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### ► [Evaluating mediators of the impact of the Linking the Interests of Families and Teachers \(LIFT\) multimodal preventive intervention on substance use initiation.](#)

DeGarmo D.S., Eddy J.M., Reid J.B. et al. [Request reprint](#)

**Prevention Science: 2009, 10(3), p. 208–220.**

Again an early schools programme which does not mention substance use at all but focuses on overall child development has later impacts on substance use (plus other benefits) as great as targeted drug education is typically able to produce.

**Abstract** As described in an [earlier paper](#), the primary school [LIFT intervention](#) does not directly address substance use, but instead targets child and parent behaviours thought most relevant to the development of teenage delinquency and violence, including children's opposition, defiance, and lack of social skills, and parental disciplining and monitoring.

Interventions are tailored to each school year spanning ages six to 11, but follow a common model. For an hour twice a week for 10 weeks, LIFT instructors join classroom teachers to promote good behaviour and relationship and group work skills through demonstration and role-play. At playtime this learning is reinforced through a version of the [Good Behaviour Game](#). At the start of the programme children in each class will have been divided into small groups. Children who during play behave well towards their peers are praised and their behaviour recognised by an armband. Collectively these can cumulate in to a special privilege reward for the class as a whole. Children observed to behave badly lose points for their small group from a 'good faith' total renewed at each playtime. Groups which retain a certain number of points are recognised by each member receiving a sticker. Retained points can cumulate to the level where each group member can select a small prize.

During the same 10-week period, LIFT parent instructors meet groups of 10 to 15 families once a week for six weeks. Lecture, discussion, role plays and videotaped scenarios are used to convey parenting issues and skills to be practised at home, and the results of last week's home practice are reviewed. The focus is on creating situations

where children are likely to interact well with their peers and on fostering cooperative rather than competitive play by not singling 'winners' and, by implication, 'losers'. Parents **unable to attend** are offered sessions at home or sent written materials. In the featured study parental participation was **unusually high**; though only 28% attended all the meetings, any given meeting was attended by on average 6 in 10 families and just 5% refused to participate in any form. Extra sessions are arranged as needed for specific problems affecting a family. Additionally parents are involved via weekly LIFT newsletters and a dedicated phone/answering machine in each classroom which carries messages from teachers about class activities and homework assignments, and on which parents can leave messages for the teacher. LIFT parent instructors also call each family weekly to check on progress on home exercises and to address questions or concerns.

The programme was developed in a medium-sized US town after a year of piloting and feedback from parents and teachers. Then it was evaluated in the same town, in neighbourhoods in the top half for the proportion of households whose children had been arrested for juvenile crime. These also tended to be relatively poor and ethnically mixed areas. In each of three successive school years in the early '90s, four primary schools in these areas were randomly selected for the study. Within these, two were randomly allocated to LIFT and two to carry on as usual (the comparison schools). Schools were further randomly allocated to involve either their first (ages 6–7) or fifth grade (ages 10–11) classes in the study. Across the three years, the result was three LIFT and three comparison schools which tested LIFT as a first-grade intervention, and another three pairs which tested it as a fifth-grade intervention. Among the younger children, trends in substance use would not yet have been sufficiently developed, so the featured report concerns only the six fifth-grade schools, involving 351 children in 17 classrooms. These pupils and their families were surveyed annually through secondary school to their twelfth grade or equivalent, when typically pupils would be aged 17 or 18.

Outcomes were based on pupils' answers about how often they had used substances the past six months, so represented more or less current use levels. Initiation of smoking, drinking and (but not to a statistically significant degree) illicit drug use were delayed by the intervention, amounting to 7–10% fewer children trying these substances. However, the greatest impacts were on how often substances were used. Over the years after the intervention ended, the average frequency of use of all three types of substance was lower in LIFT than comparison children, most noticeably in respect of drinking. Though overall the intervention did not retard the year-by-year growth in average frequency of use, it did do so for the girls in the sample in respect of smoking and illicit drug use, though not drinking.

Further analyses probed what might have led to these effects. Smoking uptake, frequency and growth were retarded seemingly partly because the intervention **improved** how the family resolved parent-child conflicts, and partly because it affected the **aggression** shown by the child to their peers. Growth in drinking and illicit drug use were also influenced via family conflict resolution improvements and child aggression respectively.

The authors cautioned that **effect sizes** were small as was the sample, the study was limited to one type of neighbourhood in one town, and the probe for how the intervention worked was limited by the available survey and observation measures. Despite these limitations, they argued that the study showed that a relatively low-cost intervention

lasting only a few months during late primary school can lead to significant effects on childhood aggression and family functioning and, partly as a result, also curb the growth of substance use through to the late teenage years.

**FINDINGS** The study exemplifies a stream of substance use prevention which instead of tackling the issue 'head-on' through later years' education, addresses it early through generic socialisation measures and/or fostering attachment to school, and which also sometimes reach beyond the school to parenting and the family environment. The development of 'risk' and 'protective' factors in the child's life is diverted before manifest in substance use and other adolescent problems. Typically this is done not through authoritarian discipline but by parental and teaching approaches which both model and foster involvement and cooperation. The immediate target is not the individual child, but the overall school/class environment which shapes the behaviour of all the children. The study joins [a small set](#) suggesting that such approaches impact on later substance use at least as much and as (in)consistently as school-based interventions actually aimed at substance use. Patchy impacts, with many not statistically significant, are not unusual in school substance use prevention programmes, and have [also been observed](#) of the kind of programme tested in the featured study.

This itself had patchy though promising outcomes, most consistently on the average frequency of use over the years after the intervention. Though parenting was the major target for LIFT, when initiated in early primary school the Good Behaviour Game has itself [been shown](#) to have substantial impacts on early adult problem substance use. The featured study initiated it several years later and the follow-up was to late teenage years only, possibly accounting for smaller impacts. Though the research programme's inputs were time-limited, their repercussions may have persisted through the learning of the teachers who partnered LIFT's instructors, through parenting improvements, and through persisting positive peer influence. A major plus is that such programmes are intended also to improve child development across the board, not just substance use. An [earlier report](#) of outcomes up to grade eight (age 13–14) found that the LIFT children were already drinking less often, and also were less likely to have been arrested. The study has some major methodological strengths but also some important limitations and possibly too some shortcomings; details below.

[Few families](#) refused to participate in the study, all but ten of the 361 children in the fifth-grade classes had the required baseline data, and follow-up rates were [high](#), giving confidence that the families and children were representative of all those in the selected neighbourhoods. In case the parents' drinking affected their children, this was statistically 'evened out' in the analyses. A similar procedure sought to statistically eliminate the impact of associating with [deviant peers](#). If part of the way it worked was to curb such friendships, in theory this would have disadvantaged the LIFT intervention. [In fact](#), LIFT's impacts on friendships with deviant peers were independent of its impacts on substance use. Some of the LIFT classes were combined fourth and fifth grade classes. Though the average age was very similar to comparison schools, many more LIFT children (20% v. 5%) were just nine years of age when the study started. Being earlier in their development, they can be expected to take longer to develop substance use and other problems, possibly biasing outcomes in favour of the LIFT schools. Reassuringly, an [earlier report](#) on substance use and other outcomes to grade eight (age 13–14) found no significant indication of such a bias. No similar test is mentioned in the featured report, and neither was the grade level of the children or their age statistically 'evened out' in the analyses, raising the possibility that some degree of bias might have affected the comparison between LIFT and non-LIFT children. Surprisingly, which class or school the child was in bore little relation to outcomes, so was ignored the analyses.

However, purists might insist that since it was schools which were randomly allocated to the intervention, the analysis of outcomes should also have been at school level. With just six schools, the chances of a statistically significant finding would have been drastically reduced. Also it is unclear whether adjustments were made for the multiple outcomes tested in the study to reduce the possibility of chance findings. There were **nine tests** of various kinds of substance use outcomes of which across the whole sample five were statistically significant and four were not, though other methodological considerations might have reduced the positive tally. In particular, it is unclear whether the way statistical significance was tested effectively doubled the chances of a positive finding by assuming that LIFT could not have negative impacts. It is unclear whether the frequency of use outcomes included (as 0 use) pupils who had **not used** that substance at all, or only averaged frequency rates over users. An **earlier report** was based on past-year substance use. The featured report instead chose to report use in the past six months, a goalpost-shifting which requires justification. While the authors admit that substance use impacts were small, the report does not give 'raw' data on substance use levels in LIFT and comparison schools, making it impossible to assess the clinical significance of the findings.

The Good Behaviour Game school component in the featured intervention has **been found** feasible and effective in terms of classroom behaviour control in British schools. In broader form, these principles are embodied in the strand of personal, social, health and economic education (PSHE) which aims to create a climate in the classroom within which sensitive issues (including disruptive and aggressive behaviour) can be explored openly and honestly without fear of ridicule or betrayal of confidence, based on standards which the children themselves have helped generate. They can also be found in the **SEAL** (social and emotional aspects of learning) curriculum widely used in British primary schools.

Where these UK initiatives differ from the Good Behaviour Game is in their rejection of approaches based purely on a mechanical system of rules, rewards and sanctions, seen as failing to encourage pupils to learn social and emotional skills or take responsibility for their own behaviour. LIFT too fits the game within a broader approach to promoting good behaviour. **Parent involvement mechanisms** in British primary schools are underdeveloped compared to those deployed in LIFT and the national focus is on academic attainment and school attendance rather than overall child development and parenting. The family of studies of which the LIFT study forms a part focus attention away from specific programmes to deal with particular behaviours like substance use or bullying, towards generic and more sustainable inputs based not on subject knowledge but on the teacher's understanding of social and communication skills and child and adolescent psychology. In turn this demands a greater and more consistently implemented focus on developing this understanding.

*This draft entry is currently subject to consultation and correction by the study authors and other experts.*

*Thanks for their comments on this entry in draft to **Blaine Stothard**, Independent Consultant in Health Education of the Institution. Commentators bear no responsibility for the text including the interpretations and any remaining errors.*

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