

A photograph of a child's workspace. In the upper center, a white tray holds a set of colorful markers. Below it, a coloring book is open, showing a red fire truck on a yellow and black striped background. To the left, a purple stapler is partially visible. The background consists of a green mat and a red surface. A white box with the word 'Evaluation' is overlaid on the image.

Evaluation

Effectiveness of School-Based Social and Emotional Education Programmes Worldwide

René F. W. Diekstra

Abstract

This chapter presents a review of the scientific literature on the effects of Social and Emotional Education programmes world-wide, for children and youngsters in elementary and secondary education. Such programs, often labelled as Social Emotional Learning (SEL) or Skills for Life (SFL) programs are designed to enhance social, emotional and sometimes also moral skills of children and youngsters and therewith foster their overall development.

The review consists of two parts. Part One is a review of meta-analytic literature reviews. Part Two is a meta-analysis of SEL/SFL effect studies from the period 1997-2007. Meta-analysis is a method for establishing the overall results of a number of studies, usually effect-studies. SEL/SFL effect studies examine the type and magnitude of changes in attitudes and behavioural skills of children and youngsters brought about by participation in Social Emotional Learning or Skills for Life programs.

In Part One the main outcomes of meta-analyses published in the period 1997-2008 concerning SEL/SFL effect studies are presented and discussed. 19 meta-analyses were identified, which focus exclusively or substantially on the efficacy of universal school-based SEL/SFL programmes. The meta-analyses were specifically reviewed with regard to the following questions: a) Do SEL/SFL programmes significantly enhance what they are teaching, namely the social and emotional skills of children and youngsters? b) Do SEL/SFL programmes significantly reduce or prevent problematic behaviours such as violent and aggressive and self-aggressive/suicidal behavior? c) Do SEL/SFL programmes enhance or promote positive behaviors such as prosocial behavior, school compliance and service orientation? d) Do SEL/SFL programmes significantly enhance school grades and/or academic achievement?

While overall the answers to these questions were clearly positive, there are a number of important issues that still deserved closer attention, such as the relationship between programme effect, ethnicity and socio-economic status. Are children and youngsters most in need, also the ones who profit most? Another question regards the dose-response effect: what is the relationship between programme type, length and/or intensity and programme effect? Although there is clearly a need for more in-depth research into these issues, the most effective programmes share a number of characteristics that are relevant to educational systems and schools when adopting programmes.

A major limitation on the positive conclusions drawn from the review of reviews is that the vast majority of studies included in the published meta-analyses originate from the United States, while very few of the studies come from elsewhere. This raises the question whether,



given differences in cultures and educational system characteristics, SEL/SFL programmes as they have been conceived and become evidence-based, will also be similarly effective elsewhere in the world.

Another limitation on the conclusions of the review of meta-analysis is that, although it covers hundreds of effect studies and hundreds of thousands of children and youngsters as participants, many of the studies included, and therewith programmes evaluated, are not particularly recent. As a matter of fact, the time frame covered is from the early 1950's to the first few years of the 21st century.

To address these two limitations, an additional meta-analysis, presented in Part Two, has been carried out on 76 controlled studies of SEL/SFL programmes published in the last decade, the period 1997-2007, comprising as many effect studies as possible from different countries. Although the majority of studies still originate from the United States, a considerable subsample of non-American programmes, all from European countries, were also included.

The results of this new meta-analysis confirm the overall picture from the summative review of the 19 other meta-analyses. SEL/SFL programmes in other countries, as in the U.S, significantly enhance social and emotional skills of children and youngsters, reduce or prevent mental and behavioural problems and/or promote academic achievement, in the short as well as in the long term. Some of the effects, such as those detected on prosocial behavior, appear to decrease with increasing follow-up length while others, such as reduction or prevention of mental problems and drug(ab)use, appear to increase over time after completion of the programme.

Nevertheless, the overall conclusion from both reviews is crystal clear: systematic, programmatic attention to the teaching of social-emotional skills in the school system has world-wide significance. It promotes overall development of children and youngsters, prevents developmental problems and promotes academic achievement.

In summary, universal school-based SEL/SFL programmes for primary and secondary school children and adolescents are beneficial. Their social and emotional development is significantly enhanced by these interventions. Because this is a key to their overall development in terms of personality, academic progress, school career and societal functioning, the present state of knowledge on the effectiveness of SEL/SFL programmes puts a heavy responsibility on governments and educational policy makers around the globe.

Failure or refusal to adopt and appropriately support the implementation of SEL/SFL programmes in primary and secondary education is equal to depriving children and youngsters of crucial and scientifically substantiated opportunities for their personal, social and academic development. This would be a flagrant violation of the United Nations Convention of the Rights of the Child.

Stated otherwise, given the present state of knowledge regarding the effectiveness of Social Emotional and Life Skills Learning, countries can no longer be excused for not providing the means and support to schools to offer such programmes. For not only do they deprive their children and young people of what they, on the base of international law, are entitled to. Such countries and governments also deprive their societies of future citizens who possess socially and emotionally well-developed and well-balanced personalities and who contribute their full potential to the functioning, development and general well-being of their communities.

Part One

A Review of Meta-Analytic Literature Reviews

René Diekstra and Carolien Gravesteyn

Introduction

When the Convention on the Rights of the Child (CRC) was adopted by the United Nations Assembly and opened for signature in November 1989, it was received in many countries around the globe with a lot of public and political interest and support. But in a number of countries it also became the subject of fierce debates and discussions and, with regard to specific parts of its text and articles, encountered strong opposition.

Consequently it took a long time, often many years, before the UN member states completed the ratification process and in several cases by 2008 ratification is still not completed. One of the articles that has been subject to intense debates and disagreements, both before and after the adoption of the Convention, is article 29. This article is on education and reads as follows:

1. States Parties agree that the education of the child shall be directed to:

- (a) The development of the child's personality, talents and mental and physical abilities to their fullest potential;
- (b) The development of respect for human rights and fundamental freedoms, and for the principles enshrined in the Charter of the United Nations;
- (c) The development of respect for the child's parents, his or her own cultural identity, language and values, for the national values of the country in which the child is living, the country from which he or she may originate, and for civilizations different from his or her own;
- (d) The preparation of the child for responsible life in a free society, in the spirit of understanding, peace, tolerance, equality of sexes, and friendship among all peoples, ethnic, national and religious groups and persons of indigenous origin;
- (e) The development of respect for the natural environment.

The central tenet of this article is that education is not just a matter of fostering cognitive-academic development, but should be directed at the overall, i.e. physical, cognitive, social, emotional and moral development- of the child. Consequently, educational systems or institutions,

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such as schools, that exclusively or predominantly focus on academic development, violate children's rights. Even more so, if one relates article 29 of the CRC to article 27 of the Universal Declaration of Human Rights, which states¹ that everyone has the right to share in the benefits of scientific progress and its application. In other words, if scientific research has validly identified approaches and methods that enhance the overall development of children in and by the educational system, the child has the right to be educated through such approaches and methods.

Hence, the question arises whether science has constructed or identified educational approaches and methods that enhance children's overall development, both cognitive-academic, social, emotional and moral, to an extent over and above that which is attainable by focusing primarily on cognitive-academic development. In this chapter, a review of the scientific literature on the effects of Social Emotional Learning (SEL) or Skills For Life (SFL) programmes for children and youngsters in elementary and secondary education, this question will be addressed in two ways.

First, an overview is given of the main outcomes of meta-analytic literature reviews published in the period 1997-2008. Second, in order to answer several questions that remained unanswered after the review of meta-analytic studies, the author and colleagues carried out an additional meta-analysis on 76 controlled studies on SEL/SFL programmes published in the period 1997-2007.

A Review of Meta-Analytic Literature Reviews

The assessment of the effectiveness of universal school-based programmes targeted at enhancing social, emotional and (often) moral skills and development of children and youngsters, and therewith possibly fostering their overall educational achievement and reducing or preventing emotional and behavioural problems, has been the subject of a number of literature reviews over the past two decades (see for example. Schneider, 1992, Beelmann, 1994, Moote et al. 1999, Wilson et al, 2001, Losel and Beelmann, 2003, Hahn et al, 2007).

The term school-based refers to the fact that the SEL/SFL programme is implemented within the school, during normal school/class hours and considered to be a part of the school curriculum or culture. The term 'universal' refers to programmes that are administered to all children in classrooms regardless of individual risk, not only to those who already have manifested a tendency to lag behind in social, emotional or moral development or showing emotional or behavioural problems or risk factors for these problems. Programmes might be implemented in all levels of education, varying from kindergarten, via elementary school to middle schools and high schools.

Universal school-based SEL/SFL programmes are founded on a variety of theoretical approaches, although most cite social learning theory and cognitive-behavioral approaches as the foundation of their intervention design. Furthermore, while some programmes mainly consist of classroom curricula, other programmes combine classroom curricula with activities outside the classroom, involving the entire school, parents and the community. Community service by children and adolescents might also be a part of the programme, especially if there is an emphasis on education for citizenship or civic engagement.

There is also considerable variety in the composition of programmes, such as the set of behavioural and attitudinal facets and skills addressed. For example, some programmes are mainly focused on teaching students refusal skills, such as resistance against drugs, premature sexual behaviour, violence resistance skills and suicidal behaviour resistance skills. Other programmes assume that such skills mainly derive from social and emotional skills or from positive self-concept or self esteem, so that enhancing such skills or self esteem will make children's behaviour more positive and sociable, and consequently they will make positive choices more often. Other programmes combine both approaches.

In addition, programme manuals and implementation show considerable differences, both in terms of the sequence in which components are presented, the length of the programme, and the type of professional who presents or teaches the programme.

Consequently, efforts to review and succinctly summarize the state of knowledge regarding the efficacy of universal school-based SEL/SFL programmes meet with considerable difficulties and complexities, often resembling an exercise in trying to put 'apples and pears' in the same fruit basket in a way that makes them acceptable look-alikes. Such efforts are further complicated by the fact that indicators of success of programmes or the type of outcome measures used differ widely as do the periods over which effects have been assessed or followed-up.

Failure or refusal to adopt and appropriately support the implementation of SEL/SFL programs in primary and secondary education is equal to depriving children and youngsters of crucial and scientifically substantiated opportunities for their personal, social and academic development. This would be a flagrant violation of the United Nations Convention of Children's Rights

The most suitable way to date to cope with these complexities is to apply a form of literature review that is commonly designated as meta-analysis. Meta-analysis is a method that combines the results of several studies that address similar research questions in a way that allows for statistically defensible conclusions. For example taking all the available studies using a controlled design together, what is the average difference in skills in establishing and maintaining friendships between children that have and children that have not attended a Skills for Life programme?

A number of meta-analyses of SEL/SFL programme studies have been published over the past two decades. Often, these meta-analyses combine effect studies on school-based, after-school and outside-school or community programmes. Although the general conclusion to be drawn from these reviews appears to be that SEL/SFL programmes have the dual benefits of enhancing competencies (e.g., assertiveness, communication skills, self-confidence, academic performance) and reducing the internalizing and externalizing of problems, the issue of differential effects of school-based versus after or outside school programmes is not sufficiently highlighted. Are there differences in efficacy depending upon the context or locality of the programme?

In the following section, a review of meta-analytic reviews of universal school-based SEL/SFL programmes is presented. The time frame for selecting these reviews is the past decade, the

period 1997–2007. The reason for this limitation is that both the quality of meta-analytic reviews has improved substantially in recent years as has the quality of design of SEL/SFL effect studies.

A Review of Reviews: Research Questions

The purpose of this review of meta-analytic reviews of universal school-based SEL/SFL programmes is to answer the following questions: a) Do SEL/SFL programmes indeed ‘teach what they preach’? Do they significantly enhance what they are teaching, namely the social and emotional skills of children and youngsters? b) Do SEL/SFL programmes significantly reduce or prevent problem behaviours such as drug (ab)use, violent and aggressive and self aggressive/suicidal behaviour? c) Do SEL/SFL programs enhance or promote positive behaviours such as prosocial behaviour, school compliance and service orientation? d) Do SEL/SFL programmes significantly enhance school grades and/or academic achievement?

Methods

Criteria for Including Studies in the Review

Studies were included in the review if they:

A | Were reported in English, published in the period 1997–2007 in peer-reviewed journals or were in the process of being published, and contained a meta-analysis of effectiveness of universal school-based SEL/SFL programmes for primary and/or secondary school students, aimed at:

B | Enhancing social skills, social adjustment and/or emotional self-regulation as the primary goal or as factors of reducing or preventing problem or disruptive behaviour, aggressive or violent behaviour, antisocial behaviour, drug (ab)use, anger, hostility, self-concept, stress management, anxiety and depressive conditions, school participation/attitudes or school performance;

C | Reported statistically calculated effect sizes on experimental or quasi-experimental effect-studies (i.e. ‘narrative’ meta-analyses were excluded).

Collection of Meta-Analyses

An attempt was made to identify and retrieve meta-analyses of universal school-based intervention studies, published in peer-reviewed journals in the English language in the period 1997–2008 or studies which were going to press. The primary source was a comprehensive search of bibliographic databases, including PsycINFO, ERIC (Educational Resources Infor-

mation Center), and Medline. Secondly, the bibliographies of identified meta-analyses and literature reviews and the tables of contents of relevant journals were reviewed for eligible studies. Identified studies were retrieved from the library (University of Utrecht Library) or obtained through the Library services. We obtained and screened all of the reports identified as potentially eligible.

Of the 44 studies that were identified as possibly meta-analyses of universal school-based SEL/SFL programmes, 15 were discarded because it appeared not to be possible to identify exactly or even approximately the number of studies on universal school-based programmes within the total number of studies included. Another 5 meta-analyses did not provide adequate information on the inclusion of general SEL/SFL components in the programmes analysed. Furthermore, 5 meta-analyses were not included because of the fact that they are ‘follow-ups’ by the same researchers or research groups of meta-analyses included and are focusing on specific questions, using the same set, or a subset, of studies from those analyses (e.g. Roona et al., 2000).

Of the remaining sample of 19 meta-analyses, a number did not exclusively address universal school-based SEL/SFL programmes, but are still included in the review because data on the subset of universal school-based programmes were presented in ways that made them sufficiently identifiable.

With the exception of one, all meta-analyses included in the review have been published in peer-reviewed journals. The exception is the meta-analysis by CASEL (Durlak et al. 2008) that is reported on the CASEL website (www.casel.org) and is expected to be published in the course of 2008. It is included because of its scope and relevance and because of the fact that the present authors have been given the opportunity to read a draft manuscript of this study.²

Although it is probably correct to assume that the search has not resulted in complete coverage of the relevant population of meta-analyses, sufficient critical mass has been assembled to allow both for valid and reliable answers to the research questions addressed

A Review of Reviews: Results

The 19 meta-analyses included in this review (see table 1) examined SEL/SFL programme effects on many different themes or problems, ranging from enhancement of general social and emotional skills, self-concept and self-esteem, via reducing or preventing disruptive behaviour and drug use to prevention of mental ill-health and mental disorders.

Although there is considerable overlap between (some) meta-analyses with regard to the

studies included, the total set of SEL/SFL-effect studies included in the sample of meta-analyses, amounting to at least 700 plus and probably even more, is impressive³. Even more so, since the number of elementary and secondary school students participating in the studies runs into several hundreds of thousands⁴. The studies cover a period of about half a century, the 'oldest' effect studies dating from the early 1950's.

The vast majority of effect studies, in particular the appropriately randomized control studies, originate from the United States, the percentage of U.S.-studies in the sample of meta-analyses ranges from 89–98 %. The remaining percentages almost completely pertain to studies from other Anglo-Saxon countries, particularly Canada and Australia. This fact creates some serious obstacles regarding possible generalisations or an 'internationalization' of findings, for it is reasonable to assume that a nation's social context and educational system and policies have a significant influence on the effectiveness of its intervention programmes (see also Faggiano et al., 2008, p. 394).

A high to very high proportion of the studies in the meta-analyses are research or demonstration projects in which the researchers or programme developers have a relatively large and direct influence on the programme delivery. As Wilson and Lipsey rightfully point out (2007, p. 124), schools adopting such programmes without such engagement may have difficulty attaining comparable programme fidelity and programme effects.

Design Characteristics

Meta-analyses on interventions bring together studies that are performed by different researchers in different ways, on different groups, in different settings, using different outcome measures, examined for different lengths of time. Since meta-analysis is used to estimate the combined effect from a group of studies, it is important to check whether the effects found in separate studies are similar enough to conclude that a combined or 'average' estimate of effect is a meaningful reflection of the set of effect studies included in the analysis. Of course, some variation unavoidably occurs, but it is important to ascertain that this variation can be explained on the basis of chance. If the variation between individual studies is significantly larger than what is expected on the basis of chance alone, (statistical) heterogeneity is the case. Quite a few, but not all, of the meta-analyses reviewed tested for heterogeneity and, if significant, attempted to explain it in terms of either methodological, or 'clinical', diversity.

As to methodological diversity, all meta-analyses observed a large variety in the quality of design of the effect studies. Often this was a reason to exclude studies from the meta-analysis. Problems found were: a lack of appropriate randomization, a lack of matching of subjects

during the pre-test, a lack of follow-up or short follow-up periods, a lack of standardized outcome measures and a lack of programme delivery process evaluation. Since appropriate randomized controlled trials are difficult to implement within the school system, and therefore researchers often have to resort to quasi-experimental designs, most meta-analyses include both experimental and quasi-experimental studies. Relationships between study design variables and effects are examined in many of the meta-analyses (e.g. Tobler et al., 2000), which is relevant because of the possibility of weaker design studies showing larger effects.

Apart from methodological diversity, there is also great diversity in the 'clinical sense', such as age and sex of subjects, type and composition of programme, programme length and intensity, programme deliverer, quality of implementation, definitions of outcomes. Some meta-analyses examine relationships between all these characteristics and effects in detail (e.g. Wilson & Lipsey, 2007), while others pay attention to some but ignore others (Hahn et al., 2007).

Table 1

Meta-Analyses of SEL/SFL Programs 1997-2008

Authors	Year	Target of SEL/SFL	Number of studies ⁵	Number of participants involved	General Outcome
Durlak & Wells	1997	Behavioral and social problems	177 (73% school settings)	Circa 22,000	Most categories of programmes had the dual benefit of significantly reducing problems and significantly increasing competencies. Programmes modifying the school environment, individually focused mental health promotion efforts, and attempts to help children negotiate stressful transitions all yield significant effects.
Stage & Quiroz	1997	Classroom disruptive behaviour	99/122 (regular education classroom programmes)	5,057 (estimated half of this number were regular education classroom students)	Overall, results indicate that interventions to reduce disruptive classroom behaviour yield comparable results to other meta-analytic studies investigating the effectiveness of psychotherapy for children and adolescents. This indicates that there are efficacious treatments for use in public education settings that decrease disruptive classroom behaviours
Haney & Durlak	1998	Self concept/self esteem	120 (of which 55.8% school based)	(estimation of circa 12,000 of which 55.8% school-based)	Review indicates significant improvement in children's and adolescents' self esteem and self concept and significant concomitant changes in behavioural, personality and academic functioning. Interventions specifically focused on changing self esteem and self concept were significantly more effective than programmes focused on another target such as behavioural or social skills
White & Pitts	1998	Illicit drug use or harm caused by it	71 (89% school settings)	14331	The impact of evaluated interventions was small with dissipation of programmes' gains over time. The evidence suggests that the best that can be achieved using school-based intervention strategies is a short term delay in the onset of substance use by non-users and a short-term reduction in the amount of use of some current users
Tobler, Roona, Ochshorn, Marshall, Streke & Stackpole	2000	Drug use	207 (universal programs)/359 (drug use comparisons or effect sizes)	?	Programmes are more or less effective in reducing, delaying or preventing drug use depending upon type of programme and small scale or large-scale implementation. Programmes that are interactive in nature and implemented on a relatively small scale are most effective, affecting drug use to statistically and clinically quite significant degrees. Non-interactive programmes on a large scale are least or non-effective.
Wilson, Gottfredson & Najaka	2001	Problem behaviours	165/216 (of which 72% of general student populations)	?	School-based prevention practices appear to be effective in reducing alcohol and drug use, dropout and non-attendance, and other conduct problems. The size of the average effect for each of the four outcomes was small and there was considerable heterogeneity across studies in the magnitude of effects, even within programme type after adjusting for measured method and population differences.
Catalano, Berglund, Ryan, Lonczak, Hawkins,	2002	Positive youth development	25 (of which 22 school based or containing school as component)	Number not provided (certainly comprising thousands of subjects)	The selected programmes addressing one or more of 15 youth development (or SEL) constructs show improvements in interpersonal skills, quality of peer and adult relationships, and academic achievement, as well as reductions in problem behaviours such as school misbehavior and truancy, alcohol and drug use, high-risk sexual behaviour, violence, and aggression. Two general strategies evident in most effective programmes were skill building and environmental-organizational change ⁶
Greenberg, Domitrovich, & Bumbarger	2002	Mental disorders (aggression, depression, anxiety)	34 (of which 14 universal school-based programmes)	?	14 universal interventions were identified that have demonstrated positive outcomes under rigorous evaluation.
Wilson, Lipsey & Derzon	2003	Aggressive behaviours	172/334 (70 universal samples included)	(exact number unknown, but certainly thousands of subjects)	There were significant reductions in aggressiveness among intervention groups compared to control groups. High risk youth showed greater reductions in aggressive behaviour. Different types of programmes were generally similar in their effectiveness, other things equal.
Merry, McDowell, Hetrick, Bir & Muller	2004	Prevention of depression	21 studies of which 10 were of universal programmes, unclear how many implemented fully in the school context	? (but certainly several thousands)	Psychological interventions were effective compared with non-intervention immediately after the programmes were delivered with a significant reduction in scores on depression rating scales for targeted, not universal interventions. Educational intervention (providing information only, 1 study) provided no evidence of effectiveness.
Gansle	2005	Anger	(unclear how many relate to universal interventions although presumably 19 do)	?	Post test effects were found for anger and externalizing behaviours, internalizing, and social skills. No differences in outcomes were found by school setting, special education status, entrance criteria, or treatment agents.

Authors	Year	Target of SEL/SFL	Number of studies ⁵	Number of participants involved	General Outcome
Beelman & Losel	2006	Antisocial behaviour and social competence	85/127 (30 studies of universal programmes)	16,723 (unclear how many in universal programs)	For universal programmes, effects at programme completion and follow-up were small and non-significant on antisocial behaviour, larger and significant on social competence. Programmes targeting at-risk groups (indicated programmes) had significant effects in the desired direction both on antisocial behaviour and social competence and both after completion of the programme and at follow-up.
Kraag, Zeegers, Kok, Hosman, Huijjer Abu-Saad	2006	Stress management	19/19	4063	In controlled studies a positive overall effect was found and positive effects for coping and stress symptoms. Also positive effects for (social) behaviour were found, although the related studies had some methodological weaknesses. Primary prevention programmes targeting stress and coping for schools (i.e. interventions designed specifically to promote mental health and reduce the incidence of adjustment problems in currently normal child and adolescent populations) should be promoted.
O'Mara, Marsh, Craven & Debus	2006	Self concept enhancement	145/98 (preventive interventions, unclear how many in school settings but certainly the vast majority)		Overall, interventions appear to be significantly effective. Effects do not systematically diminish over time. Interventions targeting a specific self-concept domain and subsequently measuring that domain are the most EFFECTIVE? ones. Interventions targeting initially disadvantaged participants (i.e., those diagnosed with pre-existing problems such as low self-esteem, behavioural problems, learning disabilities, etc.) were more effective than preventive interventions
U.S. Task Force on Community Preventive Services, Hahn et al.	2007	Violent and aggressive behavior	53	Sample size in studies ranged from 21 to 39,168	The number of studies in this review overall and the number of studies at each grade level, of adequate quality, consistency of effect, and effect size, provide strong evidence that universal school-based programmes are associated with decreases in violence-related outcomes. Beneficial results were found at all school levels examined, from pre-kindergarten through high school.
Neil & Christensen	2007	Anxiety and depression	6 universal programmes, of which 17 studies/17 effect sizes	5879	Both indicated and universal approaches appear to produce short- to mid-term small to moderate reductions in anxiety and depression in schools. Findings provide strong support for mental health prevention and early intervention programmes.
Wilson & Lipsev	2007	Aggressive and disruptive behaviour	249/77 (universal programmes)	?	Overall, the school-based programmes that have been studied by researchers (and often developed and implemented by them as well) generally have positive effects for preventing or reducing such aggressive and disruptive behaviours as fighting, bullying, name calling, intimidation, acting out, and unruly behaviours occurring in school settings. The most common and most effective approaches are universal programmes delivered to all the students in a classroom or school and targeted programmes for selected/indicated children who participate in programmes outside of their regular classrooms.
Durlak, Weissberg, Dymnicki, Taylor & Schellinger	2008	Social, emotional skills	207	288,000	Students who participate in school-based programmes focused on social and emotional learning (SEL) profit in multiple ways. Compared to students who do not experience SEL programming, they improve significantly with respect to: 1. Social and emotional skills 2. Attitudes about themselves, others, and school 3. Social and classroom behaviour 4. Conduct problems such as classroom misbehaviour and aggression 5. Emotional distress such as stress and depression 6. Achievement test scores and school grades.
Faggiona, Vigna-Taglianti, Versino, Zambon, Borraccino, Lemma	2008	Drug abuse	29 selected (of which 15 useful for and included in the meta-analysis)	36.232	Programmes which develop individual social skills are the most effective form of school-level intervention for the prevention of early drug use and should be selected, when planning community interventions against drug use. There are very little data on long-term effect of interventions. Particularly Skills-based programmes help to deter drug use. Compared with usual curricula, skills-based interventions significantly reduce marijuana and hard drug use and improve decision-making skills, self-esteem, peer pressure resistance and drug knowledge. Compared with usual curricula, affective interventions improve decision-making skills and drug knowledge, and knowledge-focused programmes improve drug knowledge. Skills-based interventions are better than affective ones in improved self-efficacy. No differences are evident for skills vs. knowledge focused programmes on drug knowledge. Affective interventions improve decision-making skills and drug knowledge to a higher degree than knowledge-focused programs. Conclusion: Skills-based programmes help to deter drug use. ⁷

General Outcomes

The meta-analyses reviewed operationalize outcomes of effect studies in terms of a varying number of parameters. These are a change in a) social and emotional skills; b) attitudes towards self (self-concept) and others (pro-social attitudes); c) externalizing or behavioural problems and disorders, such as aggressive, disruptive and violent behaviour; d) antisocial behaviour, such as criminal behaviour; e) drug(ab)use; f) internalizing or emotional problems and disorders, such as stress, anxiety, depression and suicidal tendencies; g) attitudes and behaviour towards school (such as truancy and absence); h) school test scores and school grades.

The general picture of the meta-analyses reviewed also indicates that the attention paid by effect-studies to reducing and preventing externalizing problems, antisocial behavior and drug(ab)use is considerably greater than the reduction and prevention of internalizing problems and disorders (see table 1). This is to be expected given the fact that the former are much more conspicuous in terms of expression and consequences, and that the political and social pressures to focus first and foremost on these are much greater

The overall picture that emerges from the 19 meta-analyses is that SEL/SFL programmes do indeed first and foremost achieve what they preach, namely developing the social and emotional competencies of children and youngsters. Overall the largest average significant effect sizes are found in this domain (e.g. Catalano et al., 2002, Wilson & Lipsey, 2007, Durlak et al., 2008). The average student who participated in a SEL/SFL programme is not only significantly better than before in recognizing and managing emotions, establishing and maintaining positive relationships, communicating with others and in handling interpersonal conflicts effectively. He or she is also significantly better in these respects than his or her average peer who did not follow such a programme.

Similar effects can be expected from SEL/SFL programmes aimed at enhancing positive self-perception and self-esteem in children and adolescents (Haney & Durlak, 1998, O'Mara et al., 2006, Durlak et al., 2008).

It appears that addressing both general (social and emotional) skills as well as problem- or disorder related attitudes and skills (such as drug-refusal skills) within in one and the same program is the most effective way to reduce or prevent problems and disorders as well as enhance overall development

The general picture of the meta-analyses reviewed also indicates that the attention paid by effect-studies to reducing and preventing externalizing problems, antisocial behavior and drug(ab)use is considerably greater than the reduction and prevention of internalizing problems and disorders (see table 1).⁸ This is to be expected given the fact that the former are much more conspicuous in terms of expression and consequences, and that the political and social pressures to focus first and foremost on these are much greater.

Overall, the evidence for the potential of SEL/SFL programmes to reduce or prevent externalizing problems and disorders is also extensive and convincing (Durlak & Wells, 1997, Stage & Quiroz, 1997, Wilson et al., 2001, 2003, Gansle, 2005, Beelmann & Losel, 2006, Hahn et al., 2007, Wilson & Lipsey, 2007, Durlak et al., 2008); as is the evidence that such effects are mediated by the improvement of social and emotional skills (e.g. Durlak & Wells, 1997, Wilson & Lipsey, 2007). It appears that addressing both general (social and emotional) skills as well as problem- or disorder related attitudes and skills (such as drug-refusal skills) within one and the same programme is the most effective way to reduce or prevent problems and disorders as well as to enhance overall development.

Although with regard to the efficacy of SEL/SFL programmes in reducing, delaying or preventing drug use the conclusion from one meta-analysis (White & Pitts, 1998) is rather negative, this is more than balanced out by the conclusions from later meta-analyses (Tobler et al., 2000, Durlak et al., 2008, Faggiano et al., 2008).

The evidence for the potential of SEL/SFL programmes to reduce and prevent internalizing problems and disorders such stress, anxiety, depression and suicidal tendencies is less extensive and overall effect sizes seem to be less great. Nevertheless, the general picture that emerges here is also that of significant efficacy (Greenberg et al., 2002, Merry et al., 2004, Kraag et al., 2006, Neil & Christensen, 2007, Durlak et al., 2008).

Even where overall effect sizes reported appear to be relatively small, albeit statistically significant, there are several reasons why such small effects should not be underestimated in practice. For example, SEL/SFL interventions for the prevention of depression (Merry et al. 2006) reduce the number of students that need treatment for depression by 10 % (see Merry et al., 2004, p.11), which is both from a clinical as well as an epidemiological point of view quite meaningful. The same applies to the effect of SEL/SFL programmes on the use of drugs, such as marijuana. In their meta-analysis, Faggiano and colleagues found that despite rather modest overall effect sizes, such programmes reduce the number of new initiators by 20 % (see Faggiano et al., 2008, p. 394).

Several meta-analyses also examined what can be considered to be essential indirect effects of SEL/SFL school-based programmes, namely improved attitudes towards school, school achievements and school grades (e.g. Haney & Durlak, 1998, Wilson & Lipsey, 2007, Durlak et al., 2008). Again, the overall picture is that of a significant improvement in school attitudes and behaviour and academic performance following attendance of SEL/SFL programmes.

The question arises as to how stable over time the observed effects are. Quite a few meta-analyses report in detail about post-test (outcomes assessed immediately upon programme completion) and follow-up effects. The picture that emerges shows first of all that there is still a considerable shortage of studies with longer follow-up periods (12 months or more). Certain meta-analyses (e.g. Kraag et al., 2006 on stress management programmes) even discard calculations of long term effects because of the small number of relevant studies. There is also quite some diversity with regard to the outcomes. Some meta-analyses report a decrease in effects over time (White & Pitts, 1998, Beelman & Losel, 2006, Hahn et al., 2007, Durlak et al., 2008). Most of the time, however, the decrease is not so substantial that the original effects completely dissipate (although they sometimes do so, see White & Pitts, 1998). In the majority of relevant effect studies, the differences between intervention and control groups at follow-up are still significant (e.g. Weissberg et al., 2007). Other meta-analyses point to stability of effects over time (Tobler et al., 2000,⁹ O'Mara et al., 2006), and again others report a so-called 'sleeper effect' (e.g. Neill & Christensen, 2007). This means that effects at follow-up, 6 months or longer after termination, are larger than at post-test.

It remains unclear how differences in effect-sizes observed between post-test and follow-up should be explained. It might depend upon outcome measures considered (e.g. Gansle, 2005, p 334, who found overall larger effect sizes at follow-up, but broken down into specifics, certain outcome measures showed no difference over time while others improved significantly). It might also be related to programme implementation, type, length and intensity of pro-

gramme, maintenance of intervention or intervention effects, to characteristics of groups targeted, to community or school contextual factors, or to a combination of these factors.

Heterogeneity and Diversity

Most of the meta-analyses reviewed indicate that heterogeneity is the rule rather than the exception (e.g. Gansle, 2005, Beelmann & Losel, 2006, Hahn et al., 2007, Faggiano et al., 2008). This implies that differences between studies in effects found are often substantial and are not only caused by random variation but also by 'true' variation. To explain this variation, most meta-analyses have examined methodological or design heterogeneity as well as/or clinical diversity. As to design heterogeneity, generally speaking significant effect sizes cannot simply be attributed to quality of design. The differences in outcomes observed between high and lower quality studies are relatively small and there is no clear-cut 'upward' bias by studies with weaker designs. If one wants to draw a conclusion in this respect, this should rather point to the opposite direction, for several meta-analyses indicate that the overall effect size of randomized designs is greater than that of non-randomized (e.g. Haney & Durlak, 1998, O'Mara et al., 2006). In other words, differences in quality of design do not seriously compromise the general picture of SEL/SFL programme efficacy (see also Wilson and Lipsey, 2007, p. 138).

As to the many other possible sources of effect differences, mostly related to implementation, such as programme type, intervention components, intensity, length and target(s) of intervention, target population and rigor of implementation of intervention, all meta-analyses have examined or have tried to examine several or all of these. Where they fail to report on the relationship between such characteristics and effect-size, this often is a consequence of the fact that there are not enough trials in the strata of each eligible variable to allow a meta-regression (e.g. Faggiano et al., 2008).

Type and Dosage of Programme

There are three aspects of programme type that are relevant to consider. First is the theoretical orientation or underpinning of the programme (such as behavioural, cognitive-behavioural, knowledge-oriented, skills-oriented, research-driven, (school) community oriented, etc.). Although there is some support for the hypothesis that programmes with a theoretical orientation, such as behavioural or cognitive-behavioural, are more effective, possibly because of the fact that they are more consistent and have clearer foci or goals, drawing any definite conclusions in this respect would be premature. It seems more realistic to assume, given the data from the meta-analyses, that it is the combination of consistency, community-orientation or involvement, and the degree to which the programme stimulates the interest or holds the attention of participants that is essential.

The data from the meta-analyses suggests that it is the combination of consistency, community-orientation or involvement, and the degree to which the programme stimulates the interest or holds the attention of participants that is essential

That means that programmes that are theoretically consistent, highly interactive, use a variety of didactic or 'work' forms, are implemented in small groups, cover both general and domain-specific skills (comprehensive life skills programmes) and are cast within supporting community or environmental strategies are probably, everything being equal, the most effective.

(Tobler et al., 2000, Faggiano et al., 2008, Durlak et al., 2008, see also Dupre & Durlak, 2008). An important aspect of environmental strategies appears to be the use of social influence strategies, i.e. the establishment of shared norms for prosocial behavior, interpersonal interaction or drug use (see also Roona et al., 2000).

Then there is fidelity, which is the extent to which the programme as carried out corresponds to the original programme it seeks to replicate. As has already been referred to above, a large or even major part of the effect-studies reviewed in the meta-analyses concern demonstration or research programmes. It is to be expected, certainly when the researchers themselves are programme-implementers, that in such studies fidelity is high. Although few meta-analyses are able to provide comparative data on effectiveness of research or demonstration programmes versus routine practice programmes (implemented on an ongoing basis and evaluated by researchers with no direct role in developing or implementing the programme), simply because of lack of data on routine practice programmes, it is reassuring to observe that differences in effectiveness between the two groups are often small if any (see e.g. Wilson and Lipsey, 2007, p. 142, who determined that routine practice programmes did not show significantly better or worse outcomes than research and demonstration programmes in case of universal programmes (n = 13)).

Finally, we must assess the dosage of the programme as an effectiveness factor. Dosage refers to how much of a programme – as it is meant to be in terms of components – is being delivered. But dosage also refers to the length of programme as it is delivered in actuality. Although

length is related to programme components, it is not necessarily determined by it in practice. For example, a programme component, although in the manual is described as being delivered in two class hours, might be spread over twice that number of hours because of interest of, or relevance to, the specific group of students. So given the same programme, length may differ depending upon the student population or needs. It may also be the case that not all components of a programme are being implemented in practice because of the fact that one or more are deemed not to be relevant or suitable for a specific student population.

Programs that are theoretically consistent, highly interactive, use a variety of didactic or 'work' forms, are implemented in small groups, cover both general and domain-specific skills (comprehensive life skills programs) and are cast within supporting community or environmental strategies are probably most effective

There is a third aspect to dosage, namely intensity. Programme intensity, the number of class sessions per week or month, may be determined by programme type; but it may also be determined by other factors such as the availability of implementors, school planning, the availability of a classroom, etc.

Most meta-analyses, when they pay attention to dosage or dose-response effect, usually operationalize this in terms of length of programme (in hours, weeks or months) and sometimes also in terms of intensity (although certain authors also define intensity in terms of length, see Beelman & Losel, 2006).¹⁰ Some even use length of programme delivery as inclusion/exclusion criterion. For example, Durlak et al. (2008) included only studies that lasted eight or more sessions. The meta-analyses reviewed here provide some support for this position in that programmes of short duration or low intensity (no more than 8-10 sessions or 2 months duration) often show considerable smaller or even insignificant effect sizes (see e.g. Beelmann & Losel, 2006, p. 607). Apparently SEL/SFL programmes, in order to be effective, have to be of a certain length or duration, most probably somewhere between 3 to 6 months (weekly classes), although that might be insufficient to obtain long-term effects if no later booster sessions are held. Several meta-analyses indicate or suggest that maintenance of intervention, for example through booster sessions at several intervals after regular programme completion, is important to this end (see Kraag et al., 2006, Weissberg et al., 2007).¹¹

Clinical Diversity

One of the questions that this review also seeks to answer is whether *children and youngsters most in need are also the ones who profit most?* Departing from the assumption that children and youngsters in schools in socially disadvantaged areas are the ones most in need of support for their social, emotional and academic development, that question can be rephrased as the question of the relationship between SEL/SFL programme effects and socio-economic status (SES). As far as the meta-analyses reviewed provide information on this relationship, the overall outcome is that 'low SES' children and youngsters profit at least as much and often more from such programmes than other children and youngsters (e.g. see Wilson & Lipsey, 2007, Hahn et al., 2007). This might on the one hand be explained as a (statistical) 'ceiling' effect, meaning that the larger the 'social and emotional skills distance' children and youngsters have to travel, the larger the distance they might cover. On the other hand, given the fact that similar conclusions can be drawn with regard to the relationship between ethnicity and race of programme participants and programme effect, the comparable profit by all types of participants seems to be a real merit of SEL/SFL programmes. It suggests that such programmes touch upon aspects of development in ways that are equally beneficial to all children.

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This conclusion can even be broadened if one examines the relationship between age and SEL/SFL programme efficacy.

All meta-analyses reviewed pertain to both primary and secondary school students. A number of these analyses conclude that programme effects are consistent at all grade levels (e.g. Hahn et al., 2007), or that both young children and youngsters benefit more than those in between (6 to 13 year olds, see Wilson et al., 2003) or that no relationship could be established between age and effect size (O'Mara et al., 2006). In any case, a remarkable observation from the meta-analyses reviewed is that the dictum 'the earlier the better' is not borne out by the data presented. In other words, it is apparently beneficial to students at all grades to be offered participation in SEL/SFL programmes.

Children and youngsters from low socio-economic status profit at least as much, and often more, from social and emotional programs; and similar conclusions can be drawn with regard to the relationship between ethnicity and race of program participants and program effect: the comparable profit by all types of participants seems to be a real merit of these programs. It suggests that they can touch upon aspects of development in ways that are equally beneficial to all children

Another remarkable finding is the lack of data on the relationship between gender and efficacy of SEL/SFL programmes. In a substantial number of meta-analyses authors state that surprisingly often the exact ratio of boys to girls are not reported in effect studies. Consequently, many meta-analyses do not provide data on gender. The few that do either report that effects do not greatly vary with sex (Wilson et al., 2003) or report contradictory data (e.g. Merry et al., 2006). These authors observed a difference between boys and girls in terms of effect on depressive disorders (for girls, but not for boys), but not on depressive scores (on rating scales). The overall picture may either be interpreted as an indication that 'the jury is still out' on the relationship between gender and SEL/SFL efficacy, or imply that most SEL/SFL programmes are equally suitable for boys and girls.

The latter possibility raises another intriguing question, namely that of the match between programme deliverer and programme participant. As many effect studies do not, or do not adequately, report on the gender of participants, they also do not report on the gender of the programme instructor or trainer, and therefore afford no evidence on the match in gender between the two and its possible relationship on programme effects. Nevertheless, quite a number of studies, as well as quite a number of meta-analyses, do report on the type of programme deliverer. In a sub-sample of meta-analyses, its relationship to effects is also examined.

Programme Delivery and Effects

As the term universal school-based SEL/SFL programmes suggests, teachers are often programme deliverers or instructors, although there is quite some variation in programme delivery depending upon the domain or focus of the intervention. Programmes that focus first and foremost on the enhancement of social and emotional skills, prosocial behavior, self con-

cept and/or reduction or prevention of disruptive, aggressive or violent behaviour are most often delivered by teachers (Wilson et al., 2001, Wilson et al., 2003, Neill & Christensen, 2006, O'Mara et al., 2006, Hahn et al., 2007, Wilson et al., 2007, Weissberg et al., 2008). This is, for obvious reasons, particularly the case for programmes delivered to elementary school children, as opposed to secondary school students (see Hahn et al., 2007). Still, a substantial percentage of programmes is delivered by others, such as psychosocial professionals, study authors or researchers, supervised students, peers, and lay persons.

Programmes that focus on reducing or preventing drug(ab)use, antisocial or criminal behaviours, and mental problems or disorders such as anger, anxiety and depression are more often delivered by such other professionals, in particular by psychosocial professionals, study authors or researchers, supervised students and peers (see Tobler et al., 2000, Merry et al., 2004, Gansle, 2005, Beelmann & Losel, 2006, Neill & Christensen, 2006, Faggiano et al., 2008).

The picture that emerges from the meta-analyses of these two categories of programmes is rather confusing. On the one hand, a number of meta-analyses report that teachers are generally effective programme deliverers and are as effective, or even more effective, than psychosocial professionals or counsellors (see Wilson et al., 2003, Neill & Christensen, 2006, O'Mara et al., 2006, Hahn et al., 2007). On the other hand, a number of meta-analyses also report that teachers are less effective than either peer-leaders (Hahn et al., 2007, violent behaviour) or than peer-leaders or psychosocial professionals (Tobler et al., 2000, drug (ab)use).

There is some indication that teachers score less well with programmes of a highly interactive nature and with a focus on behavioural or mental problems or disorders, possibly because of a lack training and clinical expertise (see Greenberg et al., 2003, p. 469), or because of "being uncomfortable with certain components (of such programmes), such as roleplays" (see Tobler et al., 2000, p.417). These authors also add that "teachers may need to be convinced of the value of interactive teaching techniques, as well as to be trained in their use, before they will faithfully implement them. Interactive programmes depend to a great extent on the sensitivity of programme leaders, and therefore on their selection and training" (ibid., 417).

However, it may well be that the effects of SEL/SFL programmes on school tests and grades actually depend, to a considerable extent, upon whether or not the programme is being delivered by teachers. Weissberg and colleagues conclude from their meta-analysis (Weissberg et al., 2008) that only when school staff conduct the intervention does students' academic performance improve significantly. Apart from a generalization effect (teachers are also involved in regular curriculum instruction), this finding may also be explained by the possibil-

Weissberg and colleagues conclude from their meta-analysis (Weissberg et al., 2008) that only when school staff conduct the intervention does students' academic performance improve significantly. Apart from a generalization effect (teachers are also involved in regular curriculum instruction), this finding may also be explained by the possibility that where teachers are program deliverers instead of 'outside' experts, is a reflection of general SEL/SFL supportive school culture

ity that in places where teachers are the programme deliverers instead of 'outside' experts, that this is a reflection of a school culture that supports SEL/SFL.

It is disappointing that the meta-analyses reviewed show a complete lack of information on the prerequisites and characteristics of successful and less, or non-successful, deliverers or trainers of SEL/SFL programmes. No valid data on the training and expertise of deliverers is available, nor is there data on the level of (ongoing) support provided to them. Also data on heterogeneity of effects at the level of programme deliverer (comparable to data on the relationship between training and (years of) expertise of psychotherapists and psychotherapy-effects, (see Smith, Glass & Miller, 1980) are almost completely lacking.

Given the reasonable assumption that instructor or trainer qualities and characteristics are major sources of variance in effect, and possibly even the major source, one of the most compelling questions in SEL/SFL efficacy research and practice is still far from being answered.

Conclusions

This review of 19 meta-analyses published between 1997 and 2008 on SEL/SFL programme effects, comprising many hundreds of effect studies and hundreds of thousands of children and youngsters in elementary and secondary education as participants, provided clear-cut answers to the questions it sought to address. The general picture that emerges shows convincingly that (1) *SEL/SFL programmes do indeed significantly enhance what they are teaching, namely the social and emotional skills of children and youngsters;* (2) *SEL/SFL programmes significantly reduce or prevent behaviour and mental problems or disorders, such as violent, aggressive and antisocial behaviour, drug(ab)use, anxiety and depressive symptoms and disorders;* (3) *SEL/SFL pro-*

The most effective programs appear to be those that are theoretically consistent, highly interactive, use a variety of didactic or 'work' forms, cover both general and domain-specific skills (comprehensive life skills programs), are of considerable duration or intensity (several months up to a year) and are cast within supporting community or environmental strategies

grammes enhance or promote positive attitudes and behaviours towards self, others and school, such as self concept, prosocial behaviour, school compliance and service orientation. (4) SEL/SFL programmes significantly enhance school grades and/or academic achievement.

The magnitude of enhancement, positive change, reduction or prevention shows considerable heterogeneity over programme type, foci or goals, the quality of implementation and program delivery. Also, effects appear to be larger in the short term, after programme completion, than in the longer term.

The most effective programmes appear to be those that are theoretically consistent, highly interactive, use a variety of didactic or 'work' forms, cover both general and domain-specific skills (comprehensive life skills programmes), are of considerable duration or intensity (from several months up to a year) and are cast within supporting community or environmental strategies. An important aspect of the latter is the use of social influence strategies, i.e. the establishment of shared norms for pro-social behaviour, interpersonal interaction, drug use, and the like. Teachers appear to be as effective programme deliverers as others, such as psychosocial professionals, although acquisition of skills in interactive training methods is an important consideration, particularly when drug(ab)use and/or mental problems or disorders are (among) the programme foci.

There is no backing for the idea that SEL/SFL programmes are predominantly suitable for children and youngsters from families and neighbourhoods that are relatively well off or socially advantaged. If anything, programmes are at least as beneficial, if not more, for children and youngsters from socially disadvantaged family and urban contexts. Interestingly, there is some indication that programmes are particularly beneficial to young children (up to 6 years of age) and from adolescence onwards.

Teachers appear to be as effective program deliverers as others, such as psychosocial professionals, although acquisition of skills in interactive training methods is an important consideration, particularly when drug use or abuse, and mental problems or disorders are among the program foci

A problem with the conclusions drawn above, at least from an international perspective is the fact that the vast majority of effect studies originate from the United States and or English-speaking countries. As a matter of fact, almost the same applies to the meta-analyses reviewed here. The vast majority are published by American or English-speaking authors, with few exceptions (Kraag et al., 2006, Faggiano et al., 2008, Beelmann & Losel,¹² 2006). The two main exceptions are meta-analyses on specific problems (Coping with stress, Kraag et al., 2006, Drugs use, Faggiano et al., 2008) and comprise relatively small sample of effect studies.

There is some indication that programmes are particularly beneficial to young children (up to 6 years of age), and from adolescence onwards

Since it is reasonable to assume that a nation's social context and educational system and policies have a significant influence on the effectiveness of its intervention programmes, and also that transplantation of effective programmes from one country or culture to another typically yields diminishing returns as the process unfolds (see also Dupre and Durlak, 2008), the question needs to be asked: What relevance do the findings presented thus far on the efficacy of SEL/SFL programmes have for other countries, particularly continental European countries?

Therefore, an additional meta-analysis has been carried out on 76 controlled studies on SEL/SFL programmes published in the period 1997-2007, in which, although the majority of studies still originate from the United States, a considerable sub-sample of non-American effect studies, all from European countries, has been included. That meta-analysis is reported on in Part Two of this chapter.

References (Part one)

- Beelmann A, Lösel F. (2006) Child Social Skills Training in Developmental Crime Prevention: Effects on Antisocial Behavior and Social Competence. *Psicothema*. 2006 Aug;18(3):603-10
- Catalano, R. F., Berglund, M. L., Ryan, J. A. M., Lonczak, H. S., & Hawkins, J. D. (2002). Positive Youth Development in The United States: Research Findings on Evaluations of Positive Youth Development Programs. *Prevention & Treatment*, 5, Article 15. Retrieved August, 1, 2002, from <http://journals.apa.org/prevention/volume5/pre0050015a.html>
- Durlak, J. A., & Wells, A. M. (1997). *Primary Prevention Mental Health Programs for Children and Adolescents: A Meta-Analytic Review*. *American Journal of Community Psychology*, 25, 115-152
- Durlak, J.A., Weissberg, R.P., Dymnicki, A.B., Taylor, R.D., and Schellinger, K. (2008) *The Effects of Social and Emotional Learning on the Behavior and Academic Performance of School Children*. Will be released in 2008
- Faggiano, F., Vigna-Taglianti, F.D., Versino, E., Zambon, A., Borraccino, A., Lemma, P. (2008) *School-Based Prevention for Illicit Drugs Use: a Systematic Review*. *Preventive Medicine* 46 (2008) 385 -396
- Gansle, K. A. (2005). *The Effectiveness of School-Based Anger Interventions and Programs: a Meta-Analysis*. *Journal of School Psychology*, 43, 321-341
- Greenberg, M. T., Domitrovich, C. E., & Bumbarger, B. (2001). The prevention of mental disorders in school-aged children: Current state of the field. *Prevention & Treatment*, 4, Article 1. Retrieved March 1, 2002, from <http://journals.apa.org/prevention/volume4/pre0040001a.html>
- Hahn, R.; Fuqua-Whitley, D.; Wethington, H.; Lowy, J.; Liberman, A.; Crosby, A.; Fullilove, M.; Johnson, R.; Moscicki, E.; Price, L.; Snyder, S.R.; Tuma, F.; Cory, S.; Stone, G.; Mukhopadhyaya, K.; Chattopadhyay, S.; Dahlberg, L. (2007) *Effectiveness of Universal School-Based Programs to Prevent Violent and Aggressive Behavior. A Systematic Review*. *Am J Prev Med* 2007;33(2S):114-129
- Haney, P., & Durlak, J.A. (1998). *Changing self-esteem in children and adolescents: A meta-analytic review*. *Journal of Clinical Child Psychology*, 27(4), 423-433

- Kraag G, Zeegers MP, Kok G, Hosman C, Abu-Saad HH. (2006) *School Programs Targeting Stress Management in Children and Adolescents: A Meta - Analysis*. *Journal of School Psychology*, 44, 449-472
- Merry S, McDowell H, Hetrick S, Bir J, Muller N. Psychological and/or Educational Interventions for The Prevention of Depression in Children and Adolescents. *The Cochrane Database of Systematic Reviews* 2004, Issue 2. Art. No.: CD003380.pub2
DOI: 10.1002/14651858.CD003380.pub2
- Neil, A. L., & Christensen, H. (2007). Australian School-Based Prevention and Early Intervention Programs for Anxiety and Depression: A Systematic Review. *MJA* 186: 305-308
- O'Mara, A.J. Marsh, H.W., Craven, R.G., Debus, R.L. (2006) Do Self-Concept Interventions Make a Difference? A Synergistic Blend of Construct Validation and Meta-Analysis. *Educational Psychologist*, 41(3), 181-206
- Osterman, K.F. (2000). Students' Need for Belonging in the School Community. *Review of Educational Research*, 70, 323-367
- Roona, M., Streke, A., Ochshorn, P., Marshall, D., & Palmer, A. (2000). *Identifying Effective School-Based Substance Abuse Prevention Interventions*. Retrieved February 7, 2006, from the Silver Gate Group Web site:<http://silvergategroup.com/public/PREV2000/Roona.pdf>
- Stage, S.A., & Quiroz, D.R. (1997) A Meta-Analysis of Interventions to Decrease Disruptive Classroom Behavior in Public Education Settings. *School Psychology Review*, 26(3), 333-68
- Tobler, N. and Stratton, H. 1997 Effectiveness of School Based Drug Prevention Programs: A Meta-Analysis of the Research. *Journal of Primary Prevention*, 18, 71±128
- Tobler, N. S., Roona, M. R., Ochshorn, P., Marshall, D. G., Streke, A. V., & Stackpole, K. M. (2000). School-Based Adolescent Drug Prevention Programs: 1998 Meta-Analysis. *Journal of Primary Prevention*, 20, 275-337
- Weissberg, R.P., Durlak, J.A., Taylor, R.D., Dymnicki, A.B., O'Brien, M.U. (2007) Promoting Social and Emotional Learning Enhances School Success: Implications of a Meta-analysis. Draft paper, May 28th, p. 42

-
- White, D., & Pitts, M. (1998). Educating Young People About Drugs: A Systematic Review. *Addiction*, 93, 1475-1487
- Wilson, D. B., Gottfredson, D. C., & Najaka, S. S. (2001). School-Based Prevention of Problem Behaviors: A Meta-Analysis. *Journal of Quantitative Criminology*, 17, 247-272
- Wilson S.J, Lipsey M.W, Derzon J.H. (2003) The Effects of School-Based Intervention Programs on Aggressive and Disruptive Behavior: A Meta-Analysis. *J Consult Clin Psychol* 71:136-49
- Wilson, S.J, Lipsey, M.W. School-Based Interventions for Aggressive and Disruptive Behavior: Update of a Meta-Analysis. *American Journal of Preventive Medicine*, Volume 33, Issue 2, Supplement 1, August 2007, 130-143
- Zins, J. E., Weissberg, R. P., Wang, M. C., & Walberg, H. J. (Eds.). (in press). *Building School Success Through Social and Emotional Learning*. New York: Teachers College Press

Part Two

Teaching Social and Emotional Skills Worldwide. A Meta-Analytic Review of Effectiveness¹³

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Introduction

Advocacy and dissemination of evidence-based programmes to countries other than the one in which the evidence has been gathered should be done with extreme caution. Not only because of international differences in culture and educational system characteristics and their influence on programme acceptance and effectiveness; but also because of the fact that even within one and the same country, transplantation of successful pilot or demonstration interventions to other districts, cities or regions, and even upscaling in one and the same area, can easily lead to serious disappointments. As Schorr (1997) has convincingly demonstrated for the United States itself, most of the time efforts to transplant or upscale - i.e. increase size and scope of successful demonstration programmes - have failed. When they are expanded, their effectiveness plummets (see also Fishman, 1999). Schorr points out that there are crucial contextual factors in successful pilot programmes - factors that get lost when the programmes are scaled up or transplanted, even if the technical concepts and procedures are maintained. Such factors, among others, can be lack of leadership within the school, lack of enthusiasm of teachers and lack of support to teachers and lack of capacity of the school to elicit active support from parents (see Fishman, 1999, p. 274).

In addition, interventions have a life cycle of their own. Interventions that have been successful in a given time period might not be successful years later, because due to social and cultural changes new generations of children and youngsters may have different needs and require different approaches to keep them interested and develop commitment. Consequently, SEL/SFL programmes developed in the 1970's or 1980's might not necessarily be (sufficiently) suitable for children and youngsters attending school in the first decade of the 21st Century.

In summary, the fact that certain SEL/SFL programmes have proven to be effective in certain parts of the United States and at certain periods of time is no guarantee at all that they will be effective in other parts that country and in other time periods. Consequently, the promise or even the suggestion of such programs being successful in other countries today cannot be depended upon.

Against the background of these considerations, the two main goals of the meta-analysis as described in the following section, are as follows: (1) To assemble evidence on the effectiveness of recent SEL/SFL programmes, here defined as the last decade, the period 1997–2007; (2) to assemble comparative evidence on the effectiveness of non-American versus American SEL/SFL programme implementations.¹⁴

Methods

To overcome the common problem in meta-analytical studies of “mixing apples and oranges”, in this study major categories of outcomes are analyzed separately. The study follows four basic steps involved in a meta-analysis (Kulik, 1983): (1) locating studies on an issue, using clearly specified procedures; (2) characterizing the outcomes of studies in quantitative terms; (3) coding as many features of the studies as possible; and (4) using statistical procedures to summarize findings and to relate study features to study outcomes.

Search and Retrieval of Studies

Several approaches were used to identify the relevant literature. Studies were obtained by carrying out:

Searches of large scientific databases: such as the ERIC, PsycINFO, EBSCO, Academic Search Elite and internet search engines: *www.google.com*, *www.scirus.com*, *www.altavista.com* using as key terms: “emotional-skills”, “in-school”, “emotional training”, “school intervention”, “school-based”, “skills-for-life”, “life skills”, “social emotional learning”, “social-skills”, “educational program”, “intervention”, “prevention”, “universal”, “controlled”. Key terms were used in different combinations to minimize the number of omitted studies.

- Searches of websites of research centres: universities, private and governmental institutions such as Samsha, WHO, APA.
- An on-line library search through *www.picarta.nl*.
- An examination of bibliographies of earlier meta-analyses, literature reviews, and found studies.
- Direct contact with programme coordinators and the programmes’ researchers.

The final sample of studies was drawn mostly from online scientific databases of peer-reviewed journals.

Inclusion Criteria

In order to be included in this meta-analysis, a study had to meet the following criteria:

- 1 | The study reported a programme that taught at least one social-emotional skill (see WHO, 2002).¹⁵
- 2 | The intervention had to be school-based, was aimed at primary or secondary school students, used school facilities and took place during regular school hours.
- 3 | The intervention had to be ‘universal’: aimed at the general school population and not only at “high-risk” or underprivileged children.
- 4 | The study reported programmes’ outcomes in a way that allowed the calculation of effect sizes.
- 5 | The study had to be published in the English language, and between 1997 and 2007.
- 6 | The study used an experimental or quasi-experimental design with control/comparison group/s.

Coding of Reports

A coding sheet was used to code 4 types of variables from each study included in the analysis: 1) methodological characteristics; 2) intervention/programme features; 3) intervention recipients characteristics; and 4) programme outcomes.

Four senior university students familiar with the literature on SEL/SFL coded studies used the coding sheet after having been trained for several sessions in its use. The training sessions involved a review of the studies included in this meta-analysis and clarifying the criteria. In order to estimate reliability, 10% of the studies were double scored independently by two raters.¹⁶ Methodological characteristics being scored included: design employed (randomized vs. non-randomized), assignment level (schools, classes or students), format of statistics for reported outcomes, publication status and number of months that passed between the end of the intervention and the assessment of the outcomes.

Characteristics of the interventions coded were: number of sessions, length of sessions in minutes, whether the intervention was carried out by teachers, psychosocial professionals or others, whether the intervention was restricted to school or also involved the community or family, whether the intervention was a part of a ‘Whole School’ programme of change, and year of implementation.

Coded recipients characteristics included whether the programme was carried out in a primary or a secondary school, the country where the intervention took place (and where such infor-

mation was accessible), the (average) age of participants, the proportion of female / male participants, the proportion of White-Caucasian participants versus other ethnic groups, and socio-economic status.

Types of Outcome

Studies were scored on seven major outcomes¹⁷:

A | Social-emotional skills and attitudes (direct outcomes)

- Social-emotional Skills (SS) (e.g. social competence, conflict resolution skills)
- Positive self-image/self-perception (PS) (e.g. self-efficacy, self-esteem)

B | Behavioural adjustment (second order effects)

- Anti-social Behaviour (AB) (e.g. aggressive behaviour, disruptive behaviour)
- Pro-social Behaviour (PB) (e.g. altruistic behaviour, helping others)
- Substance Abuse (SA) (e.g. tobacco, alcohol and marijuana use)
- Mental Health/Disorders (MD) (e.g. internalizing symptoms, anxiety, depression, suicidality)
- Academic achievement (AA) (on core subjects such as reading and maths)

Post Tests and Follow-up

Immediate and mid-term/long term outcomes of programmes were extracted and analyzed separately. The first category consists of outcomes assessed at post test up to, and including, 6 months after completion of the intervention. The category mid-term/long term consists of outcomes measured at least 7 months after completion of the intervention. The exact length of time between the intervention and the measurement of the outcome was recorded.

Analysis Procedures

First, the general effectiveness on the different outcome categories was analyzed separately for post-test and follow up assessment. After that, homogeneity analyses followed, then moderator analyses (characteristics of study methods, interventions/implementation and participants) were conducted to test whether any of the potential moderators had a significant effect on programme effectiveness.

For several outcome-characteristic combinations it was not possible to carry out moderator analyses due to the excessively small number of studies reporting appropriate data.¹⁸

Studies showing no effects or programmes that have not been published, and authors tending to report only significant outcomes of their programmes, and to omit outcomes that were

not significant from their reports, can introduce a publication bias leading to overestimation of effect size. To address this problem and to substantiate general conclusions about the effects of programmes, “file drawer analysis” was carried out by means of failsafe N calculation. The failsafe N can be defined as a number of studies with null effect that would be required to render the overall effect statistically not significant (Cooper, 1979).

The effect size estimate used here is a standardized difference between means of the intervention and the control or comparison group (Lipsey & Wilson, 2001). For studies reporting more than one programme, effects of all programmes matching the overall selection criteria were combined and treated as a single effect. Analogically contrasts separating treatment from booster treatments, females from males, different ethnic groups and different interventions are averaged using the *Comprehensive Meta-analysis* (CMA) programme (Borenstein & Rothstein, 1999), accounting for the effect sizes and relative weight of each group. Contrasts comparing different interventions with each other are not included. Several studies reported multiple treatment-comparison contrasts, and a number of outcomes were reported for different groups within studies. This analysis includes all treatment-comparison contrasts using independent different participants' groups. The effect size estimate Cohen's *d* (Cohen, 1988) was calculated using the following formula: The mean of the control group was subtracted from the mean of the intervention group. The figure was then divided by the pooled group standard deviation.

$$d = \frac{M_I - M_C}{S_{pooled}}$$

The pooled standard deviation is found using following formula (Cohen, 1988).

$$S_{pooled} = \frac{(n_I - 1)s_I^2 + (n_C - 1)s_C^2}{(n_I + n_C - 2)}$$

Whenever significant baseline differences existed effect size (Cohen's *d*) for each measure was calculated as the standardized difference between the intervention and control in change from baseline to post-test, employing the formula:

$$d = \frac{\bar{\Delta}_I - \bar{\Delta}_C}{S_{pooled}}$$

$\bar{\Delta}_I, \bar{\Delta}_C$

Mean difference between baseline and post-test for the intervention (I) and control (C) groups.

When a study did not contain information allowing direct calculation of effect size estimate using aforementioned formulas the reported statistics were converted to *Cohen's d* (Cohen, 1988) using the CMA programme (Borenstein, & Rothstein, 1999). At least 12 various statistics were used for the calculation of an effect size, among others: odds ratios, χ^2 for 2x2 tables and Pearson correlation coefficient.

Effect directions were relative to the outcome measured; thus outcomes which are desirable to increase (e.g. SS – social skills, AA-academic achievement) had a positive effect direction when increased, and conversely outcomes which are desirable to decrease (e.g. MD- mental disorders and SA-substance abuse) had a negative effect direction when decreased. All significance tests were two-tailed, and tested for $\alpha=0.05$.

In order to preserve statistical independence only one observation from the same source can be analyzed. Therefore when a study presents more than one outcome for one category, the outcome ESs were averaged to obtain a single estimate for the given study. Different outcome and time categories are examined separately. For example, a study which reported outcomes for pro-social behavior and academic achievement at both time points (post-test and follow-up) will have four outcomes analyzed separately.

The random effects model was used in the analysis because it allows heterogeneity of effect sizes reported across different studies and provides more conservative estimate of effect size by inclusion of study-level sampling error (Lipsey & Wilson, 2001). The random effects model incorporates the assumption, fitting the actual state, that the different studies are estimating different, but related, treatment effects (Higgins & Green, 2008). All statistical tests are two-tailed and tested for a significance level of $\alpha = 0.05$.

In order to test for heterogeneity tests were carried out using the Q test statistic (Lipsey & Wilson, 2001).

Results

The literature search and coding process yielded data from 76 studies of universal school-based programmes published over the period 1997 – 2007, that met all the criteria. Of these 76 studies, 70 (92%) were published in peer-reviewed journals, 2 were accepted for publication in peer-reviewed journals and 4 were progress reports. Of the 76 studies, about one

quarter (22.7 % or 17 studies) were conducted in parts of the world other than North America, mostly (12 studies, or 15.9 %) in continental Europe. The European countries involved were Austria, Denmark, Finland, Germany, Greece, Luxemburg, the Netherlands, Spain, Sweden, Turkey and Ukraine. 6 (6.8 %) studies originated from other continents (Australia, Africa and Asia). Most non-American studies reported programmes implemented in one country, with the exception of one study: this study included participants from 4 different European countries. One study reported a programme that was carried out both in the US and Canada.

The inclusion of 17 non-Northern American effect studies makes this meta-analysis the only one thus far in the literature that allows for comparison between American and non-American SEL/SFL programme effects, at least with regard to some outcomes.

Outcomes Categories

The range of outcome categories reported in the selected studies selected varies from 1 to 6. The two most often reported outcomes were an increase in social-emotional skills and a reduction in antisocial behaviour which were both assessed in half of the studies. The remaining 5 categories of outcome were reported in 13 (28%) of the studies (see Table 1). For 30 (40%) of studies all extracted outcomes belonged to only one category, and 26 (34%) of studies reported outcomes from two categories. Altogether 93% of studies reported 3 or less outcome categories.

Post-test and Follow Up

Roughly half of the studies (53%, 41 studies) reported only immediate effects, defined here as post-tests that took place no later than half a year after the end of the intervention. 15 studies (20%) reported at least one mid-term or long term outcome (assessed at least 7 months after completion of the intervention) along with immediate outcome measurement(s). The remaining 20 studies reported only mid-term or long-term outcomes.

Randomization

Of the studies included in the meta-analysis, 57% used a randomized experimental design and 43% a quasi-experimental design (see Table 2).

In only 10 studies (15%) were individual students the unit of assignment. Most researchers assigned classes (38%), or even schools (17%), to intervention or control conditions. In all studies the analysis was conducted for students. This discrepancy between the levels of the assignment and the analysis has been regarded as common and non-problematic in the meta-analytic literature (Wilson et al., 2001); while the effect of this discrepancy could be

Table 1. Time of Assessment and Outcomes Reported by Studies

	No. of programmes	% of programmes
Time of Assessment		
Post test: 0-6 months	56	73,7%
Follow-up: 7-18 months	27	35,5%
Follow-up: 19+ months	16	21,1%
Outcome Reported		
Social Skills	36	47%
Antisocial Behaviour	35	46%
Substance Abuse	21	28%
Positive Self-image	14	18%
Academic Achievement	13	17%
Mental Disorders / Health	13	17%
Pro-social Behaviour	10	13%
Total	76	

Table 2. Methodological Features of Studies

	No. of programmes	% of programmes
Experimental Design		
Any form of a Random Assignment	43	56,6
Non Random Assignment	33	43,4
Unit of Assignment		
Matched Pairs	10	13,2
Schools	13	17,1
Classes	29	38,2
Students	11	14,5
Others, e.g. level of cohorts	13	17,1
Intervention Manual		
Unavailable/ Availability not reported (43%)	56	73,7
Availability reported	20	26,3
Total	76	100,0

an overstating of the statistical significance of effects, it does not affect the descriptive statistics extracted.

Manuals

Availability of intervention manuals or 'manualization' of intervention is an important methodological aspect of intervention effect studies. Manuals are supposed to contain the exact description of the content and implementation of (the different sessions of) an intervention, and therefore provide guidelines to instructors/trainers. The availability of a manual permits dif-

Table 3. Features of Reported Programmes

	No. of programmes	% of programmes
Programme Duration		
Up to a month	8	10,5
Up to a year	50	65,8
More than one year	19	25,0
Programme Delivery (not mutually exclusive)		
Teachers	42	55,3
Professionals/ Researchers	29	38,2
Others	5	6,5
Programme Context		
Family Involved	19	25,0
Community Involved	14	18,4
Total	76	

ferent instructors/ teachers to teach similarly in terms of themes and strategies. It is the availability of a manual that allows for replication of the intervention and therefore manuals are important in evaluating the effects of interventions. However, in only 26% of the studies was it explicitly mentioned that manuals were available. In the remaining studies the existence of a manual was either not mentioned (but probably or almost certainly available, 43%,) or they were not available.

Characteristics of Programmes, Deliverers and Participants

A quarter of reported interventions were first and foremost directed at a change of school culture and climate, the so called 'Whole School approach'. Some programmes had this element along with class sessions offered to students. However, most of the "Whole School" interventions do not have class sessions for students. The essence of the intervention is change in school climate and culture, such as encouraging different teaching styles and different approaches to students.

There was quite some variance in the duration and intensity of reported interventions (see table 3 and 4), ranging from a one- day, one-off workshop via interventions, which consisted of 15 sessions spread over 3 years, up to a programme of 155 sessions lasting up to 6 years. However, the majority of interventions did not exceed a year in length and 18 sessions in number. The most common length of the intervention was 1 school year. The most common length of a class session was equal to the length of a school lesson.

Table 4. Length of Programmes

	No. Studies	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
Duration of the programme (days)	70	392	407	1	1820	25	50	75
Number of sessions	56	27	32	1	155	10	17	30
Duration of a session in minutes	37	48	22	20	120	37	45	51

Most of the programme deliverers were school teachers (see Table 3). In more than half of the studies (42), they were the only trainers in direct contact with students. In 29 programmes (38%), professionals were involved in teaching the programme (e.g. psychologists, researchers).

Although all interventions are school-based and universal, it should be noted that 14 (18%) of interventions also have community-based elements. Furthermore, a quarter of the studies (19) reported programmes that also involved families.

Table 5. Participants' Characteristics

Characteristics	No. of studies	% of all studies	% of studies reporting
School Level			
Primary	32	42,1	42,1
Secondary	47	61,8	61,8
Total reported	76		
Socio economic status reported			
Low(er)	26	34,2	52,0
Mixed	23	30,3	46,0
Total reported	50		

Relatively more studies were retrieved for secondary than for primary schools (61.8%, see Table 5). Of the studies that reported on the socio-economic status of participants, roughly half addressed students with lower socio-economic status. The other half comprised students of mixed socio-economic status.

Age, gender and ethnicity were reported in only a minority of the studies.¹⁹ In contrast to the studies from the U.S, ethnicity is seldom reported in studies from other countries. The vary-

ing definitions of ethnicity and its categories (e.g. "White" versus "Euro-American") used by the different studies make it difficult to adequately identify different ethnic groups. It seems quite probable that studies may well include different groups under similar category labels (e.g. "White" might refer to different ethnicities across studies).

Programme Effects

There were sufficient numbers of studies for each major category of outcome at both post-test and follow-up to calculate overall effect sizes. As Table 6 shows, at post-test programmes show statistically significant effects in the desired direction on all seven outcome categories. For social skills, positive self image and pro-social behaviour measured at post-test effect sizes can be classified as large (Lipsey & Wilson 1993). Programmes had moderate immediate effects on academic achievement and antisocial behaviour, and weak immediate effects on mental disorders and substance abuse (Cohen, 1977). For both mental disorders and substance abuse, effect sizes were not significantly heterogeneous across programmes, and for the remaining 5 categories of outcomes heterogeneity of effect sizes was significant,²⁰ which points to the existence of genuine differences in the effectiveness of programmes.

On the long term, the largest beneficial effect was found for mental disorders, the effect had moderate size and was greater than the immediate effect size. All other long term effect sizes, with the exception of the effect-size for positive self-image, were statistically significant, yet their sizes were small. Positive self-image was the only outcome parameter that showed no statistically significant effect of programs at the follow-up.

Effect sizes at follow-up were statistically significantly heterogeneous for all outcome categories except academic achievement, pro-social behaviour and social skills. The heterogeneity of effect sizes for the remaining four (antisocial behaviour, mental disorders, positive self-image and substance abuse) was high: 76-93%. At the post-test failsafe N (number of studies with null effect needed to nullify the general effect) was between 68 for substance abuse and 6300 for antisocial behaviour, which means that to attribute the significant effects of the programmes to publication bias alone one would need to assume that between 80% and 99% of outcomes were not published because they show no programme effect. For outcomes showing statistically significant effects of programmes at follow-up the failsafe N was in the range of 32-660.

Table 6. Programmes' Efficacy on Major Outcomes²¹

Outcome	Effect Size (d)* and Standard Error			95% Confidence Interval		Test of Null (2-Tail)		Heterogeneity				
	No. of Studies	d	SE(d)	Lower Limit	Upper Limit	Z value	P value	Q	df (Q)	P	I ²	
Immediate Outcomes												
Academic Achievement	9	0,50	0,08	0,34	0,66	6,24	<,001	161,36	8	<,001	95,04	
Antisocial Behaviour	31	-0,48	0,06	-0,61	-0,35	-7,40	<,001	1038,31	30	<,001	97,11	
Mental Disorders	10	-0,16	0,04	-0,25	-0,08	-3,91	<,001	15,91	9	,069	43,44	
Positive Self-image	6	0,69	0,18	0,34	1,04	3,83	<,001	166,47	5	<,001	97,00	
Prosocial Behaviour	6	0,59	0,21	0,17	1,00	2,75	,006	191,90	5	<,001	97,39	
Social Skills	31	0,74	0,10	0,54	0,94	7,32	<,001	1151,46	30	<,001	97,32	
Substance Abuse	10	-0,11	0,03	-0,17	-0,05	-,59	<,001	17,98	9	,035	49,95	
Mid & Long Term Outcomes												
Academic Achievement	7	,25	0,04	0,17	0,33	5,84	<,001	10,78	6	,095	44,34	
Antisocial Behaviour	14	-,17	0,05	-0,28	-0,07	-3,24	,001	113,33	13	<,001	88,53	
Mental Disorders	8	-,37	0,13	-0,63	-0,10	-2,74	,006	106,88	7	<,001	93,45	
Positive Self-image	9	,08	0,05	-0,02	0,17	1,57	,117	33,94	8	<,001	76,43	
Prosocial Behaviour	6	,13	0,03	0,06	0,19	3,75	<,001	8,16	5	,147	38,75	
Social Skills	13	,05	0,02	0,01	0,09	2,39	,017	20,43	12	,059	41,26	
Substance Abuse	15	-,20	0,05	-0,30	-0,11	-4,11	<,001	208,12	14	<,001	93,27	

* A 'd' or effect size of 0.50 for academic achievement means that the average child that participated in a SEL/SFL program, moved to the top 30% of the total population of children in terms of academic achievement. A 'd' of effect size of -0.50 means that the average child that participated in a SEL/SFL program because of the program moves to the lowest (or least affected) 30% of the total population of children (e.g. in showing antisocial behavior). The fact that most of the effectsizes shown are statistically significant indicates that the move upwards on positive indicators and the move downwards on negative indicators as a result of participation in SEL/SFL programs is substantial, although varying in size depending upon indicator.

Heterogeneity of effect sizes suggests that there are important factors or moderators affecting the effectiveness of programmes on different outcome categories. The moderator analysis was carried out for the 2 outcomes most often reported at post test: social skills (SS) and anti-social behaviour (AB) (see Table 7).

Programmes of short duration (less than a year) had a higher immediate effect on social skills and antisocial behaviour than longer programmes. Programmes carried out by school teachers only had lower effect size than programmes that also involved other types of trainers, although heterogeneity was significant only for antisocial behaviour. Programmes in-

volving professionals as deliverers had significantly higher effect size for social skills and insignificantly lower effect size for antisocial behaviour than other programmes. There was no significant heterogeneity between programmes only conducted in primary schools or in secondary schools.

However, what is especially important here is the observation that there was no significant heterogeneity between the American studies and studies from other parts of the world in effect size for social skills (there was only one non-American study that reported on antisocial behaviour, therefore a comparison was not carried out for this outcome).

Table 7. Moderator Analysis, Mixed Effect Model Analysis

Moderators and Outcomes	Group 1	Heterogeneity			Group 2	Heterogeneity			Between Groups Heterogeneity		
	Effect d(se)	Q _{within}	df	p ²²	Effect d(se)	Q _{within}	df	p	Q _{between}	df	p
School Level	Primary School				Secondary School						
SS	,75(.16)**	590,89	14	<0,001	,75(.14)**	544,88	15	<0,001	0	1	n.s.
AB	-,57(.07)**	690,74	20	<0,001	-,27(.14)	278,70	10	<0,001	3,45	1	,063
Duration	At least 1 year				Less than 1 year						
SS	,38(.09)**	367,26	16	<0,001	1,21(.29)**	609,19	12	<0,001	25,47	2	<0,001
AB	-,33(.07)**	465,68	17	<0,001	-,68(.15)**	540,92	13	<0,001	4,22	1	0,040
SA											
No. of Sessions	20 sessions or more				<20 sessions						
SS	,29(.09)**	86,74	11	<0,001	,83(.22)**	399,08	9	<0,001	14,39	2	<0,001
AB	-0,23(.06)**	203,57	12	<0,001	-,28(.16)	235,36	9	<0,001	13,69	2	0,001
Trainers	Only Teachers				Not Only Teachers						
SS	,71(.13)**	1019,0	19	<0,001	,83(.18)**	128,88	10	<0,001	0,26	1	,61
AB	-,28(.10)*	90,72	10	<0,001	-,56(.08)**	891,55	20	<0,001	5,05	1	,025
Professionals	No professional delivering				Professionals delivering						
SS	,67(.12)**	1035,9	20	<0,001	,99(.24)**	104,9	9	<0,001	1,39	1	,024
AB	-,51(.07)**	944,9	22	<0,001	-,37(.13)	75,74	8	<0,001	0,90	1	n. s.
Place	Outside North America				Within North America						
SS	0,66(.18)**	103,78	5	<0,001	0,74(.12)**	1013,77	24	<0,001	0,14	1	0,71

SS: Social Skills, AB: Antisocial Behaviour, SA: Substance Abuse

p <,005 ** p<,001

Discussion and Conclusions

The two goals of this meta-analytic literature review were (1) to assemble evidence on the effectiveness of recent SEL/SFL programmes, i.e. from the last decade, the period 1997–2007; and (2) to assemble comparative evidence on the effectiveness of non-American versus American SEL/SFL programme implementations.²³

The main findings (1) are that the universal school-based SEL/SFL programmes that have been evaluated in experimental or quasi-experimental studies over the past decade generally have positive effects on a number of desirable outcomes. These are: enhancement of social and emotional skills, positive attitudes towards self and others, reduction or prevention of antisocial behaviour, mental problems and disorders, and promoting academic achievement. In the short-term (up to 6 months), the largest effects are found on social-emotional skills, attitudes towards self, pro-social behaviour, academic achievement and reduction of antisocial behaviour. These findings are very similar to those found in other meta-analyses covering a large number of effect studies from before 1997 (e.g. Wilson & et al., 2001).

In the mid- and long term, some of these effects decrease substantially, although with one exception not to the level of insignificance, while others increase, such as the reduction or prevention of mental disorders. Again, this finding is corroborated by results of earlier meta-analyses.

As (2) this is the first meta-analysis in which effect-studies originating from the U.S are compared with effect studies from other parts of the world, in particular the European continent, the finding that overall effect sizes of the two groups of studies are similar, at least for the one outcome measure for which comparison was statistically possible, i.e. the enhancement of social-emotional skills, is highly relevant. It suggests, although more research is clearly needed, that SEL/SFL programmes are potentially beneficial to children and youngsters around the globe. Their social and emotional development might be significantly enhanced by these interventions. As this is a key to their overall development, both in term of personality development as well as in terms of academic progress and school career, the present state of knowledge with regard to the effectiveness of SEL/SFL programmes should be an impetus to governments and educational policy makers around the world to facilitate and support schools in the acquisition, implementation and evaluation of culture-sensitive SEL/SFL programs- if only in order to establish what they may bring to the children, and thus adults, of the future. The present state of knowlegde indicates that they hold great promise.

Notes

- ¹ Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits. Note: the CRC is a specification of the Universal Declaration of Human Rights with regard to the particularities of the position of the child
- ² Weissberg, R.P., Durlak, J.A., Taylor, R.D., Dymnicki, A.B., O'Brien, M.U. (2007) Promoting Social and Emotional Learning Enhances School Success: Implications of a Meta-analysis. Draft paper, May 28th, pp.4-2
- ³ It appeared not to be possible to establish the exact total number of studies included the 19 meta-analyses. Reason is that there is considerable overlap between meta-analyses in studies included but the exact number of identical studies could be determined
- ⁴ Also the total number of subjects, i.e. children and youngsters, could not be established exactly, because a number of authors do not provide precise figures
- ⁵ Within one and the same study
- ⁶ See also Greenberg et al., 2003
- ⁷ (i) skills focused programmes aim to enhance students' abilities in general, refusal, and safety skills; (ii) affective focused programmes aim to modify inner qualities (personality traits such as self-esteem and self-efficacy, and motivational aspects such as the intention to use drugs); (iii) knowledge focused programmes aim to enhance knowledge, effects, and consequences of drug use; and (iv) usual curricula
- ⁸ The term 'externalizing problems' refers to behavioural problems, such as antisocial and criminal behavior, vandalism, drug (ab)use, persistent truancy and the like. The term 'internalizing problems' refers to emotional problems, such as anxiety and mood problems (depression) and suicidality
- ⁹ See also Tobler & Stratton, 1997
- ¹⁰ Wilson et al., 2001, define intensity in a total different way, namely as the degree to which the intervention was likely to be psychologically or emotionally engaging to the subjects
- ¹¹ "Although the positive effects of training endure to some extent over time, the fact that the strength of effects are less powerful at follow-up than at post-test suggest that continued school efforts to promote students' social and emotional competencies through direct instruction and environmentally-focused interventions may be necessary for students to use and expand their newly-acquired skills" (Weissberg et al., 2007, p. 20)
- ¹² The half exception is Beelmann & Losel, with Losel being affiliated to the University of Cambridge, UK
- ¹³ This paper contains an abbreviated version of the meta-analysis described in it. The full report of the meta-analysis including all technical details and all subgroup/moderator analyses can be obtained from the first author (r.diekstra@roac.nl). The abbreviated version presented here only includes the major findings of the analysis.
- ¹⁴ See footnote 1 for how to obtain a full version of the meta-analysis comprising all technical/methodological details, codebook and data
- ¹⁵ The skill or skills should be described or designated in ways that allow for inclusion in one or more of the categories listed by the World Health Organisation (WHO), see World Health Organisation (2002). Skills for Health. Skills-based health education including life skills: An important component of a Child-Friendly/Health-Promoting School. Geneva: WHO. Information series on school health. Document 9, p. 9 and 10
- ¹⁶ Mean inter-rater reliability across coders was kappa alpha=.8 and ICC alpha=.98 for study categorical and scale level characteristics. Independent raters overall agreement was equal to 93%, all differences were discussed and resolved
- ¹⁷ Other categories of outcomes, on which information was assembled but which were reported by too limited a number of studies to permit analysis, included: academic attitudes, attitudes toward violence and aggression, physical health and sexual behaviour and attitudes
- ¹⁸ According to Hedges and Pigott (2001) at least five studies are needed for each category in order to achieve estimated power of .8 even for strong effects
- ¹⁹ For details see full report
- ²⁰ with values of I² statistic in range of 95-97% indicating high heterogeneity (Higgins & Green, 2008, Deeks & Altman, 2003)
- ²¹ For the general reader: the data in the third column from the left shows the comparative effect-size for a particular outcome. The sign indicates whether a certain outcome increased or decreased. All signs are in the expected direction (improvement by either increase or decrease)
- ²² P=.058
- ²³ See footnote 1 for how to obtain a full version of the meta-analysis comprising all technical/methodological details, codebook and data

References (Part Two)

- Borenstein, M. & Rothstein, H. (1999). *Comprehensive Meta-analysis: A Computer Program for Research Synthesis*. Englewood, NJ: BiostatTM
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates
- Cooper, H. M. (1979). Statistically combining independent studies: A meta-analysis of sex differences in conformity research. *Journal of Personality and Social Psychology*, 37, 131-146
- Fishman, D.B. (1999) *The Case for Pragmatic Psychology*. New York: New York University Press
- Fitzgerald, A. M., Stanton, B. F., Terreri, N., Shipena, H., Li, X., Kahihuata, J., Ricardo I.B., Galbraith, J. S., and DeJaeger, A. M. (1999). Use of Western-based HIV risk-reduction interventions targeting adolescents in an African setting. *Journal of Adolescent Health* 25, 52-61
- Higgins, J.P.T, Green, S. (2008.). *Cochrane Handbook for Systematic Reviews of Interventions Version 5.0.0* [updated February 2008]. The Cochrane Collaboration, 2008. Available from www.cochrane-handbook.org
- Kulik, J. A. (1983) How Can Chemists Use Educational Technology Effectively? *Journal of Chemical Education*, 60, (November 1983):957-959
- Lipsey, M. W., & Wilson, D. B. (1993). The efficacy of psychological, educational, and behavioral treatment: Confirmation from meta-analysis. *American Psychologist*, 48, 1181-1209
- Lipsey, M. W., & Wilson, D. B. (2001), *Practical Meta-Analysis*, Thousand Oaks, CA: Sage Publications, Inc
- Olweus, D. (1993). *Bullying at school: What we know and what we can do*. Cambridge: Blackwell
- Perry, C.L. & Grant, M. (1991). A cross-cultural pilot study on alcohol education and young-people. *World Health Statistics Quarterly-Rapport*. Trimestriel de Statistiques Sanitaires Mondiales, 44, 70-73
- Rigby, K. (2002). *A meta-evaluation of methods and approaches to reducing bullying in pre-*

schools and early primary school in Australia. Commonwealth Attorney-General's Department, Canberra

- Schorr, L.B. (1997) *Common Purpose: Strengthening families and neighbourhoods to rebuild America*. New York: Anchor/Doubleday Smith, J., Schneider, B., Smith, K. & Ananiadu, K. (2004). The effectiveness of whole-school antibullying programs: A synthesis of evaluation research. *School Psychology Review*, 33(4), 547-560
- Wilson, D. B., Gottfredson, D. C., Najaka, S. S. (2001). School- Based Prevention of Problem Behaviors: A Meta Analysis. *Journal of Quantitative Criminology*, Vol. 17, No.3, pp. 247-272
- World Health Organisation (2002). *Skills for Health*. Skills-based health education including life skills: An important component of a Child-Friendly/Health-Promoting School. Geneva: WHO. Information series on school health. Document 9, pp. 86
- ## References Studies Included in Meta-Analysis (Part Two)
- Agha, S., Van Rossem, R. (2004). Impact of a school-based peer sexual health intervention on normative beliefs, risk perceptions, and sexual behavior of Zambian adolescents. *Journal of Adolescent Health*. Volume: 34 Issue: 5, pp: 441-452
- Anda, D. (1998). The evaluation of a Stress Management Program for Middle School Adolescents. *Child and Adolescent Social Work Journal*, 15, 73-85
- Aseltine, R.H., James, A., Schilling, E.A., Glanovskv, J. (2007). Evaluating the SOS suicide prevention program: a replication and extension. *BMC Public health*, Volume: 7, Issue: (July 18, 2007), pp: 161
- Avery-Leaf, S., Cascardi, M., O'Leary, K.D., & Cano, A. (1997). Violence Preventions Program on Attitudes Justifying Aggression. *Journal of Adolescent Health*, 21: 11-17
- Ayotte, V., Saucier, J-F., Bowen, F., Laurendeau, M-C., Fournier, M., Blais, J-G. (2003) Teaching Multiethnic Urban Adolescents How to Enhance Their Competencies: Effects of a Middle School Primary Prevention Program on Adaptation. *Journal of Primary Prevention*, Volume: 24, Issue: 1 (Autumn 2003), pp: 7-23

- Battistich, V., Schaps, E., Watson, M., Solomon, D., Lewis, C. (2000). Effects of the Child Development Project on Students' Drug Use and Other Problem Behaviours. *The Journal of Primary Prevention*, Vol. 21, No. 1, pp 75-99
- Battistich, V., Schaps, E., Wilson, N. (2004). Effects of an Elementary School Intervention on Students' "Connectedness" to School and Social Adjustment During Middle School. *Journal of Primary Prevention*. Vol: 24, No. 3, pp: 243-262
- Bauer, N.S., Lozano, P. Rivara, F.P. (2007). The Effectiveness of the Olweus Bullying Prevention Program in Public Middle Schools: A Controlled Trial. *Journal of Adolescent Health*, 266-274
- Botvin, G., Griffin, K., Nichols, T. (2006). Preventing Youth Violence and Delinquency through a Universal School-Based Prevention Approach. *Prev Sci* 7, 403-8
- Botvin, G.J., Griffin, K.W., Diaz, T. & Iffil-Williams, M. (2001) Drug Abuse Protection Among Minority Adolescents: Posttest and One- Year Follow-Up of a School Based Preventive Intervention. *Prevention Science*, 2, No. 1:1-13
- Cameron, R., Brown, K. S., Best, J. A., Pelkman, C. L., Madill, C. L., Manske, S. R. & Payne, M. E. (1999). Effectiveness of a social influences smoking prevention program as a function of provider type, training method, and school risk. *American Journal of Public Health* (1971), Volume: 89, Issue: 12 (December 1, 1999), pp: 1827-1831
- Catalano, R.F., Mazza, J.J., Harachi, T.W., Abbott, R.D., Haggerty, K.P., Fleming, C.B. (2003). Raising Healthy Children Through Enhancing Social Development in Elementary School: Results After 1.5 years. *Journal of School Psychology*, Vol. 41, pp. 143-164.
- Chen, R., Simons-Morton, B., Haynie, D., Saylor, K., Crump, A.D. (2005) The Effects of the Going Places Program on Early Adolescent Substance Use and Antisocial Behavior. *Prevention Science*, Volume: 6, Issue: 3 (September 1, 2005), pp: 187-197
- Choi, H-S., Heckenlaible-Gotto, M.J. (1998). Classroom-Based Social Skills Training: Impact on Peer Acceptance of First-Grade Students. *The Journal of Educational Research*, Vol. 91, No. 4. pp. 209-215.
- Clark, Miller, Nagy, Avery, Roth, Liddon & Mukherjee (2005) Adult identity mentoring: Re-

- ducing sexual risk for African-American seventh grade students. *Journal of Adolescent Health*, Volume: 37, Issue: 4 (October 2005), pp: 337.e1-337.e10
- Cuijpers, P., Jonkers, R., Weerd, I. de, Jong, A., de. (2001) The effects of drug abuse prevention at school: the 'Healthy School and Drugs' project. *Addiction*, Volume: 97, Issue: 1 (January 1, 2002), pp: p67, 7p
- Dietsch, B., Bayha, J.L., Zheng, H. (2005). Short-term Effects of a Character Education Program Among Fourth Grade Students. *What Works Clearinghouse Intervention Report*
- DuRant, R.H., Barking, S., Krowchuk, D.P. (2001). Evaluation of a peaceful conflict resolution and violence prevention curriculum for sixth-grade students. *Journal of Adolescent Health*. Volume 28, Issue 5, pages 386-393
- Eisen, M., Zellman, G.L. and Murray, D.M. (2003) Evaluating the Lions-Quest "Skills for Adolescence" drug education program - Second-year behavior outcomes. *Addictive Behaviors*, Volume: 28, Issue: 5 (July 2003), pp: 883-897
- Ellickson, P.L., McCaffrey, D.F., Ghosh-Dastidar, B. and Longshore, D.L. (2003) New Inroads in Preventing Adolescent Drug Use: Results From a Large-Scale Trial of Project ALERT in Middle Schools. *American JPublic Health* (1971), Volume: 93, Issue: 11 (November 1, 2003), pp: 1830-1836
- Farell, Valois, Meyer & Tidwell, (2003) Impact of the RIPP violence prevention program on rural middle school students. *Journal of Primary Prevention*. Vol. 24, No. 2, Winter 2003 (C 2003)
- Farrell, A.D., Meyer, A.L. & White K.S. (2001) Peer and school problems in the lives of urban adolescents: Frequency, difficulty, and relation to adjustment. *Journal of School Psychology*, Volume: 44, Issue: 3 (June 2006), pp: 169-190
- Farrell, A. D., Meyer, A. L., Sullivan, T. N., & Kung, E. M. (2003). Evaluation of the Responding in Peaceful and Positive Ways (RIPP) seventh grade violence prevention curriculum. *Journal of Child and Family Studies*, 12(1), 101-120
- Farrell, A.D., Meyer, A.L. (1997). The Effectiveness of a School-Based Curriculum for Reducing Violence among Urban Sixth-Grade Students. *American Journal of Public Health*, Volume 87: Issue: 6, pp: p979, 6p

- Fekkes, M., Pijpers, F.I.M., Verloove-Vanhorick, P. (2006). Effects of Antibullying School Program on Bullying and Health Complaints. *Arch Pediatr Adolesc Med*, Vol. 160, pp. 638-644
- Flannery, D.J., Liao, A.K., Powell, K.E., Vesterdal, W., Vazsonyi, A.T., Guo, S., Atha, H., Embry, D. (2003). Initial Behavior Outcomes for the PeaceBuilders Universal School-Based Violence Prevention Program. *Developmental Psychology*, Vol. 39, No2, pp. 292-308
- Flay, B., Acock, A., Vuchinich, S., Beets, M. (2006). Progress Report of the Randomized Trial of Positive Action in Hawaii: End of Third Year of Intervention. *What Works Clearinghouse Intervention Report*
- Flay, B.R., Allred, C.G., Ordway, N. (2001). Effects of the *Positive Action* Program on Achievement and Discipline: Two Matched-Control Comparisons. *Prevention Science*, Vol. 2, No. 2, pp 72-89
- Foshee, V. A., Bauman, K. E., Ennett, S. T., Linder, G. F., Benefield, T., & Suchindran, C. (2004). Assessing the long-term effects of the Safe Dates program and a booster in preventing and reducing adolescent dating violence victimization and perpetration. *American Journal of Public Health*, 94(4), 619-624
- Gottfredson, G.D., Jones, E.M. & Gore, T.W. (2002). Implementation and Evaluation of a Cognitive-Behavioral Intervention to Prevent Problem Behavior in a Disorganized School. *Prevention Science*, Volume: 3, Issue: 1 (March 2002), pp: 43-56
- Grossman, D.C., Neckerman, H.J., Koepsell, T.D., Lu, P-Y, Ashter, K.N, Beland, K., Frey, K., Rivara, F.P. (1997). Effectiveness of a Violence Prevention Curriculum Among Children in Elementary School. *Violence Prevention Among Children*. Vol. 277, No. 20, pp 1605-1611
- Güneri, Y.O. & Çoban, R. (2003). Conflict resolution strategies of 4th grade elementary school students: Students and Teachers Perspectives, *Annual Journal of Psychology*, 4 (2003), 19-28
- Haines, J., Neumark-Sztainer, D., Perry, C. L., Hannan, P. J., & Levine, M. P. (2006). V.I.K. (Very Important Kids): A schoolbased program designed to reduce teasing and unhealthy weightcontrol behaviors. *Health Education Research*, 21, 884-895

- Hanewinkel, R. & Abaurer, M. (2004) Spatial patterns in mixed coniferous even-aged, uneven-aged and conversion stands. *European Journal of Forest Research*, Volume: 123, Issue: 2 (September 1, 2004), pp: 139-155
- Hawkins, J.D., Guo, J., Hill, K., Battin-Pearson, S. & Abbott, R. (2001). Long term effects of the Seattle Social Development intervention on school bonding trajectories. *Applied Developmental Science*, 5(4), 225-236
- Hecht, M. L., Marsiglia, F. F., Wagstaff, D. A., Kulis, S., Dustman, P., & Miller-Day, M. (2003). Culturally Grounded Substance Use Prevention: An Evaluation of the keepin' it R.E.A.L. Curriculum. *Prevention Science*, Volume: 4, Issue: 4 (December 2003), pp: 233-248
- Hennessey, B.A. (2007). Promoting Social Competence in School-Aged Children: The Effects of the Open Circle Program. *Journal of School Psychology* Vol. 45, pp. 349- 360
- Hoek, D., Terwel, J., Eeden, P. v. d. (1997). Effects of training in the use of social and cognitive strategies: an intervention study in secondary mathematics in co-operative groups. *Educational Research and Evaluation*, Vol. 3 No.4, 364-389
- Humphreys, K., Mikami, A.Y, Boucher, M.A. (2005) Prevention of Peer Rejection Through a Classroom-Level Intervention in Middle School. *Journal of Primary Prevention*, Volume: 26, Issue: 1 (January 1, 2005), pp: 5-23
- Ialongo, N., Poduska, J., Werthammer, L., Kellam, S. (2001). The Distal Impact of Two First-Grade Preventive Interventions on Conduct Problems and Disorder in Early Adolescence. *Journal of Emotional and Behavioural Disorders*, Vol. 9, Issue 3, p.146, 15p
- Ialongo, N.S., Werthamer, L., Kellam, S.G. (1999). Proximal Impact of Two First-Grade Preventive Interventions on the Early Risk Behaviors for Later Substance Abuse, Depression, and Antisocial Behavior. *American Journal of Community Psychology*, Vol. 27, No.5, pp. 599-641
- Jenson, J.M., Dieterich, W.A. (2007). Effects of a Skills-Based Prevention Program on Bullying and Bully Victimization among Elementary School Children. *Prevention Science*, Vol. 8, pp. 282-296
- Johnson, D.W., Johnson, R., Dudley, B., Mitchell, J., Fredrickson, J. (1997). The Impact of Conflict Resolution Training on Middle School Students. *The Journal of Social Psychology*, 11-21

- Kam, C-M., Greenberg, M.T., Walls, C.T. (2003). Examining the Role of Implementation Quality in School-Based Prevention Using the PATHS Curriculum. *Prevention Science*, Vol. 4, No. 1
- Kimber, B., Sandell, R., Bremberg, S. (accepted for publication, 2007). Social and emotional training in Swedish classrooms for the promotion of mental health: Results from an effectiveness study in Sweden
- Kyrychenko, P., Kohler, C., Sathiakumar, N. (2006). Evaluation of a School-Based HIV/AIDS Educational Intervention in Ukraine. *Journal of Adolescent Health*, Volume: 39, Issue: 6 (December 2006), pp: 900-907
- Laird, M., Bradley, L. R., & Black, S. (1998). The final evaluation of Lions-Quest's Skills for Action. Newark, OH: Lions Quest, Lions Clubs International Foundation. Retrieved from: http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/29/e1/58.pdf
- Linares, L.O., Rosbruch, N., Stern, M.B., Edwards, M.E., Walker, G., Abikoff, H.B., Alvir, J.M.J. (2005). Developing Cognitive-Social-Emotional Competencies to Enhance Academic Learning. *Psychology in the Schools*, Vol. 42, No.4, pp.405-417
- McCraty, R., Atkinson, M., Tomasino, D., Goelitz, J., & Mayrovitz, H. N. (1999). The Impact of an Emotional Self-Management Skills Course on Psychosocial Functioning and Autonomic Recovery to Stress in Middle School Children. *Integrative Physiological and Behavioral Science*, Volume: 34, Issue: 4 (October 1, 1999), pp: p246, 23p
- Merry, S., McDowell, H., Wild, C. J., Bir, J., & Cunliffe, R. (2004). A randomized placebo-controlled trial of a school-based depression prevention program. *Journal of the American Academy of Child and Adolescent Psychiatry*, 43, 538-547
- Metz, A.E., Fuemmeler, B.F., Brown, R.T. (2006). Implementation and Assessment of an Empirically Validated Intervention Program to Prevent Tobacco Use Among African-American Middle-School Youth. *Journal of Clinical Psychology in Medical Settings*, Vol. 13, No. 3, September 2006
- Murray, C., Malmgren, K. (2005). Implementing a teacher-student relationship program in a high-poverty urban school: Effects on social, emotional, and academic adjustment and lessons learned. *Journal of School Psychology*, 43:137-152

- O'Donnell, L., Stueve, A., San Doval, A., Duran, R., Atnafou, R., Haber, D., et al. (1999). Violence prevention and young adolescents' participation in community youth service. *Journal of Adolescent Health*, 24(1), 28-37
- Orpinas, P., Kelder, S., Frankowski, R., Murray, N., Zhang, Q., & McAlister, A. (2000). Outcome evaluation of a multi-component violence-prevention program for middle schools: The Students for Peace project. *Health Education Research*, 15(1), 45-58
- Peleg, Neumann, Friger, Peleg & Sperber (2001) Outcomes of a brief alcohol abuse prevention program for Israeli high school students. *Journal of Adolescent Health*, Volume: 28, Issue: 4 (April 2001), pp: 263-269
- Quale, D., Dziurawiec, S., Roberts, C., Kane, R., Ebsworthy, G. (2001). The Effect of an optimism and life skills program on depressive symptoms in preadolescence. *Behaviour Change*, 18, 194-203
- Reid, J.B., Eddy, J.M., Fetrow, R.A., Stoolmiller, M. (1999). Description and Immediate Impacts of a Preventive Intervention for Conduct Problems. *American Journal of Community Psychology*, Vol. 27, No. 4, pp 483-517
- Riggs, N.R., Greenberg, M.T., Kusché, C.A., Pentz, M.A. (2006). The Mediation Role of Neurocognition in the Behavioral Outcomes of a Social-Emotional Prevention Program in Elementary School Students: Effects of the PATHS Curriculum. *Prevention Science*, Vol. 7, No. 1, pp 91-103
- Sanz de Acedo, M., Ugarte, M., Cardelle-Elawar, M., Iriarte, M., Sanz de Acedo, M. (2003) Enhancement of self-regulation, assertiveness, and empathy. *Learning and Instruction* 13, 423-439
- Scheier, L.M., Botvin, G.J. & Griffin, K.W (2001). Preventive Intervention Effects on Developmental Progression in Drug Use: Structural Equation Modeling Analyses Using Longitudinal Data. *Prevention Science*, Vol. 2, No. 2, 2001
- Shapiro, J.P., Burgoon, J.D., Welker, C.J., Clough, J.B. (2002). Evaluation of the Peacemakers Program: School-Based Violence Prevention for Students in Grades Four through Eight. *Psychology in the Schools*. Vol. 39, Issue: 1, pp: 87, 15p

- Sharpe, T., Brown, M., & Crider, K. (1995). The effects of a sportsmanship curriculum intervention on generalized positive social behavior of urban elementary school students. *Journal of Applied Behavior Analysis*, 28, 401-416
- Shochet, I.M., Dadds, M.R., Holland, D., Whitefield, K., Harnett, P. Hl ??, Osgarby, S.M (2001). The Efficacy of a Universal School-Based Program to Prevent Adolescent Depression. *Journal of Clinical Child Psychology*. Vol. 30, No. 3, 303-315
- Smokowski, P.R., Fraser, M.W., Day, S.H., Galinsky, M.J., Bacallao, M.L. (2004). School- Based Skills Training to Prevent Aggressive Behavior and Peer Rejection in Childhood: Evaluation of? the Making Choices Program. *The Journal of Primary Prevention*, Vol. 25, No. 2, pp. 233-251
- Solomon, D., Battistich, V., Watson, M., Schaps, E., Lewis, C. (2000). A Six-District Study of Educational Change: Direct and Mediated Effects of the Child Development Project. *Social Psychology of Education*. No: 4., pp: 3-51
- Spence, S., Sheffield, J., Donovan, C. (2003) Preventing Adolescent Depression: An Evaluation of the Problem Solving for Life Program. *Journal of Consulting and Clinical Psychology*, 7(1), 3-13
- Stevahn L, Johnson DW, Johnson RT, Green K, Laginski AM (1997) Effects on high school students of conflict resolution training integrated into English literature. *Journal of Social Psychology* 137: 302-315
- Stevahn, L., Johnson D.W., Johnson, R. T. ,& Schulz, R. (2002) Effects of conflict resolution training integrated into a high school social studies curriculum. *Journal of Social Psychology* 142:305-333
- Stock, S., Charmaine, M., Evans, S., Plessis, S., Ridley, J., Yeh, S., Chanoine, J-P (2007). Healthy Buddies: A Novel, Peer-Led Health Promotion Program for the Prevention of Obesity and Eating Disorders in Children in Elementary School. *Pediatrics*, Volume: 120, Issue: 4, pp: e1059-e1068
- Sussman, S., Miyano, J., Rohrbach, L.A., Dent, C.W., & Sun, P. (2007). Six-month and one-year effects of Project EX4: A classroom-based smoking prevention and cessation intervention program. *Addict. Behav.* 32, 3005-3014

- Twemlow, S.W., Fonagy, P., Sacco., F.C., Gies, M.L., Evans, R., Ewbank, R. (2001). Creating a Peaceful School Learning Environment: A Controlled Study of an Elementary School Intervention to Reduce Violence. *American Journal of Psychiatry*, Vol. 158, pp: 808-810
- Van Schoiack-Edstrom, L., Frey, K.S., Beland, K. (2002). Changing Adolescents' Attitudes About Relational and Physical Aggression: An Early Evaluation of a School-Based Intervention. *School Psychology Review*, Volume: 31, Issue: 2 (June 1, 2002), pp: p201, 16p
- Vartiainen, E., Paavola, M., McAlister, A., Puska, P. (1998) Fifteen-year follow-up of smoking prevention effects in the North Karelia youth project. *American Journal of Public Health* (1971), Volume: 88, Issue: 1 (January 1, 1998), pp: 81-85

