

## Technical Appendix

### Definition

Behaviour interventions seek to improve attainment by reducing challenging behaviour, including aggression, violence, bullying, substance abuse and general anti-social activities. Three broad categories of behaviour interventions can be identified:

1. school-level approaches to developing a positive school ethos or improving discipline which also aim to support greater engagement in learning;
2. universal programmes which seek to improve behaviour and generally take place in the classroom; and
3. more specialised programmes which are targeted at students with either behavioural issues or behaviour and academic problems.

Search terms: anti-social interventions; social skills interventions; anti-bullying interventions; juvenile delinquency; behaviour intervention

### Evidence Rating

There are eight meta-analyses suggesting that behaviour interventions can produce improvements in academic performance along with a decrease in problematic behaviours. Five have been published in the last ten years. At least three of these explore methodological and programme features associated with impact. However, overall the effects vary widely across programmes and the included studies are often small scale. The majority of studies report higher impact with older pupils. School-level behaviour approaches are often associated with improvements in attainment, but the evidence of a consistent causal link to learning from general programmes is lacking. Overall, the evidence is rated as extensive.

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## Summary of effects

| Meta-analyses  | Effect size | FSM effect size |  |
|--|-------------|-----------------|--|
| Gansle, K.A., (2005)   | -0.11       | -               |  |
| Grant, T.A., (2012)  | 0.12        | -               |  |
| Lösel, F., & Beelmann, A., (2003)  | 0.38        | -               |  |
| Quinn, M.M., Kavale, K.A., Mathur, S.R., Rutherford, R.B., Jr. & Forness, S.R., (1999) | 0.05        | -               |  |
| Reddy, L.A., Newman, E., De Thomas, C.A., Chun, V., (2009)                             | 1.78        | -               | (emotional disturbance - intervention) |
|  | 0.28        | -               | (emotional disturbance - prevention)   |
| Sander, J.P., Patali, E.A., Amoscato, L.A., Fisher, A.L., & Funk, C., (2012)           | 0.02        | -               |  |
| Washington State Institute for Public Policy, (2014)                                   | 0.40        | -               | (age 9)                                |
|  | 0.24        | -               | (age 17)                               |
| Wilson, S.J., & Lipsey, M.W., (2007)   | 0.22        | -               | School performance                     |
| Single Studies   | Effect size | FSM effect size |  |
| What Works ClearingHouse (2014)  | 0.21        | -               | Reading                                |
| <b>Weighted mean effect size</b>   | <b>0.25</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 Gansle, K.A. (2005)

Twenty peer-reviewed journal articles that described outcomes of interventions that took place in school settings and either focused on anger or included anger as a dependent variable were meta-analysed. No differences in outcomes were found for group comparisons by school setting, special education status, entrance criteria, or treatment agents. Although 60% of articles discussed its importance, only two articles actually measured treatment integrity. Across outcomes, the weighted mean effect size of the interventions post treatment was determined to be .31. The largest effects were found for anger and externalizing behaviours, internalizing, and social skills, with mean effect sizes of .54, .43, and .34 respectively. Weighted mean effect sizes for follow-up studies were also calculated, but given the small number of studies that reported follow-up effects, those must be interpreted with caution. The results of this meta-analysis are discussed as they relate to research, practice, and intervention with children.

### 5 Grant, T.A. (2012)

The first hypothesis for this study was that school-based interventions focused on reducing aggressive behavior and increasing academic achievement and social competence are likely to have positive program effects for middle schoolers. The second hypothesis was that larger program effects would be associated with the representation of one or more Turning Points (Carnegie Council on Adolescent Development, 1989; Jackson & Davis, 2000) best practices. The first hypothesis was supported by the finding that overall these school-based interventions demonstrate a positive mean effect,  $d = .178$  that is considered practically significant. Inferential analyses revealed social competence interventions demonstrated the largest effects when controlling for methodological characteristics. This relationship was strengthened by universal program format. The school-based interventions were not using all of the eight best practices which contribute to improved outcomes for middle schoolers.

6 *Lösel, F., & Beelmann, A. (2003)*

This article reports a meta-analysis on social skills training as a measure for preventing antisocial behavior in children and youth. From 851 documents, 84 reports containing 135 comparisons between treated and untreated youngsters ( $N = 16,723$ ) fulfilled stepwise eligibility criteria (e.g., randomized control-group design, focus on prevention). Despite a wide range of positive and negative effect sizes, the majority confirmed the benefits of treatment. The best estimated mean effects were  $d = .38$  (post-intervention) and  $.28$  (follow-up). Effects were smaller on antisocial behavior than on related social and cognitive measures. Studies with large samples produced lower effect sizes than those with smaller samples. Programs targeting at-risk groups had better effects than universal programs. Modes of treatment did not differ significantly; however, cognitive-behavioral programs had the strongest impact on antisocial behavior. More well-controlled studies with large samples, hard outcome criteria, and long follow-up periods are needed, particularly outside the United States.

8 *Quinn, M.M., Kavale, K.A., Mathur, S.R., Rutherford, R.B., Jr. & Forness, S.R. (1999)*

Many programs designed for youth with Emotional or Behavioural Disorders (EBD) include a social skill training component. Using quantitative methods of meta-analysis, the finding from 35 studies investigating the effects of social skills interventions for students with EBD were synthesized. The pooled mean effect size (ES) was 0.199 from which the average student with EBD would be expected to gain a modest eight percentile ranks on outcome measures after participating in a social skill training program. Studies were further grouped and analysed according to different variables (e.g. similarities of the intervention, participants and assessment procedures). Slightly greater ES were found for interventions focused on teaching and measuring specific social skills (e.g. cooperating or social problem solving) compared to more global interventions. Several pertinent issues for reviewing the results of this research synthesis are addressed.

9 *Reddy, L.A., Newman, E., De Thomas, C.A., Chun, V. (2009)*

The present study evaluated the effectiveness of school-based prevention and intervention programs for children and adolescents at-risk for and with emotional disturbance. Published outcome studies ( $k=29$ ) from December, 1988, to March, 2006, including 1405 children and adolescents were reviewed. Each investigation was coded on several variables describing the child, parent, and teacher samples, as well as reported outcome results. The overall mean weighted effect size was 1.00 at post-test and 1.35 at follow-up. Mean weighted ESs were 0.42 for between-subjects design studies, 0.87 for within-subjects design studies, and 1.87 for single-subject design studies. Prevention programs yielded a mean weighted ES of 0.54 and intervention programs produced a mean weighted ES of 1.35. Findings for specific outcome foci are presented and implications are discussed.

10 *Sander, J.P., Patall, E.A., Amoscato, L.A., Fisher, A.L., & Funk, C. (2012)*

This meta-analysis examined the effects of juvenile delinquency interventions on academic outcomes. After retrieving over 250 reports, 15 reports met inclusion criteria and provided 134 effect sizes (92 unadjusted and 42 adjusted) based on 20 separate samples in a variety of settings, including school, community, and juvenile justice settings. Heterogeneity of the samples, generally weak research designs, and the absence of control conditions in many recovered reports was a limitation in the existing research. Overall, there were limited positive effects of juvenile delinquency interventions on academic outcomes. The lack of theory driven or empirically supported academic interventions was notable. Studies with the weakest designs produced the largest effects on academic achievement, and school attendance outcomes were enhanced only for older adolescents. The implications of findings for future research and policy are discussed.

12 *Washington State Institute for Public Policy (2014)*

Some K-12 schools operate school-wide student behavior improvement programs as one way to focus the school environment on learning (rather than discipline or other issues). These programs are often described as "positive behavior" interventions or systems and include specific programs such as School-wide Positive Behavioral Interventions and Supports, Positive Action, and the Responsive Classroom. The programs encourage pro-social behavior for all students. (In contrast, other interventions target problem behaviors among troubled students who are not the focus of this analysis.) School-wide behavior programs typically include a specialized curriculum, professional development for teachers and staff, and encouragement of and rewards for positive behaviors such as being on time and listening in the classroom.

14 *Wilson, S.J., & Lipsey, M.W. (2007)*

Research about the effectiveness of school-based psychosocial prevention programs for reducing aggressive and disruptive behaviour was synthesized using meta-analysis. This work updated previous work by the authors and further investigated which program and student characteristics were associated with the most positive outcomes. Two hundred forty-nine experimental and quasi-experimental studies of school-based programs with outcomes representing aggressive and/or disruptive behaviour were obtained. Effect sizes and study characteristics were coded from these studies and analysed. Positive overall intervention effects were found on aggressive and disruptive behaviour and other relevant outcomes. The most common and most effective approaches were universal programs and targeted programs for selected/indicated children. The mean effect sizes for these types of programs represent a decrease in aggressive/disruptive behaviour that is likely to be of practical significance to schools. Multicomponent comprehensive programs did not show significant effects and those for special schools or classrooms were marginal. Different treatment modalities (e.g., behavioural, cognitive, social skills) produced largely similar effects. Effects were larger for better-implemented programs and those involving students at higher risk for aggressive behaviour. Schools seeking prevention programs may choose from a range of effective programs with some confidence that whatever they pick will be effective. Without the researcher involvement that characterizes the great majority of programs in this meta-analysis, schools might be well-advised to give priority to those that will be easiest to implement well in their settings.