

Promoting Alternative Thinking Strategies (PATHS)

Public Health & Prevention: School-based

Benefit-cost estimates updated December 2019. Literature review updated June 2015.

Current estimates replace old estimates. Numbers will change over time as a result of model inputs and monetization methods.

The WSIPP benefit-cost analysis examines, on an apples-to-apples basis, the monetary value of programs or policies to determine whether the benefits from the program exceed its costs. WSIPP's research approach to identifying evidence-based programs and policies has three main steps. First, we determine "what works" (and what does not work) to improve outcomes using a statistical technique called meta-analysis. Second, we calculate whether the benefits of a program exceed its costs. Third, we estimate the risk of investing in a program by testing the sensitivity of our results. For more detail on our methods, see our [Technical Documentation](#).

Program Description: The Promoting Alternative Thinking Strategies (PATHS) curriculum is a classroom socioemotional learning program designed to improve self-control, emotional understanding, interpersonal relationships, and social problem-solving skills for grades K-6. The program is designed to be a multi-year, school-wide intervention to prevent serious emotional and behavioral problems. The PATHS curriculum provides scripts to guide lessons that classroom teachers or counselors teach two to three times a week.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	\$1,818	Benefit to cost ratio	\$22.09
Participants	\$4,491	Benefits minus costs	\$7,981
Others	\$2,291	Chance the program will produce	
Indirect	(\$240)	benefits greater than the costs	62 %
Total benefits	\$8,360		
Net program cost	(\$378)		
Benefits minus cost	\$7,981		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Externalizing behavior symptoms	6	9	4149	0.033	0.026	6	0.018	0.018	9	0.029	0.281
Internalizing symptoms	6	7	3420	0.015	0.029	6	0.015	0.029	8	-0.007	0.896
Test scores	6	2	373	0.130	0.130	6	0.052	0.143	17	0.130	0.265

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Affected outcome:	Resulting benefits: ¹	Benefits accrue to:				
		Taxpayers	Participants	Others ²	Indirect ³	Total
Externalizing behavior symptoms	Criminal justice system	(\$8)	\$0	(\$18)	(\$4)	(\$31)
Test scores	Labor market earnings associated with test scores	\$1,920	\$4,510	\$2,379	\$0	\$8,809
Internalizing symptoms	K-12 grade repetition	\$0	\$0	\$0	\$0	\$0
Externalizing behavior symptoms	K-12 special education	(\$27)	\$0	\$0	(\$13)	(\$40)
Externalizing behavior symptoms	Health care associated with externalizing behavior symptoms	(\$67)	(\$19)	(\$69)	(\$34)	(\$189)
Program cost	Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$189)	(\$189)
Totals		\$1,818	\$4,491	\$2,291	(\$240)	\$8,360

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

³"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

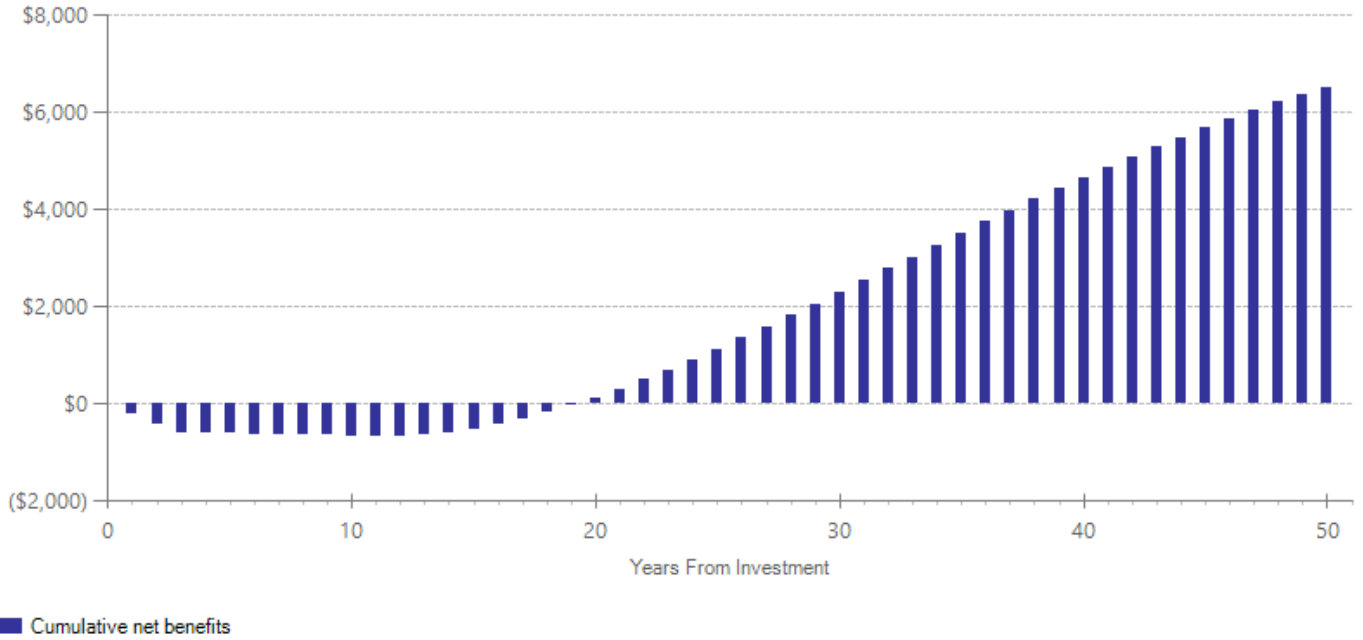
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary
Program costs	\$119	2012	Present value of net program costs (in 2018 dollars) (\$378)
Comparison costs	\$0	2012	Cost range (+ or -) 10 %

The effects of PATHS are based on three years of program participation on average. Our cost estimates are from numbers published by Blueprints for Violence Prevention (<http://www.blueprintsprograms.com/program-costs/promoting-alternative-thinking-strategies-paths>), based on implementation in a school with 500 students, 20 teachers, and a part-time coach (0.5 FTE, \$30,000) in 2012. The ongoing training and support costs for the teachers and the coach are estimated to be \$19,500. Curriculum and supplies for 20 classrooms are estimated to be \$10,000.

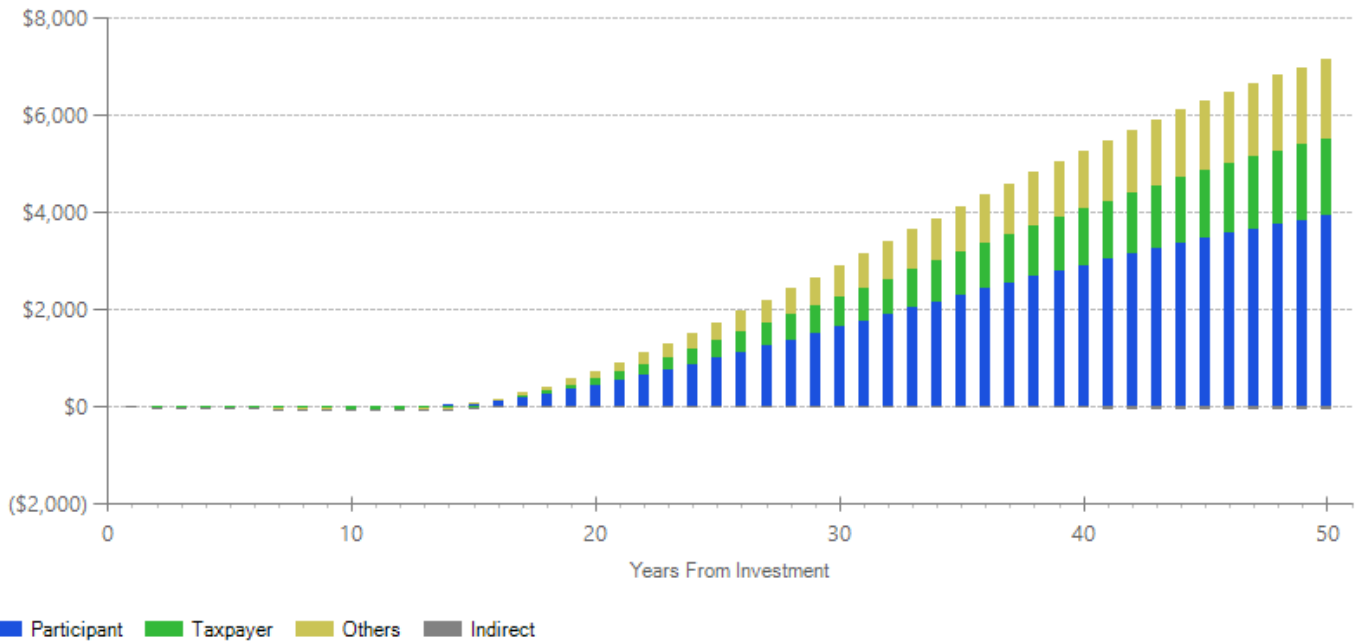
The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our [Technical Documentation](#).

Benefits Minus Costs Over Time (Cumulative Discounted Dollars)

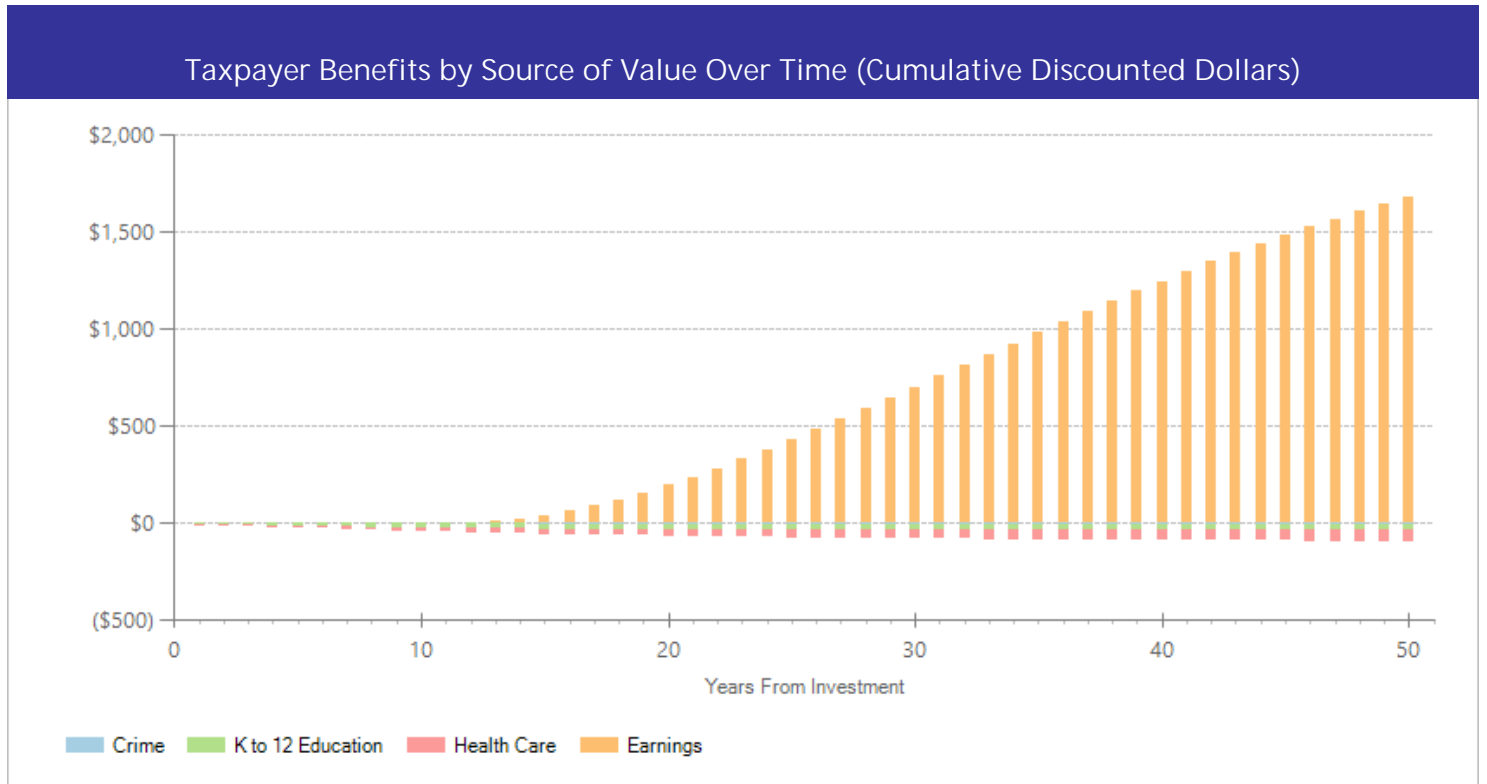


The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in discounted dollars. If the dollars are negative (bars below \$0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach \$0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above \$0, the benefits of the program exceed the initial investment.

Benefits by Perspective Over Time (Cumulative Discounted Dollars)



The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: taxpayer, participant, others, and indirect. "Taxpayers" includes expected savings to government and expected increases in tax revenue. "Participants" includes expected increases in earnings and expenditures for items such as health care and college tuition. "Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance. "Indirect benefits" includes estimates of the changes in the value of a statistical life and changes in the deadweight costs of taxation. If a section of the bar is below the \$0 line, the program is creating a negative benefit, meaning a loss of value from that perspective.



The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

Citations Used in the Meta-Analysis

- Conduct Problems Prevention Research Group. (1999). Initial impact of the Fast Track prevention trial for conduct problems: II. Classroom effects. *Journal of Consulting and Clinical Psychology, 67*(5), 648-657.
- Crean, H.F., & Johnson, D.B. (2013). Promoting Alternative Thinking Strategies (PATHS) and elementary school aged children's aggression: Results from a cluster randomized trial. *American Journal of Community Psychology, 52*, 56-72.
- Domitrovich, C., Cortes, R., & Greenberg, M. (2007). Improving young children's social and emotional competence: A randomized trial of the preschool 'PATHS' curriculum. *Journal of Primary Prevention, 28*(2), 67-91.
- Greenberg, M.T., & Krusche, C.A. (1998). Preventive intervention for school-age deaf children: The PATHS curriculum. *Journal of Deaf Studies and Deaf Education, 3*(1), 49-63.
- Kam, C.-M., Greenberg, M., & Kusche, C. (2004). Sustained effects of the PATHS curriculum on the social and psychological adjustment of children in special education. *Journal of Emotional and Behavioral Disorders, 12*(2), 66-78.
- Little, M., Berry, V., Morpeth, L., Blower, S., Axford, N., Lehtonen, M., Tobin, K., ... Bywater, T. (2012). The impact of three evidence-based programmes delivered in public systems in Birmingham, UK. *International Journal of Conflict and Violence, 6*(2), 260-72.
- Malti, T., Ribeaud, D., & Eisner, M. P. (2011). The effectiveness of two universal preventive interventions in reducing children's externalizing behavior: a cluster randomized controlled trial. *Journal of Clinical Child and Adolescent Psychology, 40*(5), 677-92.
- Morris, P., Matterna, S.K., Castells, N., Bangser, M., Bierman, K., & Raver, C. (2014). Impact findings from the Head Start CARES Demonstration: National evaluation of three approaches to improving preschoolers' social and emotional competence. Executive Summary. OPRE Report 2014-44. MDRC.
- Riggs, N., Greenberg, M., Kusch, C., & Pentz, M. (2006). The mediational role of neurocognition in the behavioral outcomes of a social-emotional prevention program in elementary school students: Effects of the PATHS curriculum. *Prevention Science, 7*(1), 91-102.
- Ross, S.M., Sheard, M.K., Slavin, R., Elliot, L., Cheung, A., Hanley, P., & Tracey, L. (2011). Evaluation of the Together 4 All Programme for Schools: Final Report. York: Institute for Effective Education, The University of York.
- Schonfeld, D.J., Adams, R.E., Fredstrom, B.K., Weissberg, R.P., Gilman, R., Voyce, C., Tomlin, R., ... Speese-Linehan, D. (2014). Cluster-randomized trial demonstrating impact on academic achievement of elementary social-emotional learning. *School Psychology Quarterly.*

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