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Title: Visualizing the Evidence on Social and Emotional Learning Interventions

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Background

One of the challenges to supporting the use of evidence for decision-making in education is in translating that evidence into user-friendly formats. While much work is being done to synthesize research on a range of areas in education in ever more rigorous fashion, these products can still be overwhelming to policymakers and practitioners. Evidence mapping is another type of systematic review, which can summarize and interpret the existing evidence on a given topic area (Moher, Stewart, & Shekelle, 2015), and are becoming more common (Miake-Lye, Hempel, Shanman, & Shekelle, 2016).

Evidence maps are "thematic collections of evidence on effects structured around a framework which schematically represents types of interventions and outcomes of relevance" (Snilstveit, Vojtkova, Bhavsar, Stevenson, & Gaarder, 2016, p. 121). Evidence maps are similar to other types of systematic reviews in that they employ a systematic approach to searching and identifying relevant literature and may be large in scope. However, they are unique in that they are designed to relay the state of evidence around a particular topic in a simple way, often using visual representation. This use of visualization may be the key to translate "what is known" about a particular set of interventions to non-academics. The results of a traditional systematic review and meta-analysis could be converted to an evidence map to be used by policymakers and practitioners as they decide on specific approaches for their schools.

Purpose

Schools have become more focused on improving the social and emotional learning (SEL) of their students, especially as schools are integrating non-academic indicators into their ratings. Numerous reviews of SEL programs have been completed (e.g., Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Goldberg, Sklad, Elfrink, Schreurs, Bohlmeijer, & Clarke, 2019), but these remain lengthy documents that may be daunting to those we hope to reach with that information. The purpose of this study is to provide a visual overview of the extent and distribution of rigorous evidence on SEL interventions for K-12 students across multiple types of outcomes.

Method

The current study used data collected for a traditional systematic review and meta-analysis of interventions designed for SEL. However, this approach of searching, reviewing against set inclusion criteria, and extracting data is similar to the process of creating an evidence map (Snilstveit et al., 2016). These are described in further detail below.

Data Collection

A master list of SEL programs was created, integrating lists of SEL programs developed by credible organizations, such as Blueprints, CASEL, and What Works Clearinghouse, with a well-developed systematic review (Grant et al., 2017). Initial electronic searches were made of educational databases including ERIC, JSTOR, and PsycInfo, to identify studies meeting inclusion criteria for each program. To locate unpublished reports and other possible inclusions, Google Scholar, citations from identified studies and previous reviews, and each program's official websites were also searched. New programs located in the search process were added to the master list.

Inclusion Criteria

Accepted studies must:

1. Be published between 1990 and 2019.
2. Evaluate SEL programs for K-12 students.
3. Include a comparison group of children receiving "business as usual" services.
4. Take place in the United States.
5. Use either random assignment or quasi-experimental methods with adjustments for pretest differences.
6. Demonstrate baseline equivalence between groups based on the analytic sample (after attrition) of less than 0.25 SD for pretests of outcome measures, and 0.50 SD for demographic covariates.
7. Use quantitative measures of outcomes that examine actual behaviors or intention for behaviors (not attitudes or beliefs). Experimenter- or developer-made measures that were over-aligned to treatment were excluded.
8. Include at least 30 students and 2 teachers in each condition. When treatment was assigned at the cluster level, there needed to be at least two units in each condition.
9. Use duration of 12 weeks from the beginning of the intervention to the posttest.
10. Evaluate programs that would be replicated. If programs were delivered by research staff or provided levels of support which would not be feasible in actual practice, studies were excluded.

Review & Extraction

After a screening of the abstract and title for relevance, all full-text studies were read by at least two reviewers before being included in our set of included studies. For the full systematic review, a number of items were coded, but for the present study, only the intervention, sample sizes, outcomes, and whether outcomes were significantly positive or negative were required. That information was graphed using the R package *ggplot2* (Wickham, 2016).

Results

A total of 37 studies of 26 SEL programs met the inclusion criteria. Across these studies a total of 299 outcomes were identified. These outcomes were divided into 15 categories: Academic Engagement, Academic Performance, Aggression/fighting, Bullying, Conduct Problems, Coping Skills/Stress Management, Disruptive Behavior, Emotional Regulation, Empathy, Interpersonal Relationships, Prosocial Behavior, Reduced Anxiety/Depression, School Climate, Self-Esteem/Self-Efficacy, and Social Skills. The results are summarized in Figure 1. Each study is represented by one dot. The size of the dot depends on the sample size for that study. A study may be represented in more than one column if it measured outcomes from different categories. The color is based on the outcome findings. A green dot means more than half of the outcomes in that study in that category were significantly positive. A red dot means most of the impacts in that study in that category were significantly negative. A grey dot means the impacts are inconclusive.

The map illustrates that programs such as Second Step have multiple studies, some with large samples, but few significantly positive outcomes. Other programs, such as Youth Matters, have only been evaluated with a single type of outcome. Overall, there are few studies where there are numerous significantly positive results.

Conclusions

        The evidence map for SEL programs allows users to quickly assess the degree of evidence for particular programs for specific types of outcomes. While some outcomes may only be relevant to particular programs, users can choose the types of impacts they want to see, and select programs accordingly.

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*Included in the evidence map

Figure 1.