does not use a sample aligned with the protocol.
- Pietropaolo, P. A. (1994). *The effects of an academic intervention on persistence of science/technology majors at a community college* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 9522551) The study is ineligible for review because it does not use a sample aligned with the protocol.
- Ramone, P. A. (1998). *The effects of a freshman orientation course on retention and the perceived barriers of reentry women at a community college: A case study* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 9914798) The study is ineligible for review because it does not use an eligible design.
- Scrivener, S., Sommo, C., & Collado, H. (2009). *Getting back on track: Effects of a community college program for probationary students*. New York: MDRC. <http://files.eric.ed.gov/fulltext/ED507795.pdf>. The study is ineligible for review because it does not use a sample aligned with the protocol.
- Spencer, K. M. (2012). *A study of the impact of a first-year experience initiative on first-year developmental education student success and persistence* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3542047) The study is ineligible for review because it does not use an eligible design.
- Stewart, B. W. (1997). *The effects of a freshman seminar course on student retention, academic success, and academic performance* (Unpublished doctoral dissertation). Mississippi State University, Starkville. The study is ineligible for review because it does not use a sample aligned with the protocol.
- Tharp, T. J. (2009). *Learning communities for university students at-risk of school failure: Can they make a difference?* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3389640) The study is ineligible for review because it does not have an intervention in line with the protocol.
- Thayer, M. A. (1998). *"Passport" to improved retention* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 9936617) The study is ineligible for review because it does not use an eligible design.
- Walls, G. D. (1996). *An evaluation of an orientation to college course in a community college setting* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 9702710) The study is ineligible for review because it does not use a sample aligned with the protocol.
- Weiss, M. J., Visher, M. G., & Wathington, H. (2010). *Learning communities for students in developmental reading: An impact study at Hillsborough Community College*. Executive summary. New York: National Center for Post-secondary Research. <http://files.eric.ed.gov/fulltext/ED533917.pdf>. The study is ineligible for review because it is not a primary analysis of the effect of an intervention.
- Wernersbach, B. (2011). *The impact of study skills courses on academic self-efficacy in college freshmen* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 1491914) The study is ineligible for review because it does not use a sample aligned with the protocol.

- Wilkie, C., & Kuckuck, S. (1989). A longitudinal study of the effects of a freshman seminar. *Journal of the Freshman Year Experience*, 1(1), 7–16. The study is ineligible for review because it was not published in the relevant time frame.
- Windham, M. H., Rehfuss, M. C., Williams, C. R., Pugh, J. V., & Tincher-Ladner, L. (2014). Retention of first-year community college students. *Community College Journal of Research and Practice*, 38(5), 466–477. The study is ineligible for review because it does not use a sample aligned with the protocol.

Additional source:

Windham, M.H. (2012). *Retention of first year community college students* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3506841)

Appendix A: Research details for Rutschow et al. (2012)

Rutschow, E. Z., Cullinan, D., & Welbeck, R. (2012). *Keeping students on course: An impact study of a student success course at Guilford Technical Community College*. New York: MDRC.

Table A. Summary of findings

Meets WWC group design standards without reservations

Outcome domain	Sample size	Study findings	
		Average improvement index (percentile points)	Statistically significant
Academic achievement	911 students	+1	No
Progress through developmental education	911 students	-1	No
Credit accumulation and persistence	911 students	-3	No

Setting The study took place at Guilford Technical Community College located in Guilford County, North Carolina. The college is the only community college in the county. In 2008, the total enrollment at the college was 11,226. The college is divided across three cities. The first year experience course was offered at three of Guilford’s campuses. The first year experience course was administered across three semesters to three semester-based cohorts. Multiple sections of the course were offered, with 24 instructors teaching the course in the first semester. Over the 3 years of the intervention, 33 success course sections were offered. Course sections were typically taught by two instructors.

Study sample All 911 students were required to take at least one developmental course. Female students represented 69% of the intervention group and 68% of the comparison group. The mean age of the sample was 25 for both groups. The ethnic breakdown for both groups was Black (58% intervention, 59% comparison); White (28% intervention, 29% comparison); Hispanic (6% intervention, 6% comparison); and Other (8% intervention, 7% comparison). Of the sample, 24% of the intervention group and 28% of the comparison group were the first members of their families to attend college.

Intervention group The first year experience course was a redesigned version of an existing study skills course and was modeled on Skip Downing’s On Course: Strategies for Creating Success in College and Life curriculum. The two-credit course was designed to assist students in overcoming both academic and personal challenges that might interfere with college success. The curriculum had eight core principles: 1) Accepting personal responsibility, 2) Self-motivation, 3) Self-management, 4) Interdependence, 5) Self-awareness, 6) Lifelong learning, 7) Emotional intelligence, and 8) Belief in self. The course was typically taught by two instructors. Classes were generally collaborative in nature, with group discussions being more common than lectures. Students were often asked to critically reflect on their personal experiences and write journal entries. In addition to socioemotional skill development, the students received study skills instruction, such as note taking, time management, and test preparation. Additional class requirements included traditional classroom assignments such as a term paper, a class presentation, and tests.

Comparison group

This study utilized a “services as usual” comparison condition. Students in the comparison group (as well as the intervention group) were eligible to participate in the college’s other student support services, which included advising, tutoring, career counseling, and assistance in transferring to a 4-year college.

Outcomes and measurement

The authors reported several eligible outcomes, all of which were obtained from official transcripts. The eligible primary outcomes were: 1) percent of students who registered for any courses (credit accumulation and persistence domain); 2) number of regular credits earned (credit accumulation and persistence domain); 3) percent of students who passed developmental math (progress through developmental education domain); 4) percent of students who passed developmental English (progress through developmental education domain); 5) percent of students who passed developmental reading (progress through developmental education domain); 6) percent of students who passed all courses (academic achievement domain); and 7) percent of students who received a grade point average (GPA) of “C” or better in nondevelopmental courses (academic achievement domain). All eligible outcomes were measured at each of three time points (program semester, first postprogram semester, and cumulative from program to third postprogram semester) except for “percent of students who passed all courses”, which was only measured at the first time point. This review was created using data from the last follow-up period available, as described in the review protocol.

Support for implementation

Staff who taught the success course during the first semester had all previously been trained on the On Course curriculum. In addition to the 3-day seminar, some staff also attended a week-long seminar which included material on how to train others on the curriculum. In addition to teaching, these individuals recruited and trained additional instructors who taught sections of the course in the final two semesters. Some faculty members received additional professional development by attending conferences or workshops. During the first semester of the intervention, all instructors met every month to discuss the course and best practices for teaching. After the first semester, however, only one meeting was held at the beginning of the semester, and instructors were asked to schedule one-on-one meetings in lieu of monthly group meetings.

Appendix B: Outcome measures for each domain

Academic achievement	
<i>Percentage of students who passed all courses</i>	Academic achievement was assessed as the percentage of students who passed all of their courses during the program semester.
<i>Percentage of students who earned a GPA of “C” or better in nondevelopmental courses</i>	Academic achievement was measured as the percentage of students who received a GPA of “C” or better in nondevelopmental courses following the third postprogram semester. This outcome is referred to as “Term GPA” in the study text and is coded by the authors as a categorical variable: 3.0 to 4.0, 2.0 to 2.9, 1.0 to 1.9, 0 to 0.9, and No GPA. The WWC recoded this into a binary variable that compares students with a “C” or better GPA to those with less than a “C” average. Students with no GPA were not included in this computation.
Progress through developmental education	
<i>Passed developmental math course</i>	Progress through developmental education was measured as the percentage of students who had passed their developmental math course after the third postprogram semester.
<i>Passed developmental reading course</i>	Progress through developmental education was measured as the percentage of students who had passed their developmental reading course after the third postprogram semester.
<i>Passed developmental English course</i>	Progress through developmental education was measured as the percentage of students who had passed their developmental English course after the third postprogram semester.
Credit accumulation and persistence	
<i>Percentage of students registered for any course</i>	Credit accumulation and persistence was measured as the percentage of students who were registered for any course after the third postprogram semester.
<i>Number of credits earned (regular, college-level courses)</i>	Credit accumulation and persistence was assessed as the average number of regular, college-level credits earned after the third postprogram semester.

Appendix C.1: Findings included in the rating for the academic achievement domain

Outcome measure	Study sample	Sample size	Mean (standard deviation)		WWC calculations			p-value
			Intervention group	Comparison group	Mean difference	Effect size	Improvement index	
Rutschow et al., 2012^a								
<i>Percentage of students who passed all courses during the program semester</i>	College students	911	32%	36%	-4%	-0.11	-4	> .10
<i>Percentage of students who earned a GPA of "C" or better in nondevelopmental courses</i>	College students	667	56%	57%	-1%	-0.03	-1	.67
Domain average for academic achievement (Rutschow et al., 2012)						-0.07	-3	Not statistically significant
Domain average for academic achievement across all studies						-0.07	-3	na

Table Notes: For mean difference, effect size, and improvement index values reported in the table, a positive number favors the intervention group and a negative number favors the comparison group. The effect size is a standardized measure of the effect of an intervention on outcomes, representing the average change expected for all individuals who are given the intervention (measured in standard deviations of the outcome measure). The improvement index is an alternate presentation of the effect size, reflecting the change in an average individual's percentile rank that can be expected if the individual is given the intervention. Some statistics may not sum as expected due to rounding. na = not applicable.

^a For Rutschow et al. (2012), a correction for multiple comparisons was needed but did not affect whether any of the contrasts were found to be statistically significant. To compute the effect size for GPAs reported in the table, the WWC used the data provided in Table 4.4 of the study report. Students with no GPA were not included in the computation. The outcome was then dichotomized into students who earned a "C" or better GPA and those who earned less than a "C" average; the effect size was computed using the standard procedures for binary outcomes described in the WWC Procedures and Standards Handbook. The p-value presented for the percentage of students passing all courses during the program semester was reported in the original study; the p-value for the "C" or better outcome was computed by the WWC. This study is characterized as having indeterminate effects because the reported effect size for all measures within the domain is neither statistically significant nor substantively important, accounting for multiple comparisons. For more information, please refer to the WWC Procedures and Standards Handbook (version 3.0), p. 26.

Appendix C.2: Findings included in the rating for the progress through developmental education domain

Outcome measure	Study sample	Sample size	Mean (standard deviation)		WWC calculations			p-value
			Intervention group	Comparison group	Mean difference	Effect size	Improvement index	
Rutschow et al., 2012^a								
<i>Passed developmental math course</i>	College students	911	49%	48%	+1%	0.02	+1	> .10
<i>Passed developmental reading course</i>	College students	911	29%	31%	-1%	-0.04	-1	> .10
<i>Passed developmental English course</i>	College students	911	31%	33%	-2%	-0.04	-2	> .10
Domain average for progress through developmental education (Rutschow et al., 2012)						-0.02	-1	Not statistically significant
Domain average for progress through developmental education across all studies						-0.02	-1	na

Table Notes: For mean difference, effect size, and improvement index values reported in the table, a positive number favors the intervention group and a negative number favors the comparison group. The effect size is a standardized measure of the effect of an intervention on outcomes, representing the average change expected for all individuals who are given the intervention (measured in standard deviations of the outcome measure). The improvement index is an alternate presentation of the effect size, reflecting the change in an average individual's percentile rank that can be expected if the individual is given the intervention. The WWC-computed average effect size is a simple average rounded to two decimal places; the average improvement index is calculated from the average effect size. The statistical significance of the study's domain average was determined by the WWC. Some statistics may not sum as expected due to rounding. na = not applicable.

^aFor Rutschow et al. (2012), a correction for multiple comparisons was needed but did not affect whether any of the contrasts were found to be statistically significant. The p-values presented here were reported in the original study. This study is characterized as having indeterminate effects because the reported effect size for all measures within the domain is neither statistically significant nor substantively important, accounting for multiple comparisons. For more information, please refer to the WWC Procedures and Standards Handbook (version 3.0), p. 26.

Appendix C.3: Findings included in the rating for the credit accumulation and persistence domain

Outcome measure	Study sample	Sample size	Mean (standard deviation)		WWC calculations			p-value
			Intervention group	Comparison group	Mean difference	Effect size	Improvement index	
Rutschow et al., 2012^a								
<i>Percentage of students registered for any course</i>	College students	911	91%	90%	+1%	0.02	+1	> .10
<i>Number of credits earned (regular, college-level courses)</i>	College students	911	12.8 (na)	12.7 (na)	+0.1%	0.01	0	> .10
Domain average for credit accumulation and persistence (Rutschow et al., 2012)						0.01	+1	Not statistically significant
Domain average for credit accumulation and persistence across all studies						0.01	+1	na

Table Notes: For mean difference, effect size, and improvement index values reported in the table, a positive number favors the intervention group and a negative number favors the comparison group. The effect size is a standardized measure of the effect of an intervention on outcomes, representing the average change expected for all individuals who are given the intervention (measured in standard deviations of the outcome measure). The improvement index is an alternate presentation of the effect size, reflecting the change in an average individual’s percentile rank that can be expected if the individual is given the intervention. The WWC-computed average effect size is a simple average rounded to two decimal places; the average improvement index is calculated from the average effect size. The statistical significance of the domain average was determined by the WWC. Some statistics may not sum as expected due to rounding. na = not applicable.

^a For Rutschow et al. (2012), a correction for multiple comparisons was needed but did not affect whether any of the contrasts were found to be statistically significant. The p-values presented here were reported in the original study. This study is characterized as having indeterminate effects because the reported effect size for all measures within the domain is neither statistically significant nor substantively important, accounting for multiple comparisons. For more information, please refer to the WWC Procedures and Standards Handbook (version 3.0), p. 26.

Endnotes

¹ The descriptive information for this program was obtained from Rutschow, Cullinan, and Welbeck (2012). The WWC requests developers review the program description sections for accuracy from their perspective. Further verification of the accuracy of the descriptive information for this program is beyond the scope of this review.

² U.S. Department of Education, National Center for Education Statistics, 2011–12 National Postsecondary Student Aid Study (NPSAS:12).

³ Barefoot, B. O., & Fidler, P. P. (1992). *The 1991 national survey of freshman seminar programming: Helping first-year college students climb the academic ladder* (Monograph No. 10). Columbia: University of South Carolina, National Resource Center for the Freshman Year Experience.

⁴ Students with developmental needs are those students who are underprepared academically to be placed in college-level courses. These students are identified by placement tests in reading, writing, and mathematics that are generally administered by postsecondary institutions when students enroll. Hunter, M. A., & Linder, C. W. (2005). First-year seminars. In M. L. Upcraft, J. N. Gardner, B. O. Barefoot, & Associates (Eds.), *Challenging and supporting the first-year student: A handbook for improving the first year of college* (pp. 275-291). San Francisco: Jossey-Bass; Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students. Vol. 2: A third decade of research*. San Francisco: Jossey-Bass.

⁵ Barefoot, B. O., & Fidler, P. P. (1992). *The 1991 national survey of freshman seminar programming: Helping first-year college students climb the academic ladder* (Monograph No. 10). Columbia, SC: University of South Carolina, National Resource Center for the Freshman Year Experience.

⁶ The literature search reflects documents publicly available by September 2015. The studies in this report were reviewed using the Standards from the WWC Procedures and Standards Handbook (version 3.0), along with those described in the Interventions for Developmental Students in Postsecondary Education review protocol (version 3.0). The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.

⁷ For criteria used in the determination of the rating of effectiveness and extent of evidence, see the WWC Rating Criteria on p. 19. These improvement index numbers show the average and range of individual-level improvement indices for all findings across the studies.

⁸ Rutschow, E. Z., Cullinan, D., & Welbeck, R. (2012). *Keeping students on course: An impact study of a student success course at Guildford Technical Community College*. New York: MDRC.

⁹ Barefoot, B. O., & Fidler, P. P. (1992). *The 1991 national survey of freshman seminar programming: Helping first-year college students climb the academic ladder* (Monograph No. 10). Columbia, SC: University of South Carolina, National Resource Center for the Freshman Year Experience.

¹⁰ Young, D. G., & Hopp, J. M. (2014). *2012-2013 National survey of first-year seminars: Exploring high-impact practices in the first college year* (Research report No. 4). Columbia: University of South Carolina, National Resource Center for the First-Year Experience and Students in Transition.

Recommended Citation

U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse. (2016, February). *Studies of Interventions for Students in Developmental Education intervention report: First year experience courses for students in developmental education*. Retrieved from <http://whatworks.ed.gov>

WWC Rating Criteria

Criteria used to determine the rating of a study

Study rating	Criteria
Meets WWC group design standards without reservations	A study that provides strong evidence for an intervention's effectiveness, such as a well-implemented RCT.
Meets WWC group design standards with reservations	A study that provides weaker evidence for an intervention's effectiveness, such as a QED or an RCT with high attrition that has established equivalence of the analytic samples.

Criteria used to determine the rating of effectiveness for an intervention

Rating of effectiveness	Criteria
Positive effects	Two or more studies show statistically significant positive effects, at least one of which met WWC group design standards for a strong design, AND No studies show statistically significant or substantively important negative effects.
Potentially positive effects	At least one study shows a statistically significant or substantively important positive effect, AND No studies show a statistically significant or substantively important negative effect AND fewer or the same number of studies show indeterminate effects than show statistically significant or substantively important positive effects.
Mixed effects	At least one study shows a statistically significant or substantively important positive effect AND at least one study shows a statistically significant or substantively important negative effect, but no more such studies than the number showing a statistically significant or substantively important positive effect, OR At least one study shows a statistically significant or substantively important effect AND more studies show an indeterminate effect than show a statistically significant or substantively important effect.
Potentially negative effects	One study shows a statistically significant or substantively important negative effect and no studies show a statistically significant or substantively important positive effect, OR Two or more studies show statistically significant or substantively important negative effects, at least one study shows a statistically significant or substantively important positive effect, and more studies show statistically significant or substantively important negative effects than show statistically significant or substantively important positive effects.
Negative effects	Two or more studies show statistically significant negative effects, at least one of which met WWC group design standards for a strong design, AND No studies show statistically significant or substantively important positive effects.
No discernible effects	None of the studies shows a statistically significant or substantively important effect, either positive or negative.

Criteria used to determine the extent of evidence for an intervention

Extent of evidence	Criteria
Medium to large	The domain includes more than one study, AND The domain includes more than one school, AND The domain findings are based on a total sample size of at least 350 students, OR, assuming 25 students in a class, a total of at least 14 classrooms across studies.
Small	The domain includes only one study, OR The domain includes only one school, OR The domain findings are based on a total sample size of fewer than 350 students, AND, assuming 25 students in a class, a total of fewer than 14 classrooms across studies.

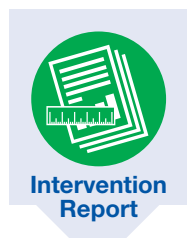
Glossary of Terms

Attrition	Attrition occurs when an outcome variable is not available for all participants initially assigned to the intervention and comparison groups. The WWC considers the total attrition rate and the difference in attrition rates across groups within a study.
Clustering adjustment	If intervention assignment is made at a cluster level and the analysis is conducted at the student level, the WWC will adjust the statistical significance to account for this mismatch, if necessary.
Confounding factor	A confounding factor is a component of a study that is completely aligned with one of the study conditions, making it impossible to separate how much of the observed effect was due to the intervention and how much was due to the factor.
Design	The design of a study is the method by which intervention and comparison groups were assigned.
Domain	A domain is a group of closely related outcomes.
Effect size	The effect size is a measure of the magnitude of an effect. The WWC uses a standardized measure to facilitate comparisons across studies and outcomes.
Eligibility	A study is eligible for review and inclusion in this report if it falls within the scope of the review protocol and uses either an experimental or matched comparison group design.
Equivalence	A demonstration that the analysis sample groups are similar on observed characteristics defined in the review area protocol.
Extent of evidence	An indication of how much evidence supports the findings. The criteria for the extent of evidence levels are given in the WWC Rating Criteria on p.19.
Improvement index	Along a percentile distribution of individuals, the improvement index represents the gain or loss of the average individual due to the intervention. As the average individual starts at the 50th percentile, the measure ranges from -50 to +50.
Intervention	An educational program, product, practice, or policy aimed at improving student outcomes.
Intervention report	A summary of the findings of the highest-quality research on a given program, product, practice, or policy in education. The WWC searches for all research studies on an intervention, reviews each against design standards, and summarizes the findings of those that meet WWC design standards.
Multiple comparison adjustment	When a study includes multiple outcomes or comparison groups, the WWC will adjust the statistical significance to account for the multiple comparisons, if necessary.
Quasi-experimental design (QED)	A quasi-experimental design (QED) is a research design in which study participants are assigned to intervention and comparison groups through a process that is not random.
Randomized controlled trial (RCT)	A randomized controlled trial (RCT) is an experiment in which eligible study participants are randomly assigned to intervention and comparison groups.
Rating of effectiveness	The WWC rates the effects of an intervention in each domain based on the quality of the research design and the magnitude, statistical significance, and consistency in findings. The criteria for the ratings of effectiveness are given in the WWC Rating Criteria on p. 19.
Single-case design	A research approach in which an outcome variable is measured repeatedly within and across different conditions that are defined by the presence or absence of an intervention.

Glossary of Terms

- Standard deviation** The standard deviation of a measure shows how much variation exists across observations in the sample. A low standard deviation indicates that the observations in the sample tend to be very close to the mean; a high standard deviation indicates that the observations in the sample tend to be spread out over a large range of values.
- Statistical significance** Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups. The WWC labels a finding statistically significant if the likelihood that the difference is due to chance is less than 5% ($p < .05$).
- Substantively important** A substantively important finding is one that has an effect size of 0.25 or greater, regardless of statistical significance.
- Systematic review** A review of existing literature on a topic that is identified and reviewed using explicit methods. A WWC systematic review has five steps: 1) developing a review protocol; 2) searching the literature; 3) reviewing studies, including screening studies for eligibility, reviewing the methodological quality of each study, and reporting on high quality studies and their findings; 4) combining findings within and across studies; and, 5) summarizing the review.

Please see the WWC Procedures and Standards Handbook (version 3.0) for additional details.



An **intervention report** summarizes the findings of high-quality research on a given program, practice, or policy in education. The WWC searches for all research studies on an intervention, reviews each against evidence standards, and summarizes the findings of those that meet standards.

This intervention report was prepared for the WWC by Development Services Group under contract ED-IES-12-C-0084.