

What Works Clearinghouse



Dropout Prevention

March 2009¹

Middle College High School

Program Description²

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 index⁴	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.

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.

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.

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.

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 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 domain¹

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study			WWC calculations		
			Mean outcome		Mean difference ² (Middle College High School – comparison)	Effect size ³	Statistical significance ⁴ (at $\alpha = 0.05$)	Improvement index ⁵
			Middle College High School group	Comparison group				
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 domain¹

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study			WWC calculations		
			Mean outcome		Mean difference ² Middle College High School – comparison)	Effect size ³	Statistical significance ⁴ (at $\alpha = 0.05$)	Improvement index ⁵
			Middle College High School group	Comparison group				
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 domain¹

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study			WWC calculations		
			Mean outcome		Mean difference ² (Middle College High School – comparison)	Effect size ³	Statistical significance ⁴ (at $\alpha = 0.05$)	Improvement index ⁵
			Middle College High School group	Comparison group				
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 domain¹

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study					
			Mean outcome		WWC calculations			
			Middle College High School group	Comparison group	Mean difference ² (Middle College High School – comparison)	Effect size ³	Statistical significance ⁴ (at $\alpha = 0.05$)	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 domain¹

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study					
			Mean outcome		WWC calculations			
			Middle College High School group	Comparison group	Mean difference ² (Middle College High School – comparison)	Effect size ³	Statistical significance ⁴ (at $\alpha = 0.05$)	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.”