

## Teacher in-subject graduate degrees Pre-K to 12 Education

Literature review updated April 2012.

As part of WSIPP’s research approach to identifying evidence-based programs and policies, WSIPP determines “what works” (and what does not work) to improve outcomes using an approach called meta-analysis. For detail on our methods, see our [Technical Documentation](#). At this time, WSIPP has not yet calculated benefits and costs for this topic.

Program Description: This analysis examines the impact of having a teacher with a graduate degree in the subject that they teach (e.g., a math teacher with a graduate degree in mathematics), versus having a teacher without a graduate degree, holding all other measured school, teacher, and student characteristics equal.

### Meta-Analysis of Program Effects

| Outcomes measured | No. of effect sizes | Treatment N | Adjusted effect size and standard error |       |     | Unadjusted effect size (random effects model) |         |
|-------------------|---------------------|-------------|---|-------|-----|---|---------|
|                   |                     |             | ES                                      | SE    | Age | ES  | p-value |
| Test scores       | 7                   | 58621       | 0.028                                   | 0.011 | 11  | 0.028   | 0.013   |

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](#).

## Citations Used in the Meta-Analysis

- Aaronson, D., Barrow, L., & Sander, W. (2007). Teachers and student achievement in the Chicago public high schools. *Journal of Labor Economics*, 25(1), 95-135.
- Croninger, R.G., Rice, J.K., Rathbun, A., & Nishio, M. (2007). Teacher qualifications and early learning: Effects of certification, degree, and experience on first-grade student achievement. *Economics of Education Review*, 26(3), 312-324.
- Goldhaber, D.D., & Brewer, D.J. (1997). Why don't schools and teachers seem to matter? Assessing the impact of unobservables on educational productivity. *The Journal of Human Resources*, 32(3), 505-523.
- Goldhaber, D.D., & Brewer, D.J. (2000). Does teacher certification matter? High school teacher certification status and student achievement. *Educational Evaluation and Policy Analysis*, 22(2), 129-145.
- Dee, T.S., & Cohodes, S.R. (2008). Out-of-field teachers and student achievement: Evidence from matched-pairs comparisons. *Public Finance Review*, 36(1), 7-32.
- Rockoff, J.E., Jacob, B.A., Kane, T.J., & Staiger, D.O. (2011). Can you recognize an effective teacher when you recruit one? *Education Finance and Policy*, 6(1), 43-74.

Subedi, B.R., Swan, B., & Hynes, M.C. (2011). Are school factors important for measuring teacher effectiveness? A multilevel technique to predict student gains through a value-added approach. *Education Research International*.

For further information, contact:  
(360) 664-9800, [institute@wsipp.wa.gov](mailto:institute@wsipp.wa.gov)

Printed on 03-24-2024



## Washington State Institute for Public Policy

The Washington State Legislature created the Washington State Institute for Public Policy in 1983. A Board of Directors—representing the legislature, the governor, and public universities—governs WSIPP and guides the development of all activities. WSIPP's mission is to carry out practical research, at legislative direction, on issues of importance to Washington State.