What Works Clearinghouse

INSTITUTE OF EDUCATION SCIENCES

Dropout Prevention September 21, 2006

Check & Connect

Program description

Check & Connect is a dropout prevention strategy that relies on close monitoring of school performance, as well as mentoring, case management, and other supports. The program has two main components: "Check" and "Connect." The Check component is designed to continually assess student engagement through close monitoring of student performance and progress indicators. The Connect component involves program staff giving individualized attention to students, in partnership with school personnel, family members, and community service providers. Students enrolled in *Check & Connect* are assigned a "monitor" who regularly reviews their performance (in particular, whether students are having attendance, behavior, or academic problems) and intervenes when problems are identified. The monitor also advocates for students, coordinates services, provides ongoing feedback and encouragement, and emphasizes the importance of staying in school.

Research

One study of *Check & Connect* met the What Works Clearinghouse (WWC) evidence standards, and a second study met WWC standards with reservations. The two studies included a total of more than 200 students attending Minneapolis high schools. In both studies the students entered the program at the beginning of the ninth grade. The studies examined the program's effects in three dropout prevention domains considered by the WWC: staying in school, progressing in school, and completing school.[1]

Effectiveness

Check & Connect was found to have positive effects on staying in school and potentially positive effects on progressing in school. It was found to have no discernible effects on completing school within four years of entering the program.

	Staying in school	*Progressing in school*	*Completing school*
Rating of effectiveness	Positive effects	Potentially positive effects	No discernible effects
Improvement index[2]	Average: +25 percentile points Range: +18 to +31 percentile points	Average: +30 percentile points Range: +30 percentile points	Average: +1 percentile point Range: +1 percentile point

1. To date, there are only a few studies of the effectiveness of *Check & Connect.* Findings and conclusions may change as new research becomes available.
2. These numbers show the average and range of improvement indices for findings in the two studies within the three domains.

Additional program information

Developer and contact

Check & Connect was developed by the Institute on Community Integration at the University of Minnesota, as a partnership of researchers, practitioners, parents, and students. More information and additional references to research about the program can be found at http://ici.umn.edu/checkandconnect, or by sending an email to info@icimail.education.umn.edu.

Scope of use

The *Check & Connect* model has been used in Minneapolis public schools with middle and high school students who have learning, emotional, and behavioral disabilities. The model has been replicated in eight school districts in Dakota County, Minnesota as part of an initiative targeted at chronically truant youth. The model also has been used in three school districts in Dakota County in an effort to reduce truancy among elementary school students.

Description of intervention

Check & Connect has two main components: "Check" and "Connect." The Check component is designed to continually assess student engagement through close monitoring of student performance and progress indicators (including the student's attendance, incidence of suspensions, course grades, and credits). The Connect component involves program staff giving individualized attention to students, in partnership with school personnel, family members, and community service providers.

These program components are implemented by the *Check & Connect* "monitor," who functions as the student's mentor and case worker. Monitors provide basic intervention for all students on their caseload, as well as intensive intervention—which is more frequent and individualized—for students as needed. Basic interventions involve regular structured discussions between the monitor and student—at least twice a month for secondary students and weekly for elementary and middle school students—about their progress in school and problem-solving steps to resolve conflict and cope with challenges. When intensive interventions are required because of particularly poor attendance or school performance, they are tailored to students' specific circumstances. Intensive interventions focus on three areas of support: problem-solving (including mediation and social skills development), academic support (through homework assistance, schedule changes, and tutoring), and recreational and community service exploration. In addition, the program focuses on family outreach, with frequent contact and collaboration between home and school.

In the *Check & Connect* programs described in this intervention report, monitoring positions were staffed by graduate students and community members with either bachelors degrees in human services-related fields or equivalent experience. Program coordinators, who oversaw the program and supervised the monitors, were typically special education coordinators, school psychologists, or special education resource teachers.

Cost

Program developers report that implementing Check & Connect in secondary schools cost about $1,400 a student per year in the 2001–02 school year.[3]

Research

Six studies reviewed by the WWC investigated the effects of the *Check & Connect* program. One study met WWC evidence standards, and a second study met evidence standards with reservations. Two studies did not meet WWC relevance screens—one did not focus on the relevant student age range (middle and high school) and the other did not examine outcomes from the three domains relevant for the review. The two remaining studies

3. See Sinclair, M., & Kaibel, C. (2002). *Dakota County: School success Check and Connect program evaluation, 2002 final summary report.* Minneapolis, MN: University of Minnesota, Institute on Community Integration.

Research *(continued)*

did not meet WWC evidence screens because they lacked an equivalent comparison group.

The study that met WWC evidence standards (Sinclair, Christenson, Evelo, & Hurley, 1998) was a randomized controlled trial that included 94 high school students from the Minneapolis public schools with learning, emotional, or behavioral disabilities. Students were randomly assigned at the beginning of ninth grade, with 47 students assigned to the treatment group and 47 students assigned to the control group. In this study, both treatment and control group students received *Check & Connect* services in seventh and eighth grade, but only treatment group students continued to receive these services in ninth grade.

The study that met evidence standards with reservations (Sinclair, Christenson, & Thurlow, 2005) was a randomized controlled trial with a relatively large attrition rate—slightly more than 30% of those originally assigned.[4] The post-attrition sample included 144 ninth-grade students from Minneapolis public schools with emotional or behavioral disabilities, including 71 students randomly assigned to the treatment group and 73 students randomly assigned to the control group. In this study, treatment group students received *Check & Connect* services throughout high school, while the control group received no *Check & Connect* services.

Effectiveness

Findings

The WWC review of dropout prevention programs addresses student outcomes in three domains: staying in school, progressing in school, and completing school.

Staying in school. The Sinclair and colleagues (1998) study reported that ninth grade students enrolled in *Check & Connect* were significantly less likely than similar control group students to have dropped out of school at the end of the first follow-up year (corresponding to the end of the freshman year)—9% compared with 30%. The Sinclair, Christenson, & Thurlow (2005) study reported that *Check & Connect* students were significantly less likely to have dropped out of school at the end of the fourth follow-up year (corresponding to the senior year for students making normal progress)—39% compared with 58%.

Progressing in school. The Sinclair and colleagues (1998) study reported that students in *Check & Connect* earned significantly more credits toward high school completion during ninth grade than did students in the control group. The Sinclair, Christenson, & Thurlow (2005) study did not report on high school credit outcomes.

Completing school. The Sinclair, Christenson, & Thurlow (2005) study examined *Check & Connect's* effect on whether students completed school "on time" (within four years of entering the ninth grade). The study indicated that there was no statistically significant or substantially important effect on on-time high school completion. At the end of the four-year follow-up period, combining receipt of high school diplomas and GED certificates, rates of on-time completion were about the same for *Check & Connect* and control group students—30% compared with 29%. (At this point, 31% of intervention students and 14% of control students were still enrolled in school but had not yet graduated.) Because of its short follow-up period, the Sinclair and colleagues (1998) study did not examine impacts on school completion.

Rating of effectiveness

The WWC rates interventions 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

4. In this study, 206 students were randomly assigned, with random assignment occurring prior to receiving parental permission. Of those originally assigned, 26 refused to participate either before or after signing permission forms. An additional 36 students were dropped from the sample because, during the first year of the study, they moved out of district, entered a correctional institution, or could not be located. This represents a total loss of sample of 62 students—30.1% of those originally assigned.

findings, the size of the difference between participants in the intervention condition and comparison condition, and the consistency in findings across studies (see the WWC Intervention Rating Scheme).

The WWC found *Check & Connect* to have positive effects on staying in school, potentially positive effects on progressing in school, and no discernible effects on school completion

Improvement index

For each outcome domain, the WWC computed an improvement index based on the average effect size (see the Technical Details of WWC-Conducted Computations). This 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 entirely based on the size of the effect, regardless of the statistical significance of the effect, the study design, or the type of analysis. The improvement index can take on values between –50 and +50, with positive numbers denoting favorable results. The average improvement index for staying in school is +25 percentile points, with a range of +18 to +31 percentile points across the two studies. The improvement index for progressing in school is +30 percentile points. The improvement index for completing school is +1 percentile point.

Summary

The WWC reviewed six studies on *Check & Connect* that were designed to assess the program's effectiveness. Four of these studies passed WWC relevance screens—they focused on the program's effectiveness among middle and high school students and examined outcomes from at least one of the three relevant domains: staying in school, progressing in school, and completing school. Of these four studies, one met WWC evidence standards and another met WWC evidence standards with reservations. These two studies found positive effects on staying in school and potentially positive effects on progressing in school. The studies found no discernible effects on completing school on time (within four years of entering ninth grade). The conclusions presented in this report may change as new research on Check & Connect emerges.

References

Met WWC evidence standards

Sinclair, M. F., Christenson, S. L., Evelo, D. L., & Hurley, C. M. (1998). Dropout prevention for youth with disabilities: Efficacy of a sustained school engagement procedure. *Exceptional Children, 65*(1), 7–21.

Additional sources:

Christenson, S. L., Sinclair, M. F., Thurlow, M. L., & Evelo, D. (1999). Promoting student engagement with school using the Check & Connect model. *Australian Journal of Guidance & Counseling, 9*(1), 169–184.

Sinclair, M. F., Christenson, S. L., Lehr, C. A., & Anderson, A. R. (2003). Facilitating student engagement: Lessons learned from Check & Connect longitudinal studies. *The California School Psychologist, 8*(1), 29–42.

Met WWC evidence standards with reservations

Sinclair, M. F., Christenson, S. L., & Thurlow, M. L. (2005). Promoting school completion of urban secondary youth with emotional or behavioral disabilities. *Exceptional Children, 71*(4), 465–482.

Additional sources:

Sinclair, M. F., Christenson, S. L., Evelo, D. L., Hurley, C. M., Kau, M. Y., Logan, D. T., Thurlow, M. L., & Westberry, D. (2001). Persistence Plus: Using Check & Connect procedures to improve service delivery and positive post-school outcomes for secondary students with serious emotional disturbance. (CDFA No. 84.237H). Minneapolis, MN: University of Minnesota, Institute on Community Integration.

References *(continued)*

Did not meet WWC relevance screens

Anderson, A. R., Christenson, S. L., Sinclair, M. F., & Lehr, C. A. (2004). Check & Connect: The importance of relationships for promoting engagement with school. *Journal of School Psychology, 42,* 95–113.[5]

Lehr, C. A., Sinclair, M. F., & Christenson, S. L. (2004). Addressing student engagement and truancy prevention during the elementary school years: A replication study of the Check & Connect model. *Journal of Education for Students Placed At-Risk, 9*(3), 279–301.[6]

Additional sources:

Sinclair, M. F. & Lehr, C. A. (2001). Dakota County: Elementary Check & Connect programs. Program evaluation 2001 summary report. Minneapolis, MN: University of Minnesota, Institute on Community Integration.

Sinclair, M. F. & Lehr, C. A. (2000). Dakota County: Elementary Check & Connect programs. Annual summative program evaluation report. Minneapolis, MN: University of Minnesota, Institute on Community Integration.

Did not meet WWC evidence screens

Sinclair, M. F. & Kaibel, C. (2002). Dakota County: Secondary Check & Connect programs. Program evaluation 2002 final summary report. Minneapolis, MN: University of Minnesota, Institute on Community Integration.[7]

Thorton, H. E. (Ed.). (1995). Staying in school: A technical report of three dropout prevention projects for middle school students with learning and emotional disabilities. Technical report 1990–1995. ABC dropout prevention and intervention series. Washington, DC: U.S. Department of Education.[8]

For more information about specific studies and WWC calculations, please see the WWC *Check & Connect* Technical Appendices.

5. The outcome measures are not relevant to this review.
6. The sample is not appropriate this review: the study did not include middle school or high school students.
7. Does not use a strong causal design: the study did not use a comparison group.
8. Does not use a strong causal design: the study used a nonequivalent comparison group.

Appendix

Appendix A1.1 Study characteristics: Sinclair, Christenson, Evelo, & Hurley, 1998 (randomized controlled trial)

Characteristic	Description
Study citation	Sinclair, M. F., Christenson, S. L., Evelo, D. L., & Hurley, C. M. (1998). Dropout prevention for youth with disabilities: Efficacy of a sustained school engagement procedure. *Exceptional Children, 65*(1), 7–21.
Study design	Study used a random assignment research design and included 94 high school students—47 in the intervention group and 47 in the control group. Students were randomly assigned just before entering the ninth grade.
Participants	Participants were special education students enrolled in ninth grade during the 1994–95 school year who were classified with a learning, emotional, or behavioral disability. Learning disabilities were the most common classification, with 75% of participants having this diagnosis. A little more than 40% of participants were classified as having a severe disability. Most participants were African-American (59%); most were males (68%); and most participated in the free or reduced-price lunch program (71%). Students were 15-years-old, on average, when they entered ninth grade.
Setting	Study was conducted in Minneapolis public high schools.
Intervention	The intervention group received *Check & Connect* services in the seventh and eighth grade and, after being assigned to the intervention group, continued to receive the program in ninth grade. Students in *Check & Connect* had their attendance, behavior, and academic performance observed on a daily basis by their "monitor," who also functioned as a mentor and caseworker. Monitors met with students at least twice a month and more often when acute attendance, performance, or behavior problems arose.
Control	Control group students received *Check & Connect* in seventh and eighth grade but, after assignment to the control group, did not continue to receive these services when they entered high school. Control group students attended the same set of high schools attended by intervention group students.
Primary outcomes and measurement	Two relevant outcomes from this study are included in this summary: the percentage of students who had dropped out at the end of the first follow-up year and the number of credits earned during the first follow-up year. (See Appendix A3.)
Staff training	No specific information concerning staff training was provided, however, program staff noted that monitors should possess several key attributes. In particular, they indicated that "(w)hile familiarity with the schools and community resources was desirable, the essential qualifications of a monitor included patience; a belief that all students have abilities; willingness to work cooperatively with families and staff; and advocacy skills, particularly communication skills, such as the ability to negotiate, compromise, and confront conflict constructively" (p.10).

Appendix A1.2 Study characteristics: Sinclair, Christenson, & Thurlow, 2005 (randomized controlled trial)

Characteristic	Description
Study citation	Sinclair, M. F., Christenson, S. L., & Thurlow, M. L. (2005). Promoting school completion of urban secondary youth with emotional or behavioral disabilities. *Exceptional Children, 71*(4), 465–482.
Study design	The study used a random assignment research design. The post-attrition sample included 144 high school students—71 in the intervention group and 73 in the control group. Students were randomly assigned at the beginning of ninth grade.
Participants	This replication of *Check & Connect* included special education students who entered ninth grade in 1996 and 1997. To be eligible for the study, participants had to be classified as having an emotional or behavioral disorder. Most students were African-American (64%); most were males (84%); and most participated in the free or reduced-price lunch program (70%). Students were 14.5-years-old, on average, when they entered ninth grade.
Setting	Study was conducted in Minneapolis public high schools.
Intervention	The intervention group participated in *Check & Connect* for four years, starting in ninth grade. Students had their attendance, behavior, and academic performance observed on a daily basis by their "monitor," who also functioned as a mentor and case worker. The monitor stayed with the student even if the student transferred to another school within the district. Monitors met with students at least twice a month and more often when acute attendance, performance, or behavior problems arose.
Control	Control group students attended the same schools as intervention students but did not receive *Check & Connect*.
Primary outcomes and measurement	Relevant outcomes included in this study are: the percentage of students who had dropped out of school at the end of the fourth year following random assignment and the percentage of students who either completed high school or their GED by the end of the fourth year. (See Appendix A3.)
Staff training	Monitors participated in an initial orientation workshop. They also attended weekly or biweekly staff meetings and periodic staff development sessions. Each monitor received instructions on how to complete the monitoring sheet to ensure consistency across monitors and settings. Monitors submitted printouts of attendance records with their monitoring sheets for verification purposes.

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

Outcome measure	Description
Dropped out of school at end of first year after random assignment	This measure represents whether students were not enrolled in school at the end of the first academic year after random assignment—or the end of the ninth grade, because students were randomly assigned at the beginning of high school. School enrollment was verified through a tracking system established for the study and was drawn from various sources, including project and school staff, social workers, and probation officers, as well as the school district's on-line database (as cited in Sinclair et al., 1998).
Dropped out of school at end of fourth year after random assignment	This measure represents students who had not completed high school or a GED and were not enrolled in school at the end of the fourth academic year after random assignment—or the senior year for those making normal progress toward graduation, because students were randomly assigned at the beginning of ninth grade. The study authors counted students as enrolled (and thus having not dropped out) if they transferred to another school district, a nonpublic school, or a state-approved education program, or if they were in a correctional institution (as cited in Sinclair, Christenson, & Thurlow, 2005).

Appendix A2.2 Outcome measures for the progressing in school domain

Outcome measure	Description
Credits earned during first year after random assignment	This measure was drawn from the school district's on-line database and represents the total credits earned during the first academic year after random assignment—or the ninth-grade school year, because students were randomly assigned at the beginning of high school (as cited in Sinclair et al., 1998).

Appendix A2.3 Outcome measures for the completing school domain

Outcome measure	Description
Completed high school diploma or GED by end of fourth year after random assignment	This measure represents the percentage of students who completed an education program, including graduation with a standard diploma or a GED certificate, by the end of the fourth academic year after random assignment—or the senior year for those making normal progress toward graduation, because students were randomly assigned at the beginning of ninth grade. High school diploma receipt was verified through school district records. GED completion was verified independently by the State Department of Education (as cited in Sinclair, Christenson, & Thurlow, 2005).

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

Outcome measure	Study sample	Sample size (schools/ students)	Author's findings from the study: Mean outcome (Standard deviation [2]) — *Check & Connect* group	Author's findings from the study: Mean outcome (Standard deviation [2]) — Control group	WWC calculations: Mean difference[3] *Check & Connect – control*	WWC calculations: Effect size[4]	WWC calculations: Statistical significance[5] (at $\alpha = 0.05$)	WWC calculations: Improvement index[6]
Sinclair et al., 1998 (randomized controlled trial)[7]								
Dropped out of school (%)	Grade 9	94	9 (28)	30 (46)	-21	0.88	Statistically significant	31
Average[8] for staying in school (Sinclair et al., 1998)						0.88	Statistically significant	31
Sinclair et al., 2005 (randomized controlled trial with attrition problems)[7]								
Dropped out of school (%)	Grade 12	144	39 (49)	58 (50)	-18	0.46	Statistically significant	18
Average[8] for staying in school (Sinclair et al., 2005)						0.46	Statistically significant	18
Domain average[8] for staying in school across all studies						0.67	na	25

na = not applicable

1. This appendix reports findings considered for the effectiveness rating and the average improvement indices. The two Sinclair et al. studies also examined additional outcomes that do not fall within the three domains addressed by the WWC review—staying in school, progressing in school, and completing school. In the Sinclair et al. (1998) study, these additional outcomes included attendance, assignment completion, teacher's perceptions of the student's academic competence and problem behaviors, and student perceptions of the relevance of school and the likelihood of graduation. In the Sinclair et al. (2005) study, these additional outcomes included the likelihood that the student would transfer to another school and the level of the student's participation in the special education transition program. These additional results are not summarized in this report.
2. The standard deviation across all students in each group shows how dispersed the participants' outcomes are: a smaller standard deviation on a given measure would indicate that participants had more similar outcomes. For binary ("zero-one") outcomes, standard deviations were calculated using the following formula, $\sqrt{N/(N-1)} * \sqrt{p*(1-p)}$, where p is the percentage of the sample with a value of 1 for the outcome and N is the sample size.
3. Positive effect sizes represent effects in the desired direction; negative effect sizes represent effects in the undesired direction.
4. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
5. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
6. 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 favorable results.
7. 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. See Technical Details of WWC-Conducted Computations for the formulas the WWC used to calculate statistical significance. In the case of both Sinclair et al. studies, no corrections for clustering or multiple comparisons were needed.
8. The WWC-computed average effect sizes for each study and for the domain across studies are simple averages rounded to two decimal places. The average improvement indices are calculated from the average effect size.

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

Outcome measure	Study sample	Sample size (schools/ students)	Author's findings from the study: Mean outcome (Standard deviation [2]) — *Check & Connect* group	Author's findings from the study: Mean outcome (Standard deviation [2]) — Control group	WWC calculations: Mean difference[3] *Check & Connect – control*	WWC calculations: Effect size[4]	WWC calculations: Statistical significance[5] (at $\alpha = 0.05$)	WWC calculations: Improvement index[6]
Sinclair et al., 1998 (randomized controlled trial)[7]								
Credits earned	Grade 9	92	12.13 (6.56)	6.63 (6.63)	5.50	0.83	Statistically significant	30
Domain average[8] for progressing in school						0.83	Statistically significant	30

1. This appendix reports findings considered for the effectiveness rating and the average improvement index. Sinclair et al. (1998) also examined additional outcomes that do not fall within the three domains addressed by the WWC review—staying in school, progressing in school, and completing school. These additional outcomes included attendance, assignment completion, teacher's perceptions of the student's academic competence and problem behaviors, and student perceptions of the relevance of school and the likelihood of graduation. These additional results are not summarized in this report.
2. The standard deviation across all students in each group shows how dispersed the participants' outcomes are: a smaller standard deviation on a given measure would indicate that participants had more similar outcomes.
3. Positive effect sizes represent effects in the desired direction; negative effect sizes represent effects in the undesired direction.
4. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
5. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
6. 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 favorable results.
7. 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. See Technical Details of WWC-Conducted Computations for the formulas the WWC used to calculate statistical significance. In the case of Sinclair et al. (1998), no corrections for clustering or multiple comparisons were needed.
8. 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.

Appendix A3.3 Summary of study findings included in the rating for the completing school domain[1]

Outcome measure	Study sample	Sample size (schools/ students)	Author's findings from the study: Mean outcome (Standard deviation [2]) — *Check & Connect* group	Author's findings from the study: Mean outcome (Standard deviation [2]) — Control group	WWC calculations: Mean difference[3] *Check & Connect – control*	WWC calculations: Effect size[4]	WWC calculations: Statistical significance[5] (at $\alpha = 0.05$)	WWC calculations: Improvement index[6]
Sinclair et al., 2005 (randomized controlled trial with attrition problems)[7]								
Completed high school or GED "on time" (%)	Grade 12	144	30 (46)	29 (46)	1	0.03	ns	1
Domain average[8] for completing school						0.03	ns	1

ns = not statistically significant

1. This appendix reports findings considered for the effectiveness rating and the average improvement index. Sinclair et al. (2005) also examined additional outcomes that do not fall within the three domains addressed by the WWC review—staying in school, progressing in school, and completing school. These additional outcomes included the likelihood that the student would transfer to another school and the level of the student's participation in the special education transition program. These additional results are not summarized in this report.
2. The standard deviation across all students in each group shows how dispersed the participants' outcomes are: a smaller standard deviation on a given measure would indicate that participants had more similar outcomes. For binary ("zero-one") outcomes, standard deviations were calculated using the following formula, $\sqrt{N/(N-1)} * \sqrt{p * (1-p)}$, where p is the percentage of the sample with a value of 1 for the outcome and N is the sample size.
3. Positive effect sizes represent effects in the desired direction; negative effect sizes represent effects in the undesired direction.
4. For an explanation of the effect size calculation, see Technical Details of WWC-Conducted Computations.
5. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
6. 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 favorable results.
7. 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. See Technical Details of WWC-Conducted Computations for the formulas the WWC used to calculate statistical significance. In the case of Sinclair et al. (2005), no corrections for clustering or multiple comparisons were needed.
8. 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.

Appendix A4.1 *Check & Connect* rating for the staying in school domain

The WWC rates interventions as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.[1]

For the outcome domain of staying in school, the WWC rated *Check & Connect* as having positive effects. The remaining ratings (potentially positive effects, mixed effects, no discernible effects, potentially negative effects, and negative effects) were not considered because *Check & Connect* was assigned the highest applicable rating.

Rating received
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.
Met. *Check & Connect* had two studies meeting WWC evidence standards, one of which met WWC evidence standards for a strong design. Both studies reported statistically significant positive effects on the staying in school domain.
• Criterion 2: No studies showing statistically significant or substantially important *negative* effects.
Met. The WWC analysis found no statistically significant or substantively important negative effects on this domain.

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. See the WWC Intervention Rating Scheme for a complete description.

(continued)

Appendix A4.2 *Check & Connect* rating for the progressing in school domain

The WWC rates interventions as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.[1]

For the outcome domain of progressing in school, the WWC rated *Check & Connect* as having potentially positive effects. It did not meet the criteria for positive effects, because it only had one study that examined outcomes in this domain. The remaining ratings (mixed effects, no discernible effects, potentially negative effects, negative effects) were not considered because *Check & Connect* was assigned a higher rating.

Rating received

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.

  Met. *Check & Connect* had one study that showed statistically significant effects on the progressing in school domain.

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

  Met. The WWC analysis found no indeterminate, statistically significant negative, or substantively important negative effects in this domain.

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. *Check & Connect* had only one study meeting WWC evidence standards that reported on the progressing in school domain.

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

  Met. The WWC analysis found no statistically significant or substantively important negative effects on this domain.

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. See the WWC Intervention Rating Scheme for a complete description.

(continued)

Appendix A4.3 *Check & Connect* rating for the completing school domain

The WWC rates interventions as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.[1]

For the outcome domain of completing school, the WWC rated *Check & Connect* as having indeterminate effects. It did not meet the criteria for positive effects, potentially positive effects, mixed effects, potentially negative effects, or negative effects because no statistically significant or substantively important findings either positive and negative were reported on this domain.

Rating received

No discernible effects: No affirmative evidence of effects.

- Criterion 1: None of the studies shows a statistically significant or substantively important effect, either positive or negative.

  Met. In the one *Check & Connect* study that reported on the completing school domain, the effect was neither statistically significant nor substantively important.

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. *Check & Connect* had only one study meeting WWC evidence standards that reported on the completing school domain.

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

  Met. The WWC analysis found no statistically significant or substantively important negative effects in this domain.

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. The WWC analysis found no statistically significant or substantively important positive effects in this domain.

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

  Not met. All findings in this domain were indeterminate. The WWC analysis found no statistically significant or substantively important effects in this domain.

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

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect. 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. The WWC analysis found no statistically significant or substantively important effects in this domain.

OR

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. See the WWC Intervention Rating Scheme for a complete description.

Appendix A4.3 *Check & Connect* rating for the completing school domain (continued)

- 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.

  Met. The WWC analysis found no statistically significant or substantively important effects in this domain.

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. The WWC analysis found no statistically significant or substantively important negative effects in this domain.

- 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 postive effects.

  Met. The WWC analysis found no studies with statistically significant or substantively important positive effects in this domain.

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. The WWC analysis found no statistically significant negative effects in this domain.

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

  Met. All findings in this domain were indeterminate. The WWC found no statistically significant or substantively important positive effects in this domain.