

## Technical Appendix

### Definition

Mentoring in education involves pairing young people with an older peer or volunteer who acts as a positive role model. In general, mentoring aims to build confidence, develop resilience and character, or raise aspirations, rather than to develop specific academic skills or knowledge.

Mentors typically build relationships with young people by meeting with them one to one for about an hour a week over a sustained period, either during school, at the end of the school day, or at weekends. Mentoring has increasingly been offered to young people who are deemed to be hard to reach or at risk of educational failure or exclusion.

It can be hard to distinguish from tutoring, though most mentoring programmes focus on broader outcomes than specific academic skills and knowledge.

Search terms: school/volunteer mentoring; school based volunteer pairing; community based mentoring

### Evidence Rating

Overall, the evidence is rated as extensive. There are six meta-analyses with five conducted in the last ten years. Pooled effect sizes range from -0.03 to +0.16 (a range of less than two tenths of a standard deviation). Most of the studies come from the USA and focus on secondary school pupils, with a few studies from the UK and other European countries.

## References

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## Summary of effects

Meta-analyses	Effect size	FSM effect size	
DuBois, D. L., Holloway, B. E., Valentine, J. C., & Cooper, H., (2002)	0.11	0.11	Academic performance
Eby, L. T., Allen, T. D., Evans, S. C., Ng, T., & DuBois, D. L., (2008)	0.16	-	
Tolan, P. H., Henry, D. B., Schoeny, M. S., Lovegrove, P., & Nichols, E., (2014)	0.11	-	
Washington State Institute for Public Policy, (2016)	0.02	-	
Wheeler, M. E., Keller, T. E., & DuBois, D. L., (2010)	-0.02	-	Maths
	-0.01	-	Reading
Wood, S., & Mayo-Wilson, E., (2012)	-0.01	-	Academic performance
Single Studies	Effect size	FSM effect size	
Bayer, A., Grossman, J. B., & DuBois, D. L. (2013)	0.12	-	
Bernstein, L., Rappaport, C. D., Olsho, L., Hunt, D., & Levin, M. (2009)	0.05	-	Maths
	-0.04	-	Reading
	-0.03	-	Science
Herrera, C., Grossman, J. B., Kauh, T. J., & McMaken, J. (2011)	0.09	-	
Maxwell, B., Connolly, P., Demack, S., O'Hare, L., Stevens, A. & Clague, L. (2014)	0.06	-	
McQuillin, S., Smith, B., & Strait, G. (2011)	-0.44	-	Reading
	-0.12	-	English and language
	-0.37	-	Maths
	0.11	-	Science
McQuillin, S., Strait, G., Smith, B., & Ingram, A. (2015)	0.02	-	Reading
	0.16	-	English
	0.30	-	Maths
	-0.05	-	Science
Miller, S., Connolly, P., & Maguire, L. K. (2011)	0.14	-	Reading fluency
Núñez, J. C., Rosário, P., Vallejo, G., & González-Pienda, J. A. (2013)	-0.03	-	First language
	0.31	-	Maths
<b>Weighted Mean</b>	<b>0.00</b>		

The right hand column provides detail on the specific outcome measures or, if in brackets, details of the intervention or control group.

## Meta-analyses abstracts

3 *DuBois, D. L., Holloway, B. E., Valentine, J. C., & Cooper, H. (2002)*

We used meta-analysis to review 55 evaluations of the effects of mentoring programs on youth. Overall, findings provide evidence of only a modest or small benefit of program participation for the average youth. Program effects are enhanced significantly; however, when greater numbers of both theory-based and empirically based “best practices” are utilized and when strong relationships are formed between mentors and youth. Youth from backgrounds of environmental risk and disadvantage appear most likely to benefit from participation in mentoring programs. Outcomes for youth at-risk due to personal vulnerabilities have varied substantially in relation to program characteristics, with a noteworthy potential evident for poorly implemented programs to actually have an adverse effect on such youth. Recommendations include greater adherence to guidelines for the design and implementation of effective mentoring programs as well as more in-depth assessment of relationship and contextual factors in the evaluation of programs.

4 *Eby, L. T., Allen, T. D., Evans, S. C., Ng, T., & DuBois, D. L. (2008)*

The study of mentoring has generally been conducted within disciplinary silos with a specific type of mentoring relationship as a focus. The purpose of this article is to quantitatively review the three major areas of mentoring research (youth, academic, workplace) to determine the overall effect size associated with mentoring outcomes for protégés. We also explored whether the relationship between mentoring and protégé outcomes varied by the type of mentoring relationship (youth, academic, workplace). Results demonstrate that mentoring is associated with a wide range of favourable behavioural, attitudinal, health related, relational, motivational, and career outcomes, although the effect size is generally small. Some differences were also found across type of mentoring. Generally, larger effect sizes were detected for academic and workplace mentoring compared to youth mentoring. Implications for future research, theory, and applied practice are provided.

12 *Tolan, P. H., Henry, D. B., Schoeny, M. S., Lovegrove, P., & Nichols, E. (2014)*

Objectives: To conduct a meta-analytic review of selective and indicated mentoring interventions for effects for youth at risk on delinquency and key associated outcomes (aggression, drug use, academic functioning). We also undertook the first systematic evaluation of intervention implementation features and organization and tested for effects of theorized key processes of mentor program effects. Methods: Campbell Collaboration review inclusion criteria and procedures were used to search and evaluate the literature. Criteria included a sample defined as at risk for delinquency due to individual behavior such as aggression or conduct problems or environmental characteristics such as residence in a high-crime community. Studies were required to be random assignment or strong quasi-experimental design. Of 163 identified studies published from 1970–2011, 46 met criteria for inclusion.

Results: Mean effects sizes were significant and positive for each outcome category (ranging from  $d=0.11$  for academic achievement to  $d=0.29$  for aggression). Heterogeneity in effect sizes was noted for all four outcomes. Stronger effects resulted when mentor motivation was professional development but not by other implementation features. Significant improvements in effects were found when advocacy and emotional support mentoring processes were emphasized.

13 *Washington State Institute for Public Policy (2016)*

In school-based mentoring programs, mentors and students meet weekly at school for one-to-one relationship building and guidance. Mentors are adult volunteers, school staff, or high school students. Community-based organizations coordinate with school staff and provide mentors with training and oversight. The programs included in this analysis are (in no particular order) the national Student Mentoring Program, Big Brothers Big Sisters, Project CHANCE, SMILE, and other, locally developed programs.

14 *Wheeler, M. E., Keller, T. E., & DuBois, D. L. (2010)*

Between 2007 and 2009, reports were released on the results of three separate large-scale random assignment studies of the effectiveness of school-based mentoring programs for youth. The studies evaluated programs implemented by Big Brothers Big Sisters of America (BBBSA) affiliates (Herrera et al., 2007), Communities In Schools of San Antonio, Texas (Karcher, 2008), and grantees of the U.S. Department of Education’s Student Mentoring Program (Bernstein et al., 2009). Differences in the findings and conclusions of the studies have led to varying responses by those in practice and policy roles. The results of the BBBSA trial led the organization to undertake an initiative to pilot and evaluate an enhanced school-based mentoring model. Findings of the Student Mentoring Program evaluation were cited as a reason for eliminating support for the program in the FY 2010 federal budget (Office of Management and Budget, 2009). In this report, we present a comparative analysis of the three studies. We identify important differences across the studies in several areas, including agency inclusion criteria, program models, implementation fidelity and support, and criteria utilized in tests of statistical significance. When aggregating results across the studies using meta-analytic techniques, we find evidence that school-based mentoring can be modestly effective for improving selected outcomes (i.e., support from non-familial adults, peer support, perceptions of scholastic efficacy, school-related misconduct, absenteeism, and truancy). Program effects are not apparent, however, for academic achievement or other outcomes. Our analysis underscores that evidence-based decision-making as applied to youth interventions should take into account multiple programmatic and methodological influences on findings and endeavor to take stock of results from the full landscape of available studies.

15 *Wood, S., & Mayo-Wilson, E. (2012)*

Objectives: To evaluate the impact of school-based mentoring for adolescents (11–18 years) on academic performance, attendance, attitudes, behaviour, and self-esteem. Method: A systematic review and meta-analysis. The authors searched 12 databases from 1980 to 2011. Eight studies with 6,072 participants were included, 6 were included in meta-analysis. Studies were assessed using the Cochrane Collaboration Risk of Bias Tool. Results: Across outcomes, effect sizes were very small (random effects), and most were not significant. The magnitude of the largest effect (for self-esteem) was close to zero,  $g = 0.09$ , [0.03, 0.14]. Conclusions: The mentoring programs included in this review did not reliably improve any of the included outcomes. Well-designed programs implemented over a longer time might achieve positive results.