What Works Clearinghouse

INSTITUTE OF EDUCATION SCIENCES

Dropout Prevention March 2009[1]

Middle College High School

Program Description[2]

Middle College High Schools are alternative high schools located on college campuses that aim to help at-risk students complete high school and encourage them to attend college. The four-year program offers a project-centered, interdisciplinary curriculum with an emphasis on team teaching, individualized attention, and the development of critical thinking skills. Students are also offered support services, including specialized counseling, peer support, and career experience opportunities. In recent years, some *Middle College High Schools* have converted to the *Early College High School* model, which offers students a five-year, accelerated course of study during which they can earn an associate degree or two years of college credits, in addition to a high school diploma. This review focuses only on the four-year *Middle College High School* model.

Research

One study of *Middle College High School* meets What Works Clearinghouse (WWC) evidence standards. This randomized controlled trial included 394 students in the Seattle Public Schools who were assigned to either an intervention group that was offered admission to the alternative high school or a control group that was not offered admission. Control group students were free to participate in other regular and alternative high schools operated by the school district, as well as General Educational Development (GED) programs. Most control group students participated in one of these other education options.[3]

Based on this study, the WWC considers the extent of evidence for *Middle College High School* to be small for both the staying in school and the completing school domains. No studies that meet WWC evidence standards with or without reservations examined the effectiveness of *Middle College High School* in the progressing in school domain.

Effectiveness

Middle College High School was found to have no discernible effects on staying in school or completing school.

	Staying in school	Progressing in school	Completing school
Rating of effectiveness	No discernible effects	na	No discernible effects
Improvement index[4]	Average: –3 percentile points	na	Average: +2 percentile points

na = not applicable

1. This report has been updated to include reviews of nine studies that were not included in the earlier review of *Middle College High School*. Of the additional studies, eight were not within the scope of the protocol, and one was within the scope of the protocol but did not meet evidence standards. A complete list and disposition of all studies reviewed is provided in the references.
2. The descriptive information for this program was obtained from a publicly-available source: the program's website (http://www.mcnc.us, downloaded December 2008). The WWC requests developers to 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.
3. The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.
4. These numbers show the average of student-level improvement indices for all findings across the study.

Absence of conflict of interest

The *Middle College High School* study summarized in this intervention report was prepared by staff of Mathematica Policy Research, Inc. (MPR). Because the principal investigator for the WWC dropout prevention review is an MPR staff member as well as a study author, the study was rated by staff members from ICF International.

Additional program information

Developer and contact

Information on the history of the *Middle College High School* model and current resources for program implementation are available from the Middle College National Consortium (MCNC). Address: Ted Killmer, Director of Communications, Middle College National Consortium, 47-09 30th Street, Suite 600, Long Island City, NY 11101. Email: tkillmer@mcnc.us. Web: http://www.mcnc.us. Telephone: (718) 361-1981.

Scope of use

The MCNC reports that, as of September 2008, the *Middle College High School* program was operating in 29 school districts in 12 states.

Description of intervention

Middle College High Schools are alternative high schools that operate as formal collaborations between local school districts and colleges. The schools, which offer regular high school diplomas, are small—with fewer than 100 students per grade—and are located on college campuses. Faculty and students have access to the college's educational resources and facilities, and students can take college-level courses. Since 2002, some *Middle College High Schools* have converted to the *Early College High School* model, which offers students a five-year, accelerated course of study during which they can earn an associate degree or two years of college credits at no cost, in addition to a high school diploma. This review focuses only on the four-year *Middle College High School* model.

The *Middle College High School* curriculum emphasizes development of critical thinking skills and connecting what is learned to real-world experiences. These schools typically offer career-oriented courses and internships. In addition, students often must complete a community service requirement to graduate. Classes are taught by high school teachers from the local school district. Faculty teach collaboratively and integrate material across disciplines. Within team-taught classes, students often participate in collaborative learning groups. Student-to-staff ratios are substantially lower than in traditional high school programs, allowing for more individualized attention. *Middle College High Schools* often use alternative assessment strategies, such as portfolios and oral presentations. They emphasize democratic school governance and use school committees—including administrators, faculty, parents, students, and college and community representatives—to provide input and guidance on school operations.

Cost[5]

Researchers estimated the cost of *Middle College High School* in Seattle to be $1,093 a student per month of program participation—about 50% higher than the cost of educating a student in a regular school within the district (estimated to be $734 a month).

Research

Fifteen studies reviewed by the WWC investigated the effects of *Middle College High School*. One study (Dynarski et al., 1998) is a randomized controlled trial that meets WWC evidence standards. The remaining 14 studies do not meet either WWC evidence standards or eligibility screens.

The Dynarski et al. (1998) study of *Middle College High School* was part of a larger evaluation examining the effectiveness of 16 middle school and high school dropout prevention programs. The *Middle College High School* study used a random assignment design and included 394 students who applied to attend the alternative high school, which was operated by Seattle Public Schools in cooperation with Seattle Central Community College. Study participants were generally older students—their average age was just under 18—who were over-age for grade or had

5. See Rosenberg, L., & Hershey, A. (1995). *The cost of dropout prevention programs*. Princeton, NJ: Mathematica Policy Research, Inc. Costs have been converted to 2008 dollars using the Consumer Price Index.

Research *(continued)*

dropped out of school. Students assigned to the control group did not receive *Middle College High School* services; however, they were free to participate in other regular and alternative education programs in the community. Most of them participated in one of these other education options. Findings presented in this report were drawn from a follow-up survey administered about two years after random assignment.[6]

Extent of evidence

The WWC categorizes the extent of evidence in each domain as small or medium to large (see the What Works Clearinghouse Extent of Evidence Categorization Scheme). The extent of evidence takes into account the number of studies and the total sample size across the studies that meet WWC evidence standards with or without reservations.[7]

The WWC considers the extent of evidence for *Middle College High School* to be small for both staying in school and completing school. No studies that meet WWC evidence standards with or without reservations examined the effectiveness of *Middle College High School* in the progressing in school domain.

Effectiveness

Findings

The WWC review of interventions for dropout prevention addresses student outcomes in three domains: staying in school, progressing in school, and completing school. The Dynarski et al. (1998) study included in this report covers two domains: staying in school and completing school. The findings below present the authors' estimates and WWC-calculated estimates of the size and the statistical significance of the effects of *Middle College High School* on students.[8]

Staying in School. Dynarski et al. (1998) reported that by the end of the second year after random assignment, 36% of students in the *Middle College High School* group had dropped out of school, compared with 33% of control group students—a difference that was not statistically significant. In addition, this difference was not large enough to be considered substantively important based on WWC standards (that is, an effect size of at least 0.25).

Completing School. Dynarski et al. (1998) found that 40% of students in the *Middle College High School* group had earned a high school diploma or GED certificate two years after random assignment, compared with 38% of control group students—a difference that was not statistically significant or substantively important.[9]

Rating of effectiveness

The WWC rates the effects of an intervention in a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative. The rating of effectiveness takes into account four factors: the quality of the research design, the statistical significance of the findings, the size of the difference between participants in the intervention and the comparison conditions, and the consistency in findings across studies (see the WWC Intervention Rating Scheme).

6. An additional follow-up survey was conducted at the end of year three with an early cohort of study participants. Because of relatively low response rates to this survey, as well as evidence of substantial intervention-control differences in baseline characteristics among respondents, these third-year results were not used in the WWC rating of the effectiveness of *Middle College High School*. These results are summarized in Appendices A4.2 and A4.3.
7. The extent of evidence categorization was developed to tell readers how much evidence was used to determine the intervention rating, focusing on the number and size of studies. Additional factors associated with a related concept—external validity, such as the students' demographics and the types of settings in which studies took place—are not taken into account for the categorization. Information about how the extent of evidence rating was determined for *Middle College High School* is in Appendix A6.
8. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation, see the WWC Tutorial on Mismatch. For the formulas the WWC used to calculate the statistical significance, see Technical Details of WWC-Conducted Computations. For the *Middle College High School* study summarized here, no corrections for clustering or multiple comparisons were needed.
9. In addition, analysis of third-year survey data, available for an early cohort, indicates no statistically significant effect of the intervention on completing school after three years. However, these longer-term results suggest that *Middle College High School* may have shifted these completions toward receipt of regular high school diplomas and away from receipt of GED certificates. Appendix A4.3 presents these longer-term results.

The WWC found *Middle College High School* to have no discernible effects on either staying in school or completing school.

Improvement index

The WWC computes an improvement index for each individual finding. In addition, within each outcome domain, the WWC computes an average improvement index for each study and an average improvement index across studies (see Technical Details of WWC-Conducted Computations). The improvement index represents the difference between the percentile rank of the average student in the intervention condition versus the percentile rank of the average student in the comparison condition. Unlike the rating of effectiveness, the improvement index is based entirely on the size of the effect, regardless of the statistical significance of the effect, the study design, or the analyses. The improvement index can take on values between –50 and +50, with positive numbers denoting results favorable to the intervention group.

The average improvement index was –3 percentile points for staying in school and +2 percentile points for completing school in the one study that passed WWC evidence screens.

Summary

The WWC reviewed 15 studies on *Middle College High School*. One of these studies meets WWC evidence standards; the remaining 14 studies do not meet either WWC evidence standards or eligibility screens. Based on this one study, the WWC found the intervention to have no discernible effects on staying in school or completing school. The conclusions presented in this report may change as new research emerges.

References

Meets WWC evidence standards

Dynarski, M., Gleason, P., Rangarajan, A., & Wood, R. (1998). *Impacts of dropout prevention programs: Final report. A research report from the School Dropout Demonstration Assistance Program evaluation*. Princeton, NJ: Mathematica Policy Research, Inc.

Additional sources:

Dynarski, M., & Gleason, P. (1998). *How can we help? What we have learned from evaluations of federal dropout-prevention programs*. Princeton, NJ: Mathematica Policy Research, Inc.

Hershey, A., Adelman, N., & Murray, S. (1995). *Helping kids succeed: Implementation of the School Dropout Demonstration Assistance Program*. Princeton, NJ: Mathematica Policy Research, Inc.

Rosenberg, L., & Hershey, A. (1995). *The cost of dropout prevention programs*. Princeton, NJ: Mathematica Policy Research, Inc.

Studies that fall outside the Dropout Prevention protocol or do not meet WWC evidence standards

Bruce, L. M. (2007). *Perceptions, motivations, and achievement of African American students enrolled in a* Middle College High School. Unpublished doctoral dissertation, University of North Carolina at Chapel Hill, Chapel Hill, NC. The study is ineligible for review because it does not use a comparison group.

Byers, S. M. (1991). *What strategies/factors contribute to the educational success of former dropout high school students*: Middle College High School, *Seattle school district*. Seattle, WA: Puget Sound Educational Consortium. The study is ineligible for review because it does not use a comparison group.

California Community Colleges, Sacramento. Office of the Chancellor. (1993). *The California* Middle College High School *program*. Sacramento, CA: EDRS. The study is ineligible for review because it does not use a comparison group.

Carter, H. M. (2004). A case study of *Middle College High School*, 1972–2003: An effort to improve the persistence of at-risk students in high school and to facilitate their access to college. (Doctoral dissertation, New York University, New York, NY). *Dissertation Abstracts International, 65*(03A), 188–846. The study is ineligible for review because it does not use a comparison group.

References *(continued)*

Cavalluzzo, L., Jordan, W., & Corallo, C. (2002). *Case studies of high schools on college campuses: An alternative to the traditional high school program.* Charleston, WV: AEL. The study is ineligible for review because it does not use a comparison group.

Cullen, C. L. (1991). *Middle College High School:* Its organization and effectiveness. *Dissertation Abstracts International, 52*(02A), 172–358. The study does not meet WWC evidence standards because the intervention and comparison groups are not shown to be equivalent at baseline.

Heard, F. B. (1988). *An assessment of the Tennessee statewide school–college collaborative for educational excellence: The* Middle College High School. Unpublished doctoral dissertation, Nova University, Ft. Lauderdale, FL. (ERIC Document Reproduction Service No. ED294637). The study does not meet WWC evidence standards because the intervention and comparison groups are not shown to be equivalent at baseline.

Jordan, W., Cavalluzzo, L., & Corallo, C. (2006). Community college and high school reform: Lessons from five case studies. *Community College Journal of Research & Practice*, *30*(9), 729–749. The study is ineligible for review because it does not use a comparison group.

Kong, D. T. (2002). *Improving academic success in tenth grade students at* Middle College High School *at Santa Ana College*. Unpublished master's thesis, California State University, Long Beach, Long Beach, CA. The study is ineligible for review because it does not use a comparison group.

Lieberman, J. E. (1986). Middle College: *A ten year study.* New York, NY: City University of New York, La Guardia Community College. The study does not meet WWC evidence standards because the intervention and comparison groups are not shown to be equivalent at baseline.

Lieberman, J. E. (1992). *A final report to the Ford Foundation on* Middle College *replication*. New York, NY: Ford Foundation. The study is ineligible for review because it does not include an outcome within a domain specified in the protocol.

Meuschke, D. M., Dixon, P. S., & Gribbons, B. C. (2002). *Academy of the Canyons report, Fall 2000–Spring 2002.* Santa Clarita, CA: Office of Institutional Development. The study is ineligible for review because it does not include an outcome within a domain specified in the protocol.

Michael, C. M. (2003). *The relationship of the transformational leadership of the administrators in America's* Middle College High Schools *and their feeder institutions to selected indicators of effectiveness.* Unpublished doctoral dissertation, Marshall University, Huntington, WV. The study does not meet WWC evidence standards because the intervention and comparison groups are not shown to be equivalent at baseline.

Smoot, J. M. (2005). Middle College High School *programs in California as perceived by students and as compared for academic achievement with continuation high school programs.* Unpublished doctoral dissertation, Azusa Pacific University, Azusa, CA. The study is ineligible for review because it does not include an outcome within a domain specified in the protocol.

Appendix

Appendix A1 Study Characteristics: Dynarski, Gleason, Rangarajan, & Wood, 1998 (randomized controlled trial)

Characteristic	Description
Study citation	Dynarski, M., Gleason, P., Rangarajan, A., & Wood, R. (1998). *Impacts of dropout prevention programs: Final report. A research report from the School Dropout Demonstration Assistance Program evaluation.* Princeton, NJ: Mathematica Policy Research, Inc.
Participants	The *Middle College High School* study used a randomized controlled trial research design. The original study sample of 516 students was comprised of two cohorts. Cohort 1 included 199 students in the intervention group and 123 students in the control group who applied to attend the alternative high school at the beginning of the 1992–1993 school year. Cohort 2 included 123 students in the intervention group and 71 students in the control group who applied to attend the alternative high school at the beginning of the 1993–1994 school year. Participants were, on average, 18 years old at the time they applied to *Middle College High School.* About half of the sample was African-American; about one in five was Caucasian; about one in 12 was Hispanic; and slightly fewer than one in four was Asian or other ethnicities. Participants were evenly split between males and females. Most were behind grade level at baseline; two-thirds had had discipline problems at school in the past year; and just over half had dropped out of school in the past. Results summarized here are drawn from a follow-up survey administered two years after random assignment; 244 intervention-group students and 150 control-group students responded, for response rates of 76 and 77 percent, respectively.[1] Researchers compared the baseline characteristics of the two research groups on 13 demographic, socioeconomic, and school performance measures. A statistical test of the overall difference between the follow-up survey respondents in the two research groups on the full set of 13 baseline characteristics found that the groups were not significantly different. An additional follow-up survey was conducted three years after random assignment with cohort 1 only. Because of relatively low response rates as well as evidence of substantial intervention-control baseline differences among respondents, these third-year results were not used for the WWC effectiveness rating of *Middle College High School.* These longer-term results are summarized in Appendices A4.2 and A4.3.
Setting	The *Middle College High School* study was conducted at an alternative high school on the campus of the Seattle Central Community College in Seattle, Washington.
Intervention	Seattle's *Middle College High School*, which opened in 1990 and continues to operate, targets students who are close to dropping out or have dropped out in the past. It is run as a collaboration between the Seattle Public Schools and the Seattle Central Community College. It offers students the opportunity to earn a high school diploma in a small alternative school located on the community college campus. The school emphasizes the development of critical thinking skills and focuses on experiential learning, internships, and support services. Services for students include individual counseling, peer support groups, attendance monitoring, and career awareness. In addition, students can take community college courses and use the college's academic and sports facilities. Students are active in school governance and operations. They participate in screening new applicants, running assembly programs, and formulating school policies on attendance, discipline, and other issues. At the time it was evaluated, the school enrolled about 300 students and its core academic curriculum focused on two core modules: (1) math/science and (2) integrated humanities. Each module was taught by a team of two teachers, supported by two or three paid, in-class tutors. Within these team-taught classes, students frequently participated in collaborative learning groups and worked on projects with other students. Each quarter, teachers developed a curriculum around a unifying theme, such as "rights and responsibilities" (Hershey, Adelman, & Murray, 1995).

(continued)

Appendix A1 Study Characteristics: Dynarski, Gleason, Rangarajan, & Wood, 1998 (randomized controlled trial) *(continued)*

Characteristic	Description
Comparison	The control group did not receive *Middle College High School* services; however, they were free to participate in other regular and alternative education programs in the community. Most control group students participated in one of these other education options. During the first year after random assignment, control group members reported spending 63% of their time enrolled in a school or GED program, on average, compared with 60% for intervention students. According to student self-reports, over a third of the time control group members spent enrolled in school, they were attending one of Seattle's other alternative high schools.
Primary outcomes and measurement	Two relevant outcomes from the *Middle College High School* study are included in this review: whether participants dropped out of school and whether they earned a high school diploma or GED certificate. For a more detailed description of these outcome measures, see Appendices A2.1 and A2.2.
Staff/teacher training	*Middle College High School* teachers were regular high school teachers employed by the Seattle Public Schools. No additional information about their specific training was available.

1. Although the overall second-year response rates for the two cohorts combined were similar for intervention and control group students, there were substantial intervention–control differences in response rates within each cohort, particularly cohort 2. For cohort 1, the response rate for intervention group students was 82%, and for control group students, it was 75%. For cohort 2, the response rate for intervention group students was 65%, and for control group students, it was 82%.

Appendix A2.1 Outcome measures for the staying in school domain

Outcome measure	Description
Dropped out	Percentage of students who dropped out of school by the end of the second follow-up year. These self-reported data were collected from follow-up surveys.

Appendix A2.2 Outcome measures for the completing school domain

Outcome measure	Description
Earned a high school diploma or GED	Percentage of students who received a high school diploma or GED certificate by the end of the second follow-up year. These self-reported data were collected from follow-up surveys.

Appendix A3.1 Summary of study findings included in the rating for the staying in school domain[1]

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study: Mean outcome: *Middle College High School* group	Authors' findings from the study: Mean outcome: Comparison group	WWC calculations: Mean difference[2] (*Middle College High School* – comparison)	WWC calculations: Effect size[3]	WWC calculations: Statistical significance[4] (at $\alpha = 0.05$)	WWC calculations: Improvement index[5]
Dynarski et al., 1998 (randomized controlled trial)[6]								
Dropped out (%)	Cohorts 1 and 2	394	36	33	–3	–0.08	ns	–3
Domain average for staying in school						**–0.08**	**ns**	**–3**

ns = not statistically significant

1. This appendix reports second year follow-up findings considered for the effectiveness rating and the average improvement index for the staying in school domain. Third-year follow-up findings, available for cohort 1 only, are not included in these ratings but are reported in Appendix A4.2.
2. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. For the "dropped out" outcome, signs were reversed on the mean difference, effect size, and improvement index, since a reduction in dropping out is a favorable outcome. Means from Dynarski et al. (1998) are estimated using regression models that control for baseline characteristics.
3. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
4. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
5. The improvement index represents the difference between the percentile rank of the average student in the intervention condition and that of the average student in the comparison condition. The improvement index can take on values between –50 and +50, with positive numbers denoting results favorable to the intervention group.
6. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the WWC Tutorial on Mismatch. For the formulas the WWC used to calculate statistical significance, see Technical Details of WWC-Conducted Computations. In the case of Dynarski et al. (1998), no corrections for clustering or multiple comparisons were needed.

Appendix A3.2 Summary of study findings included in the rating for the completing school domain[1]

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study: Mean outcome: *Middle College High School* group	Authors' findings from the study: Mean outcome: Comparison group	WWC calculations: Mean difference[2] *Middle College High School* – comparison)	WWC calculations: Effect size[3]	WWC calculations: Statistical significance[4] (at $\alpha = 0.05$)	WWC calculations: Improvement index[5]
Dynarski et al., 1998 (randomized controlled trial)[6]								
Earned a high school diploma or GED (%)	Cohorts 1 and 2	394	40	38	2	0.05	ns	+2
Domain average for completing school						**0.05**	**ns**	**+2**

ns = not statistically significant

1. This appendix reports second year follow-up findings considered for the effectiveness rating and the average improvement index for the completing school domain. Third-year follow-up findings, available for cohort 1 only, are not included in these ratings but are reported in Appendix A4.3.
2. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. Means from Dynarski et al. (1998) are estimated using regression models that control for baseline characteristics.
3. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
4. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
5. The improvement index represents the difference between the percentile rank of the average student in the intervention condition and that of the average student in the comparison condition. The improvement index can take on values between –50 and +50, with positive numbers denoting results favorable to the intervention group.
6. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the WWC Tutorial on Mismatch. For the formulas the WWC used to calculate statistical significance, see Technical Details of WWC-Conducted Computations. In the case of Dynarski et al. (1998), no corrections for clustering or multiple comparisons were needed.

Appendix A4.1 Summary of additional findings for the completing school domain[1]

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study: Mean outcome: *Middle College High School* group	Authors' findings from the study: Mean outcome: Comparison group	WWC calculations: Mean difference[2] (*Middle College High School* – comparison)	WWC calculations: Effect size[3]	WWC calculations: Statistical significance[4] (at $\alpha = 0.05$)	WWC calculations: Improvement index[5]
Dynarski et al., 1998 (randomized controlled trial)[6]								
Earned a high school diploma (%)	Cohorts 1 and 2	394	21	18	3	0.12	ns	+5
Earned a GED certificate (%)	Cohorts 1 and 2	394	18	20	–2	–0.08	ns	–3

ns = not statistically significant

1. This appendix presents findings for the intervention's separate effects on high school diploma receipt and on GED certificate receipt. The intervention's effect on the combined measure of high school diploma or GED receipt was used for determining the effectiveness rating and is presented in Appendix A3.2.
2. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. Means from Dynarski et al. (1998) are estimated using regression models that control for baseline characteristics.
3. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
4. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
5. The improvement index represents the difference between the percentile rank of the average student in the intervention condition and that of the average student in the comparison condition. The improvement index can take on values between –50 and +50, with positive numbers denoting results favorable to the intervention group.
6. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the WWC Tutorial on Mismatch. For the formulas the WWC used to calculate statistical significance, see Technical Details of WWC-Conducted Computations. In the case of Dynarski et al. (1998), no corrections for clustering were needed.

Appendix A4.2 Summary of longer-term subgroup findings for the staying in school domain[1]

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study: Mean outcome: *Middle College High School* group	Authors' findings from the study: Mean outcome: Comparison group	WWC calculations: Mean difference[2] (*Middle College High School* – comparison)	WWC calculations: Effect size[3]	WWC calculations: Statistical significance[4] (at $\alpha = 0.05$)	WWC calculations: Improvement index[5]
Dynarski et al., 1998 (randomized controlled trial)[6]								
Dropped out at end of year 3 (%)	Cohort 1 only	217	31	38	7	0.19	ns	+7

ns = not statistically significant

1. This appendix presents the third-year follow-up findings for measures in the staying in school domain. These findings were not used for intervention rating purposes because the third-year survey was administered only to cohort 1 and because the survey had a relatively low response rate (67%). Moreover, substantial baseline differences existed between the intervention and control group members who responded to the third-year survey. The intervention's effect on staying in school was rated based on the second-year follow-up findings presented in Appendix A3.1.
2. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. For the "dropped out" outcome, signs were reversed on the mean difference, effect size, and improvement index, since a reduction in dropping out is a favorable outcome. Means from Dynarski et al. (1998) are estimated using regression models that control for baseline characteristics.
3. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
4. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
5. The improvement index represents the difference between the percentile rank of the average student in the intervention condition and that of the average student in the comparison condition. The improvement index can take on values between –50 and +50, with positive numbers denoting results favorable to the intervention group.
6. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the WWC Tutorial on Mismatch. For the formulas the WWC used to calculate statistical significance, see Technical Details of WWC-Conducted Computations. In the case of Dynarski et al. (1998), no corrections for clustering were needed.

Appendix A4.3 Summary of longer-term follow-up findings for the completing school domain[1]

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study: Mean outcome: *Middle College High School* group	Authors' findings from the study: Mean outcome: Comparison group	WWC calculations: Mean difference[2] (*Middle College High School* – comparison)	WWC calculations: Effect size[3]	WWC calculations: Statistical significance[4] (at $\alpha = 0.05$)	WWC calculations: Improvement index[5]
Dynarski et al., 1998 (randomized controlled trial)[6]								
Earned a high school diploma by end of year 3 (%)	Cohort 1 only	217	31	23	8	0.25	ns	+10
Earned a GED certificate by end of year 3 (%)	Cohort 1 only	217	24	37	–13	–0.38	Statistically significant	–15
Earned a high school diploma or GED by end of year 3 (%)	Cohort 1 only	217	55	61	–6	–0.15	ns	–6

ns = not statistically significant

1. This appendix presents the third-year follow-up findings for measures in the completing school domain. These findings were not used for intervention rating purposes because the third-year survey was administered only to cohort 1 and because the survey had a relatively low response rate (67%). Moreover, substantial baseline differences existed between the intervention and control group members who responded to the third-year survey. The intervention's effect on completing school was rated based on the second-year follow-up findings presented in Appendix A3.2.
2. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. Means from Dynarski et al. (1998) are estimated using regression models that control for baseline characteristics.
3. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
4. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
5. The improvement index represents the difference between the percentile rank of the average student in the intervention condition and that of the average student in the comparison condition. The improvement index can take on values between –50 and +50, with positive numbers denoting results favorable to the intervention group.
6. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the WWC Tutorial on Mismatch. For the formulas the WWC used to calculate statistical significance, see Technical Details of WWC-Conducted Computations. In the case of Dynarski et al. (1998), no corrections for clustering were needed.

Appendix A5.1 *Middle College High School* rating for the staying in school domain

The WWC rates an intervention's effects for a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.[1]

For the outcome domain of staying in school, the WWC rated *Middle College High School* as having no discernible effects.

Rating received

No discernible effects: No affirmative evidence of effects.

- Criterion 1: No studies showing a statistically significant or substantively important effect, either *positive* or *negative*.

  Met. No studies showed statistically significant or substantively important positive or negative effects.

Other ratings considered

Positive effects: Strong evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: Two or more studies showing statistically significant *positive* effects, at least one of which met WWC evidence standards for a *strong* design.

  Not met. No studies showed statistically significant or substantively important positive effects.

AND

- Criterion 2: No studies showing statistically significant or substantively important *negative* effects.

  Met. No studies showed statistically significant or substantively important negative effects.

Potentially positive effects: Evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect.

  Not met. No studies showed statistically significant or substantively important positive effects.

AND

- Criterion 2: No studies showing a statistically significant or substantively important *negative* effect and fewer or the same number of studies showing *indeterminate* effects than showing statistically significant or substantively important *positive* effects.

  Met. No studies showed statistically significant or substantively important negative effects.

Mixed effects: Evidence of inconsistent effects as demonstrated through either of the following criteria.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect, and at least one study showing 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.

  Not met. No studies showed statistically significant or substantively important effects, either positive or negative.

OR

- Criterion 2: At least one study showing a statistically significant or substantively important effect, and more studies showing an *indeterminate* effect than showing a statistically significant or substantively important effect.

  Not met. No studies showed statistically significant or substantively important effects.

(continued)

1. For rating purposes, the WWC considers the statistical significance of individual outcomes and the domain-level effect. The WWC also considers the size of the domain-level effect for ratings of potentially positive or potentially negative effects. For a complete description, see the WWC Intervention Rating Scheme.

Appendix A5.1 *Middle College High School* rating for the staying in school domain *(continued)*

Potentially negative effects: Evidence of a negative effect with no overriding contrary evidence.

- Criterion 1: At least one study showing a statistically significant or substantively important *negative* effect.

  Not met. No studies showed statistically significant or substantively important negative effects.

AND

- Criterion 2: No studies showing a statistically significant or substantively important *positive* effect, or more studies showing statistically significant or substantively important *negative* effects than showing statistically significant or substantively important *positive* effects.

  Met. No studies showed statistically significant or substantively important positive effects.

Negative effects: Strong evidence of a negative effect with no overriding contrary evidence.

- Criterion 1: Two or more studies showing statistically significant *negative* effects, at least one of which met WWC evidence standards for a *strong* design.

  Not met. No studies showed statistically significant or substantively important negative effects.

AND

- Criterion 2: No studies showing statistically significant or substantively important *positive* effects.

  Met. No studies showed statistically significant or substantively important positive effects.

Appendix A5.2 *Middle College High School* rating for the completing school domain

The WWC rates an intervention's effects for a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.[1]

For the outcome domain of completing school, the WWC rated *Middle College High School* as having no discernible effects.

Rating received

No discernible effects: No affirmative evidence of effects.

- Criterion 1: No studies showing a statistically significant or substantively important effect, either *positive* or *negative.*

  Met. No studies showed statistically significant or substantively important positive or negative effects.

Other ratings considered

Positive effects: Strong evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: Two or more studies showing statistically significant *positive* effects, at least one of which met WWC evidence standards for a *strong* design.

  Not met. No studies showed statistically significant or substantively important positive effects.

AND

- Criterion 2: No studies showing statistically significant or substantively important *negative* effects.

  Met. No studies showed statistically significant or substantively important negative effects.

Potentially positive effects: Evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect.

  Not met. No studies showed statistically significant or substantively important positive effects.

AND

- Criterion 2: No studies showing a statistically significant or substantively important *negative* effect and fewer or the same number of studies showing *indeterminate* effects than showing statistically significant or substantively important *positive* effects.

  Not met. No studies showed statistically significant or substantively important negative effects.

Mixed effects: Evidence of inconsistent effects as demonstrated through either of the following criteria.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect, and at least one study showing 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.

  Not met. No studies showed statistically significant or substantively important effects, either positive or negative.

OR

- Criterion 2: At least one study showing a statistically significant or substantively important effect, and more studies showing an *indeterminate* effect than showing a statistically significant or substantively important effect.

  Not met. No studies showed statistically significant or substantively important effects.

(continued)

1. For rating purposes, the WWC considers the statistical significance of individual outcomes and the domain-level effect. The WWC also considers the size of the domain-level effect for ratings of potentially positive or potentially negative effects. For a complete description, see the WWC Intervention Rating Scheme.

Appendix A5.2 *Middle College High School* rating for the completing school domain *(continued)*

Potentially negative effects: Evidence of a negative effect with no overriding contrary evidence.

- Criterion 1: At least one study showing a statistically significant or substantively important *negative* effect.

  Not met. No studies showed statistically significant or substantively important negative effects.

AND

- Criterion 2: No studies showing a statistically significant or substantively important *positive* effect, or more studies showing statistically significant or substantively important *negative* effects than showing statistically significant or substantively important *positive* effects.

  Met. No studies showed statistically significant or substantively important positive effects.

Negative effects: Strong evidence of a negative effect with no overriding contrary evidence.

- Criterion 1: Two or more studies showing statistically significant *negative* effects, at least one of which met WWC evidence standards for a *strong* design.

  Not met. No studies showed statistically significant or substantively important negative effects.

AND

- Criterion 2: No studies showing statistically significant or substantively important *positive* effects.

  Met. No studies showed statistically significant or substantively important positive effects.

Appendix A6 Extent of evidence by domain

Outcome domain	Number of studies	Sample size		Extent of evidence[1]
		Schools	Students	
Staying in school	1	>1	394	Small
Progressing in school	na	na	na	na
Completing school	1	>1	394	Small

na = not applicable/not studied

1. A rating of "medium to large" requires at least two studies and two schools across studies in one domain and a total sample size across studies of at least 350 students or 14 classrooms. Otherwise, the rating is "small."