

What Works Clearinghouse



Skills for Adolescence

Program description

Lions Quest *Skills for Adolescence* is a schoolwide program designed for middle school students (grades 6–8). The program was designed to promote good citizenship skills, core character values, and social-emotional skills and discourage the use of drugs, alcohol, and violence. The program includes a classroom curriculum, schoolwide practices to create a positive school

climate, parent and family involvement, and community involvement. The curriculum may vary in scope and intensity, lasting from nine weeks to three years. The lessons use cooperative group learning exercises and classroom management techniques to improve classroom climate. A related program is reviewed in the intervention report on [Skills for Action](#).

Research

One study of *Skills for Adolescence* met the What Works Clearinghouse (WWC) evidence standards. This study included

more than 7,000 students from 34 middle schools in the Los Angeles, Washington, DC–Baltimore, and Detroit areas.

Effectiveness

Skills for Adolescence was found to have potentially positive effects on students’ behavior.

	<i>Behavior</i>	<i>Knowledge, attitudes, and values</i>	<i>Academic achievement</i>
Rating of effectiveness	Potentially positive effects	Not reported	Not reported
Improvement index²	Average: +2 percentile points Range: –1 to +11 percentile points	Not reported	Not reported

1. The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.
 2. These numbers show the average and the range of improvement indices for all findings across the study.

Additional program information

Developer and contact

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Scope of use

Skills for Adolescence, grades 6–8 is one of a suite of programs developed by Lions Quest. Other programs in the set include *Skills for Growing*, grades K–5 and *Skills for Action*, grades 9–12. The program, developed in 1985, is in its fourth revised edition. According to the developer, more than 50,000 teachers have been trained in *Skills for Adolescence* in the United States and more than 150,000 have been trained in 30 countries worldwide. The number of students participating in some parts of *Skills for Adolescence* alone has reached more than 1.7 million in the United States and about 2.7 million worldwide. *Skills for Adolescence* may have changed since the studies were conducted. The WWC recommends asking the developer for information about the most current version of this curriculum and taking into account that student demographics and school context may affect outcomes.

Teaching

Skills for Adolescence consists of 102 lessons in nine units based on building such positive character values as respect for others, personal and social responsibility, appreciation of diversity, good citizenship, ethics of service to the community, healthy life habits, and social and emotional skills. Year 1 lessons are organized into eight units, and an additional service-learning unit, taught in conjunction with these units, is infused into the curriculum. Year 2 and Year 3 booster units address healthy life habits and drug prevention. Lessons can be presented in nine-week mini-course, quarter, semester, year-long, or multi-year formats or integrated into existing curricula. Teaching methods include group work activities, skills practice, and classroom or community service projects. The positive school climate

component is operated through a school climate committee that includes teachers, students, parents, and community members.

The developer provides such teacher resources as curriculum materials, a curriculum manual, a teacher's resource guide, a *Drugs Information Guide*, a parent meeting guide, *The Surprising Years* book for parents, *Changes and Challenges* workbooks for students, and booster sessions for concept reinforcement when using a three-year implementation format. Lessons are intended to be taught by trained, Lions Quest certified teachers. Curriculum materials are only available to trained teachers. Training consists of a two- or three-day workshop. According to the developer, a large range of targeted staff development in-service workshops and an extensive 10-day training-of-trainers program, intended to prepare schools to conduct their own staff development, are also available.

Cost

Training workshops can be organized locally for \$4,000 for a two-day workshop or \$5,000 for a three-day workshop, with an added cost of \$500 if the reservation is made less than six weeks before the training. The developer also offers workshops at regional locations for \$500 a person (with discounts for four or more registrants and four or more weeks advance registration). With a guarantee of 12 or more participants, the developer will provide this workshop on a by-request basis. Collaboration with a local Lion's Club group can reduce workshop prices.

Curriculum sets are included in the price of the training. Additional sets and upgrades to the newest edition are available for purchase by trained individuals. A curriculum set in English (4th edition) costs \$120; a set in Spanish (3rd edition) costs \$99. *Changes and Challenges* student workbooks are available for \$3.50 a copy for the 3rd edition in English or \$5.00 a copy in Spanish and \$5.95 a copy for the 4th edition in English. *The Surprising Years* parent books cost \$3.95 a copy for both English (4th edition) and Spanish (3rd edition) versions. A set of both books is available for \$7.95, with volume pricing available.

Research Nine studies reviewed by the WWC investigated the effects of *Skills for Adolescence*. One study (Eisen, Zellman, & Murray, 2003) was a randomized controlled trial that met WWC evidence standards. The remaining 8 studies did not meet WWC evidence screens. The Eisen, Zellman, and Murray (2003) study focused on *Skills for Adolescence* implemented as a schoolwide intervention.

Eisen, Zellman, and Murray (2003) investigated program effects on students in seventh grade and again on the same students in eighth grade. The study included 34 middle schools

pair-matched and randomly assigned to study conditions from within pairs. The schools were located in three large metropolitan areas in Los Angeles, California; Detroit, Michigan; and the Washington, DC-Baltimore, Maryland area. This study compared behavioral outcomes for students participating in the *Skills for Adolescence* program with outcomes for students who participated in other drug education and prevention practices (ranging from school assemblies to the Drug Abuse Resistance Education, or DARE, program) common for these grade levels.

Effectiveness Findings

The WWC review of character education addresses student outcomes in three domains: behavior; knowledge, attitudes, and values; and academic achievement.

Behavior. Eisen, Zellman, and Murray (2003) reported statistically significant differences favoring the intervention group on three drug-related outcomes (marijuana—lifetime use, marijuana—use in the last 30 days, and binge drinking during the last 30 days by baseline binge drinkers) about one year after the end of the program. The program's effect on one of these outcomes (binge drinking) was confirmed to be statistically significant as calculated by the WWC.³ No statistically significant effects were found for the lifetime or recent use of cigarettes and other illicit substances or

binge drinking during the last 30 days by baseline nonbinge drinkers. The average effect size for the domain was neither statistically significant nor substantively important (less than 0.25).⁴

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 findings (as calculated by the WWC³), the size of the difference between participants in the intervention condition and the comparison condition, and the consistency in findings across studies (see the [WWC Intervention Rating Scheme](#)).

The WWC found *Skills for Adolescence* to have potentially positive effects on behavior

Improvement index

For each outcome domain, the WWC computed an improvement index based on the effect size (see the [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 entirely based on the size of the effect, regardless of the statistical significance of the effect, the study design, or the analysis. The improvement index can take on values between -50 and +50, with positive numbers denoting favorable results. The average improvement index for eighth-grade students' behavior is +2 percentile points, with a range of -1 to +11 percentile points.

3. The level of statistical significance was calculated by the WWC and, where necessary, corrects for clustering within classrooms or schools and for multiple comparisons. For an explanation, see the [WWC Tutorial on Mismatch](#). See the [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate the statistical significance. In the case of *Skills for Adolescence*, corrections for multiple comparisons were needed.

4. Short-term findings assessed for seventh grade are presented in the technical appendices and were not used for rating purposes.

The WWC found *Skills for Adolescence* to have potentially positive effects on behavior (continued)

Summary

The WWC reviewed 9 studies on *Skills for Adolescence*.⁵ One of these studies met WWC evidence standards. This study found potentially positive effects on eighth-grade students' behavior.

Character education, an evolving field, is beginning to establish a research base. The evidence presented in this report is limited and may change as new research emerges.

References

Met WWC evidence standards

Eisen, M., Zellman, G. L., & Murray, D. M. (2003). Evaluating the Lions-Quest "Skills for Adolescence" drug education program: Second-year behavior outcomes. *Addictive Behaviors*, 28, 883–897.

Additional sources:

Eisen, M. (2002). Intermediate outcomes from a life skills education program with a media literacy component. In Crano, W. D., & Burgoon, M. (Eds.) *Mass media and drug prevention: Classic and contemporary theories and research*. (pp. 187–214). Mahwah, NJ: Lawrence Erlbaum.

Eisen, M., Zellman, G. L., Massett, H. A., & Murray, D. M. (2002). Evaluating the Lions-Quest "Skills for Adolescence" drug education program: First-year behavior outcomes. *Addictive Behaviors*, 27, 619–632.

Did not meet WWC evidence screens

Gilman, D. A. (1991). A study of the QUEST program for the academic year 1990–91. A report prepared for the analysis of pretest and posttest measures for the North Gibson School Corporation. Princeton, Indiana.⁶

Goldsmith, L. M. (1990). An evaluation of the influence of the Skills for Adolescence program on the self-esteem and attitude towards school of sixth-grade Mexican-American students. Dissertation, Baylor University.⁷

Heinemann, G. H. (1990). The effects of the Lions-Quest "Skills for Adolescence" program on self-esteem development and academic achievement at the middle school level. *Dissertation Abstracts International*. (UMI No. 9033128).⁸

Heuer, L. G. (1996). Behavior, attitudes, and knowledge related to drug and alcohol prevention curricula in North Dakota seventh through twelve grade students. *Dissertation Abstracts International*, 56(10), 3826.⁹

Laird, M., Syropolous, M., & Black, S. (1995). An evaluation of Lions-Quest's Skills for Adolescence. Limited circulation report.¹⁰

Buscemi, M. (n.d.). Lions-Quest Skills for Adolescence evaluation. Limited circulation summary report compiled by and for Lions-Quest.

Additional sources:

Keister, S. C. (n.d.). Quest International. Lions-Quest Skills for Adolescence. Limited circulation summary report compiled for and by Lions-Quest.

5. One single-case design study was identified but is not included in this review because the WWC does not yet have standards for reviewing single-case design studies.

6. Does not use a strong causal design: the study did not use a comparison group.

7. Does not use a strong causal design: there was only one intervention and one comparison unit, so the analysis could not separate the effects of the intervention from other factors.

8. Does not use a strong causal design: the study, which used a quasi-experimental design, did not establish that the comparison group was equivalent to the intervention group at the baseline.

9. The sample is not appropriate for this review: data were not disaggregated so that the WWC could not examine the results for the sample that is relevant to this review.

10. Complete data are not reported: the WWC could not compute effect sizes.

11. Incomparable groups: The intervention and comparison groups were not comparable at baseline and that difference was not controlled for in the statistical analysis.

References *(continued)*

Ray, N. G. (1990). The effects of the Lions-Quest “Skills for Adolescence” program on student self-concept at the middle school level. *Dissertation Abstracts International*. (UMI No. 9107327).¹¹

Roberson, R. M. (1991). The effects of the Quest’s Skills for Adolescence training on the self concept and reading achievement of sixth grade students. Dissertation, US International University.¹²

For more information about specific studies and WWC calculations, please see the [WWC Skills for Adolescence Technical Appendices](#).

12. Severe overall attrition: the study, which used a quasi-experimental design, lost a large portion of its sample from the pretest to the posttest.

Appendix

Appendix A1 Study characteristics: Eisen, Zellman, & Murray, 2003 (randomized controlled trial)

Characteristic	Description
Study citation	Eisen, M., Zellman, G. L., & Murray, D. M. (2003). Evaluating the Lions-Quest “Skills for Adolescence” drug education program: Second-year behavior outcomes. <i>Addictive Behaviors, 28</i> , 883–897.
Participants	Participants of this study included 7,426 students who were followed from sixth through eighth grade. Female students comprised 52% of the sample. The distribution of minority students was as follows: 34% Hispanic, 18% African-American, and 7% Asian-American.
Setting	The study took place in 34 middle schools from four school districts located in three large metropolitan areas (Los Angeles–Long Beach, California; Detroit–Wayne County, Michigan; and Washington, DC–Baltimore, Maryland).
Intervention	A one-semester, 40-session <i>Skills for Adolescence</i> curriculum was implemented in English or Spanish in the intervention schools. Each session lasted 35–45 minutes. No information was provided on implementation fidelity other than that teachers were required to schedule and teach 8 of the 40 sessions that included drug prevention components, knowing that they may be observed by project staff and consenting to this observation. ¹
Comparison	The comparison group “received their usual drug education programming” and were left to the discretion of the teachers at each school. A range of drug prevention programs and related practices were implemented in the comparison schools, including school assemblies, teacher-devised classroom curricula, and exposure to the Drug Abuse Resistance Education (DARE) program. The comparison schools were promised implementation of <i>Skills for Adolescence</i> once the final follow-up data were collected.
Primary outcomes and measurement	Outcome measures examined student self-reported cigarette smoking and alcohol, marijuana, and other illicit drug use prevalence rates. (See Appendix A2 for more detailed descriptions of outcome measures.) ²
Teacher training	The teachers attended a three-day workshop conducted by Quest International certified trainers and received teacher manuals and workbooks for each of their students.

1. The WWC requested information from the first study author about the timing of intervention delivery. The study author reported that in some schools the intervention was implemented during the first semester, while in other schools the intervention was implemented later in the academic year.
2. Four additional student outcomes measuring attitudes were examined in this study: intentions to use tobacco, alcohol, and other drugs; perceived harm of tobacco, alcohol, and other drugs; refusal self-efficacy (to peer pressure); and perceived peer (close friend) use of tobacco, alcohol, and other drugs. These student outcomes were not reviewed because of lack of statistical information for computing effect sizes.

Appendix A2 Outcome measures in the behavior domain

Outcome measure	Description
Alcohol use—lifetime	One item on which students indicated if they had ever drunk alcohol. This item was adapted from the Monitoring the Future Study (MTF; as cited in Eisen, Zellman, & Murray, 2003).
Alcohol use—last 30 days	One item on which students indicated if they had drunk alcohol in the last 30 days. This item was adapted from the Monitoring the Future Study (MTF; as cited in Eisen, Zellman, & Murray, 2003).
Binge drinking	One item on which students indicated whether they had engaged in excessive drinking for three or more days during the last 30 days. This item was adapted from the Monitoring the Future Study (MTF; as cited in Eisen, Zellman, & Murray, 2003).
Cigarette smoking—lifetime	One item on which students indicated if they had ever smoked cigarettes. This outcome measure was among the items established by the National Cancer Institute as a standard for surveying prevalence rates (as cited in Eisen, Zellman, & Murray, 2003).
Cigarette smoking—last 30 days	One item on which students indicated if they had smoked cigarettes in the last 30 days. This outcome measure was among the items established by the National Cancer Institute as a standard for surveying prevalence rates (as cited in Eisen, Zellman, & Murray, 2003).
Marijuana use—lifetime	One item on which students indicated if they had ever used marijuana. This item was adapted from the Monitoring the Future Study (MTF; as cited in Eisen, Zellman, & Murray, 2003).
Marijuana use—last 30 days	One item on which students indicated if they had used marijuana in the last 30 days. This item was adapted from the Monitoring the Future Study (MTF; as cited in Eisen, Zellman, & Murray, 2003).
Other illicit drug use—lifetime	One item on which students indicated if they had ever used other illicit drugs. This item was adapted from the Monitoring the Future Study (MTF; as cited in Eisen, Zellman, & Murray, 2003).
Other illicit drug use—last 30 days	One item on which students indicated if they had used other illicit drugs in the last 30 days. This item was adapted from the Monitoring the Future Study (MTF; as cited in Eisen, Zellman, & Murray, 2003).

Appendix A3 Summary of study findings included in the rating for the behavior domain¹

Outcome measure	Study sample	Sample size ³ (students/ schools)	Author's findings from the study					
			Mean outcome ²		WWC calculations			
			Skills for Adolescence group	Comparison group	Mean difference ⁴ (Skills for Adolescence – comparison)	Effect size ⁵	Statistical significance ⁶ (at $\alpha = 0.05$)	Improvement index ⁷
Eisen, Zellman, & Murray, 2003 (randomized controlled trial)								
Alcohol use—lifetime	Grade 8	5316 to 5610/34	33.03	33.67	–0.64	–0.02	ns	–1
Alcohol use—last 30 days	Grade 8	5316 to 5610/34	77.15	76.82	0.33	0.01	ns	+0
Cigarettes smoking—lifetime	Grade 8	5316 to 5610/34	72.00	72.50	–0.50	–0.02	ns	–1
Cigarettes smoking— last 30 days	Grade 8	5316 to 5610/34	87.53	88.52	–0.99	–0.06	ns	–2
Marijuana use—lifetime	Grade 8	5316 to 5610/34	72.76	69.50	3.26	0.10	ns	+4
Marijuana use—last 30 days	Grade 8	5316 to 5610/34	88.68	86.21	2.47	0.14	ns	+5
Other illicit substances use—lifetime	Grade 8	5316 to 5610/34	81.05	81.56	–0.51	–0.02	ns	–1
Other illicit substances use—last 30 days	Grade 8	5316 to 5610/34	93.11	93.02	0.09	0.01	ns	+0
Binge drinking—last 30 days	Grade 8, baseline binge drinkers	5078 to 5359/34	73.00	63.00	10.00	0.28	Statistically significant	+11
Binge drinking—last 30 days	Grade 8, baseline nonbinge drinkers	237 to 251/34	88.00	88.00	0.00	0.00	ns	+0
Domain average⁸ for behavior						0.04	ns	+2

ns = not statistically significant

1. This appendix reports follow-up findings (measured toward the end of eighth grade) considered for effectiveness and the improvement index. Findings reported from the same study for the same students toward the end of seventh grade are not included in the ratings, but are reported in Appendix A4.1. An additional follow-up finding (at grade 8) for binge drinking for the entire sample is presented in Appendix A4.2.
2. The mean outcome for each study group is the percentage of participants who, based on self reporting, did not engage in a given type of problem behavior.
3. The number of students in the analytic sample varied across outcomes, ranging from 5,316 to 5,610 students. The calculation of effect size was based on the middle point of this range (5,463). The number of baseline binge drinkers and nonbinge drinkers was estimated for statistical significance calculations based on the reported proportions and sample size for eighth-grade students.

Appendix A3 Summary of study findings included in the rating for the behavior domain^a (continued)

4. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. The study presents the percentage of students who reported involvement in each type of problem behavior. The percentages reported in this appendix show the proportion of students with favorable outcomes (nonusers of tobacco, alcohol, and other illicit drugs). So the signs of the mean differences presented here are the reverse of those reported by the study authors.
5. Effect sizes were calculated using the odds ratio formula for binary outcomes, which were then converted to standardized mean differences (Hedges's g). For an explanation of the effect size calculation, please see the [Technical Details of WWC-Conducted Computations](#).
6. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between groups. The level of statistical significance was calculated by the WWC and, where necessary, corrects for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the [WWC Tutorial on Mismatch](#). See the [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate statistical significance. In the case of *Skills for Adolescence*, corrections for multiple comparisons were needed.
7. 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.
8. The WWC-computed domain effect sizes for each study and for each domain across studies are a simple average rounded to two decimal places. The improvement indices are calculated from the average effect sizes.

Appendix A4.1 Summary of findings of short-term effects for the behavior domain¹

Outcome measure ³	Study sample	Sample size ⁴ (students/ schools)	Author's findings from the study					
			Mean outcome ²		WWC calculations			
			Skills for Adolescence group	Comparison group	Mean difference ⁵ (Skills for Adolescence – comparison)	Effect size ⁶	Statistical significance ⁷ (at $\alpha = 0.05$)	Improvement index ⁸
Eisen, Zellman, & Murray, 2003 (randomized controlled trial)								
Alcohol—lifetime	Grade 7	4,106 to 5,644/34	70.39	69.81	0.58	0.02	ns	+1
Alcohol—last 30 days	Grade 7	4,106 to 5,644/34	92.83	92.75	0.08	0.01	ns	+0
Binge drinking—last 30 days	Grade 7	4,106 to 5,644/34	96.85	96.42	0.43	0.08	ns	+3
Cigarettes—lifetime	Grade 7	4,106 to 5,644/34	71.78	73.31	–1.53	–0.05	ns	–2
Cigarettes—last 30 days	Grade 7	4,106 to 5,644/34	97.12	96.11	1.01	0.19	ns	+7
Marijuana—lifetime	Grade 7	4,106 to 5,644/34	90.57	88.24	2.33	0.15	ns	+6
Marijuana—last 30 days	Grade 7	4,106 to 5,644/34	95.72	94.56	1.16	0.15	ns	+6
Other illicit drugs—lifetime	Grade 7	4,106 to 5,644/34	92.97	93.64	–0.67	–0.07	ns	–3
Other illicit drugs—last 30 days	Grade 7	4,106 to 5,644/34	96.64	96.45	0.19	0.03	ns	+1
Alcohol—lifetime	Grade 7, Hispanic	nr/29	67.31	63.42	3.89	0.10	ns	+4
Alcohol—lifetime	Grade 7, non-Hispanic	nr/29	71.43	74.03	–2.6	–0.08	ns	–3
Alcohol—last 30 days	Grade 7, Hispanic	nr/29	93.08	89.64	3.44	0.27	Statistically significant	+11
Alcohol—last 30 days	Grade 7, non-Hispanic	nr/29	92.82	94.41	–1.59	–0.16	ns	–6

(continued)

Appendix A4.1 Summary of study findings included in the rating for the knowledge, attitudes, and values domain¹ (continued)

Outcome measure ³	Study sample	Sample size ⁴ (students/ schools)	Author's findings from the study					
			Mean outcome ²		Mean difference ⁵ (<i>Skills for Adolescence</i> – comparison)	WWC calculations		
			<i>Skills for Adolescence</i> group	Comparison group		Effect size ⁶	Statistical significance ⁷ (at $\alpha = 0.05$)	Improvement index ⁸
Binge drinking—last 30 days	Grade 7, Hispanic	nr/29	96.79	93.77	3.02	0.42	Statistically significant	+16
Binge drinking—last 30 days	Grade 7, non-Hispanic	nr/29	97.08	97.69	–0.61	–0.15	ns	–6
Alcohol—last 30 days	Grade 7, past binge drinkers	nr/29	83.02	79.55	3.47	0.14	ns	+6
Alcohol—last 30 days	Grade 7, past cigarette smokers	nr/29	91.98	87.21	4.77	0.32	Statistically significant	+12
Alcohol—last 30 days	Grade 7, past marijuana users	nr/29	83.19	76.48	6.71	0.25	ns	+10

ns = not statistically significant

nr = not reported

1. This appendix presents findings that fall in the behavior domain measured toward the end of seventh grade. Follow-up findings (measured toward the end of eighth grade) were used for rating purposes and are presented in Appendix A3.
2. The mean outcome for each group is the percentage of participants who, based on self reporting, did not engage in a given type of problem behavior.
3. The study also reported student outcomes for binge drinking by past cigarette smokers and binge drinkers and recent cigarette use by past marijuana users. These analyses were not reviewed due to severe attrition of schools from the analysis sample.
4. The number of students varied by outcome, ranging from 4,106 to 5,644 students. The effect size calculation was based on the middle point of this range (4,875).
5. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. The study presents the percentage of students who reported involvement in each type of problem behavior. So the signs of the mean difference presented here are the reverse of those reported by the study authors.
6. Effect size was calculated using the odds ratio formula for binary outcomes, which were then converted to standardized mean differences (Hedges's *g*). For an explanation of the effect size calculation, please see the [Technical Details of WWC-Conducted Computations](#).
7. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between groups. The level of statistical significance was calculated by the WWC and, where necessary, corrects for clustering within classrooms or schools. For an explanation about the clustering correction, see the [WWC Tutorial on Mismatch](#). See the [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate statistical significance. In the case of *Skills for Adolescence*, no corrections for clustering were needed.
8. 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.

Appendix A4.2 Summary of other findings for the behavior domain¹

Outcome measure	Study sample	Sample size (students/schools)	Author's findings from the study		WWC calculations			
			Mean outcome (standard deviation ²)		Mean difference ³ (<i>Skills for Adolescence</i> – comparison)	Effect size ⁴	Statistical significance ⁵ (at $\alpha = 0.05$)	Improvement index ⁶
			<i>Skills for Adolescence</i> group	Comparison group				
Eisen, Zellman, & Murray, 2003 (randomized controlled trial)								
Binge drinking—last 30 days	Grade 8	5316 to 5610/34	87.33	86.89	0.44	0.02	ns	+1

ns = not statistically significant

1. This appendix presents an additional finding, binge drinking, that falls in the behavior domain. This finding is presented here for the entire sample, while findings for binge drinking behavior of past binge drinkers and nondrinkers were used for rating purposes and are presented in Appendix A3.
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 differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. The study presents the percentage of students who reported involvement in each type of problem behavior. The percentages reported in this appendix show the proportion of students with favorable outcomes (nonusers of tobacco, alcohol, and other illicit drugs). So the signs of the mean differences presented here are the reverse of those reported by the study authors.
4. For an explanation of the effect size calculation, please see the [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 groups. The level of statistical significance was calculated by the WWC and, where necessary, corrects for clustering within classrooms or schools. For an explanation about the clustering correction, see the [WWC Tutorial on Mismatch](#). See the [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate statistical significance. In the case of *Skills for Adolescence*, no corrections for clustering were needed.
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.

Appendix A5 Skills for Adolescence rating for the behavior domain

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

For the outcome domain of behavior, the WWC rated *Skills for Adolescence* as having potentially positive effects. It did not meet the criteria for positive effects, because both studies that met WWC standards with reservations did not use a strong design, according to WWC criteria. The remaining ratings (mixed effects, no discernible effects, potentially negative effects, and negative effects) were not considered because *Skills for Adolescence* was assigned the highest applicable 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. The one study on *Skills for Adolescence* that met WWC standards showed a statistically significant positive effect on one student outcome.

- 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 effects or statistically significant or substantively important 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. *Skills for Adolescence* had only one study showing a statistically significant positive effect.

- 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.

1. For rating purposes, the WWC considers the statistical significance of individual outcomes and the domain level effects. The WWC also considers the size of the domain level effect for ratings of potentially positive effects. See the [WWC Intervention Rating Scheme](#) for a complete description.