

Cost-Effectiveness Analysis of Educational Alternatives

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Objective of Project:

The purpose of this project is to demonstrate how to conduct cost-effectiveness analysis of educational interventions by using existing effectiveness data from studies approved by the What Works Clearinghouse and combining this with cost data being collected retrospectively by the research team. Interventions that have been successful in reducing high school dropout rates are being studied for one analysis. Interventions that improve early childhood literacy are a second area of focus.

The project is also developing a cost analysis tool, a set of interlinked spreadsheets that administrators, evaluators and policymakers can use to assess costs and cost-effectiveness of educational interventions. Finally, a guidance document aims to help evaluators and education decision-makers incorporate cost analysis real-time into their own evaluations in order to facilitate more informed decision-making when selecting appropriate educational interventions.

Methods:

The cost-effectiveness analyses involve three major steps: 1) effect sizes indicating the educational impact of selected interventions in the K-12 domain are collected from existing peer-reviewed studies; 2) the ingredients approach (Levin & McEwan, 2001) is used to establish costs for each intervention. Market or shadow prices of each relevant resource are used to estimate the costs of all components of an intervention as implemented in practice at particular sites; 3) cost-effectiveness ratios and rankings are derived by combining the cost data with effect sizes in order to compare sets of alternative interventions addressing the same goals, so that decisions regarding educational programs can be better informed.

Educational programs studied:

Dropout Prevention interventions studied were: Talent Search, New Chance, Job Corps, JOBSTART, and National Guard Youth Challenge (NGYC). Effect sizes were translated into number of additional students that graduated from school in the treatment group, above and beyond what would be expected based on control group graduation rates. For New Chance, JOBSTART, Job Corps and NGYC we obtained cost estimates from existing implementation reports or cost analyses. For Talent Search we collected the ingredients data from site-level archival records and by interviewing personnel currently involved in delivering the program.

Early literacy interventions studied were: Wilson Reading System, Stepping Stones to Literacy, Corrective Reading, Fast ForWord Reading 1, Kindergarten Peer-Assisted Learning Strategies (K-PALS), Reading Recovery, and Sound Partners. For all seven programs, ingredients data were collected from archival records and by interviewing personnel involved in implementation.

Findings:

Dropout Prevention: the costs of graduating one extra student beyond the number of graduates to be expected without receiving the interventions are approximately: \$195,000 for New Chance, \$131,000 for Job Corps, \$71,000 for NGYC, \$70,000 for JOBSTART, and \$31,000 for Talent Search. For comparison, well-known early childhood programs with documented effects on high school completion cost \$165,000 per additional high school graduate for Perry Pre-School and \$134,000 for Chicago Parent-Child Centers.

Early Literacy: the cost to increase alphabetic skills by one standard deviation ranged from a low of \$38 for Kindergarten students using K-PALS in whole-class situations, to a high of \$38,135 for third grade students using Corrective Reading in small pull-out groups with a specially trained teacher. In general, it appears more cost-effective to address reading difficulties with students in earlier grades.

Resulting products and publications:

Aspects of the above work were presented at the following conferences: AERA 2013, AEFPP 2013, and SBCA 2013. The following reports are available at: <http://cbcse.org/publications/>

Guiding the Development and Use of Cost-Effectiveness Analysis in Education by Henry M. Levin & Clive R. Belfield (2013).

Cost-effectiveness Analysis of Interventions that Improve High School Completion by Henry M. Levin, Clive Belfield, Fiona Hollands, A. Brooks Bowden, Henan Cheng, Robert Shand, Yilin Pan, and Barbara Hanisch-Cerda (2012).

Improving Early Literacy: Cost-Effectiveness Analysis of Effective Reading Programs by Fiona M. Hollands, Yilin Pan, Robert Shand, Henan Cheng, Henry M. Levin, Clive R. Belfield, Michael Kieffer, A. Brooks Bowden, and Barbara Hanisch-Cerda (2013).

The cost analysis tool is described at <http://cbcse.org/cost-resources/>