Program Integrity in Primary and Early Secondary Prevention: Preserving What Works Across Diverse Settings

by

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A thesis submitted in conformity with the requirements for the degree of Master of Arts
Graduate Department of Education
University of Toronto

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Abstract

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I reviewed the extent to which program integrity (i.e., the degree to which programs are implemented as planned) was verified and promoted in evaluations of prevention programs published between 1980-1994, and examined reported effects of integrity and dosage (i.e., participant attendance) on program outcome. Reductions in adherence (i.e., the extent to which program components were delivered as prescribed) appeared to compromise efficacy, whereas dosage effects were inconsistent. A minority of 162 outcome studies examined specified procedures for monitoring or promoting integrity. These omissions, especially of measures of adherence, may compromise the internal validity of outcome studies in the prevention literature. In a second study, interviews and observations were conducted at sites using select social-skills and parent-education programs, to examine degrees of program fidelity, perceived obstacles to program delivery, and ways of addressing them. Flexibility in program delivery can be balanced with integrity to the critical features of a program.
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# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>iii</td>
</tr>
<tr>
<td>List of Tables</td>
<td>vi</td>
</tr>
<tr>
<td>List of Figures</td>
<td>vii</td>
</tr>
<tr>
<td>List of Appendices</td>
<td>viii</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Importance of Integrity Verification in Prevention Research</td>
<td>1</td>
</tr>
<tr>
<td>Promotion of Program Integrity</td>
<td>4</td>
</tr>
<tr>
<td>Fidelity/Adaptation Debate</td>
<td>5</td>
</tr>
<tr>
<td>Present Study</td>
<td>7</td>
</tr>
<tr>
<td>Study 1</td>
<td>8</td>
</tr>
<tr>
<td>Literature Search and Inclusion Rules</td>
<td>8</td>
</tr>
<tr>
<td>Coding Procedures</td>
<td>9</td>
</tr>
<tr>
<td>Results</td>
<td>10</td>
</tr>
<tr>
<td>Verification and Promotion of Program Integrity</td>
<td>10</td>
</tr>
<tr>
<td>Procedures for Integrity Verification</td>
<td>13</td>
</tr>
<tr>
<td>Effects of Integrity on Program Outcome</td>
<td>14</td>
</tr>
<tr>
<td>Effects of Dosage on Program Outcome</td>
<td>17</td>
</tr>
<tr>
<td>Discussion</td>
<td>17</td>
</tr>
<tr>
<td>Integrity Effects</td>
<td>17</td>
</tr>
</tbody>
</table>
List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1.</td>
<td>Integrity Verification and Promotion by Year of Publication, Intervention and Implementor</td>
<td>89</td>
</tr>
<tr>
<td>Table 2.</td>
<td>Studies Examining Effects of Integrity on Program Outcome</td>
<td>90</td>
</tr>
<tr>
<td>Table 3.</td>
<td>Studies Examining Effects of Dosage on Program Outcome</td>
<td>94</td>
</tr>
</tbody>
</table>
List of Figures

Figure 1. Frequency of mean integrity ratings (i.e., on a 5-point Likert scale) assigned to programs (N=9) observed by trained coders

Page 96
List of Appendices

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A</td>
<td>Operational Definitions of Coding Categories</td>
<td>83</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Perceived Obstacles to Program Integrity in Social-Skills Programs</td>
<td>85</td>
</tr>
<tr>
<td>Appendix C</td>
<td>Addressing Obstacles to Program Integrity in Social-Skills Programs</td>
<td>86</td>
</tr>
<tr>
<td>Appendix D</td>
<td>Perceived Obstacles to Program Integrity in Parent Education</td>
<td>87</td>
</tr>
<tr>
<td>Appendix E</td>
<td>Addressing Obstacles to Program Integrity in Parent Education</td>
<td>88</td>
</tr>
</tbody>
</table>
The verification of program integrity is integral to the evaluation of any intervention. **Integrity** is defined as the degree to which specified procedures are implemented as planned (Gresham, Gansle, Noell, Cohen & Rosenblum, 1993); the term **fidelity** has been used in this manner as well (Moncher & Prinz, 1991). Program integrity must be verified to attribute changes in the dependent variable(s) to manipulations of the independent variable (Gresham, 1989). If integrity data are not collected, it is difficult to determine whether non-significant results are due to a poorly conceptualized program or to an inadequate or incomplete delivery of the prescribed services. Furthermore, without integrity data it is impossible to gauge the effects of modifications to prescribed activities (Gresham, 1989; Moncher & Prinz, 1991).

**The importance of integrity Verification in Prevention Research**

The verification of program integrity is of particular importance in prevention research, as preventive interventions are often implemented in conditions that present numerous obstacles to the delivery of a program with fidelity. Prevention researchers must often contend with limitations in resources. Thus, investigators often use numerous paraprofessionals or lay-professional volunteers as service providers, to achieve a broad dispersion of preventive services at the lowest possible cost (Institute of Medicine, 1994). However, when prevention researchers have to coordinate the activities of a diverse array of implementors, it is difficult for them to insure that procedures are implemented with fidelity (Institute of Medicine, 1994). Furthermore, paraprofessionals are often unfamiliar with the procedures of a typical psychosocial preventive intervention (Rohrbach, Graham
Han-sen (1993), and therefore, they may feel uncomfortable in their role as program leaders (Tortu & Botvin, 1989). Sobol et al. (1989) determined that an analogue lesson from a substance-abuse prevention program was delivered with greater integrity by service providers who were comfortable with the specified prevention program, and who were confident in their abilities as program leaders. Hence, inexperienced paraprofessional implementors may be less likely to deliver a program as designed than well-trained professional staff.

Prevention programs are frequently conducted in settings that present additional obstacles to program integrity. For instance, the majority of preventive interventions are conducted in schools. In order for preventive interventions to be successful in these institutions, school-administrators, teachers and other personnel involved with the program must be convinced of its value, and of the feasibility of implementing it within an already full school schedule (Elias & Clabby, 1992; Meyer, Miller & Herman, 1993). Otherwise, school staff are unlikely to devote much time and energy to the delivery of the program. School-based psychosocial interventions compete for class time with the demands of other educational curricula. If teachers can not find time to fit preventive interventions into their class schedule, and if they do not share the researcher’s belief in the importance of the program, then they may implement the program incompletely or not at all (Meyer et al., 1993). Thus, program integrity may also be compromised by a poor fit between the setting and the proposed intervention.

Further obstacles to integrity are likely to surface when preventive interventions are evaluated in effectiveness trial conditions (Rohrbach et al., 1993). Programs are
tested in naturalistic conditions in effectiveness trials, using only the resources (e.g., paraprofessional staff, limited supervision) expected to be available at sites when research funds are exhausted (Flay, 1986). Such evaluations examine the potential impact of an intervention as it is likely to be used in adopting sites, as opposed to its optimal efficacy, which may be observed when a program is delivered in more controlled conditions by a well-trained and highly motivated staff (i.e., in efficacy trials) (Flay, 1986). Effectiveness trial evaluations probably yield the kind of information that is most useful to investigators in this field. However, as investigators relinquish control of the implementation of an intervention, inconsistencies in program delivery become more likely.

The verification of program integrity should enhance the interpretability of research on the outcome of preventive programs. Several studies in the prevention literature show that loss of program integrity may reduce efficacy (e.g., see Botvin, Baker, James-Ortiz & Kerner, 1989). Moreover, program effects can be hidden by inconsistencies in the delivery of program procedures (e.g., Botvin, Dusenberry, Baker, Tortu & Botvin, 1990). If program integrity is not verified, program evaluations may under-represent the potential value of a prevention program, putting potentially effective interventions at risk for discontinuation (Felner, Philips, Dubois & Lease, 1991). Integrity data should reveal differential patterns of implementation among implementors, which should enable an investigator to draw more accurate conclusions about the effectiveness of a program model and its implications for practice.
Systematic integrity checks may also alert researchers to the use of inappropriate intervention techniques during program implementation, or to the omission of critical program components. If consistent deviations from protocol occur with respect to a particular procedure, program planners may search for obstacles to the accurate implementation of the prescribed component. Prescribed procedures and relevant support materials can be fine-tuned to surmount any impediments to implementation caused by unforeseen discrepancies between local circumstances and program specifications.

The Promotion of Program Integrity

Program fidelity has been enhanced through the provision of training manuals (Schinke, Gilchrest & Snow, 1985), the training of facilitators (Connel, Turner & Mason, 1985; Perry, Murray, & Griffin, 1990; Ross, Lupecker, Nelson, Saavedra, & Hubbard, 1991) and the supervision of implementors (Harchik, Sherman, Sheldon & Strouse, 1992; Peterson, Mori, Selby & Rosen, 1988). Detailed training manuals are the key to the promotion of program integrity because they contain clear prescriptions regarding implementor activities, (Blakely et al., 1987; Dobson & Shaw, 1984; Kazdin, 1986) which facilitate the training and supervision of implementors, and the verification of integrity (Drake et al., 1993). The training and supervision of implementors is equally critical to a program’s success, as such supports may increase an implementor’s preparedness and comfort level, and convince service providers of a program’s utility and effectiveness (Tortu & Botvin, 1989). Thus, adequate training and supervision may
decrease resistance to the proposed intervention, which, in turn, may increase implementation.

Consistent on-going supervision may be critical to the enhancement of fidelity. Implementors of a home-safety program for latchkey children followed program procedures more closely when they received consistent supervision from project directors (Peterson, et al., 1988). The authors speculated that regular contact with project supervisors may have increased the implementors’ feelings of accountability. Supervision meetings may also provide opportunities for experienced staff members and service providers to collaboratively decide how to surmount problems encountered during implementation (Drake et al., 1993; Vermilyea, Barlow & O’Brien, 1984). Thus, supports to implementation (i.e., the provision of manuals, training and supervision) may improve communication and understanding among program stakeholders, which in turn may enhance the quality and consistency of implementation.

The Fidelity/Adaptation Debate

There are differing opinions as to the feasibility and desirability of promoting and verifying program integrity in prevention research. Some authors assert that adopting sites should adhere strictly to the procedures specified in a program protocol (Boruch & Gomez, 1977; Calsyn, Tornatzky & Dittmar, 1977). These authors believed that alterations to specified procedures would decrease program effectiveness (Blakely et al., 1987). However, this position may be untenable. Adopting sites often have interests that conflict with the tight prescriptions of a program model, as program models are often developed without full knowledge of the needs and conditions of the adopting site. Rigid
insistence on strict adherence to program procedures may foster animosity among service providers and site administrators, which could result in decreased implementation (Meyer et al., 1993).

The converse of the "fidelity" perspective is the view that modifications to prescribed procedures are essential to a program's success. This has been labeled the "proadaptation" perspective (Blakely et al., 1987). Berman and McLaughlin (1976) have cited evidence in support of this position. These authors found that the more successful programs in their sample were ones in which adopting sites made program modifications to accommodate local needs. From the "proadaptation" perspective, fidelity assessments may be seen as being of marginal importance, particularly if one values program alterations made at the level of the individual implementor. However, the empirical base of the "proadaptation" perspective has been criticized. Datta (1981) pointed out that Berman and McLaughlin studied programs that were, for the most part, loosely defined policy statements rather than well specified interventions. In any case, it is clear that prevention researchers are not uniformly enthusiastic about fidelity verification.

A third perspective on the fidelity/adaptation debate represents a compromise. Several authors (Bauman et al., 1991; Blakely et al., 1987; Moskowitz, 1993) have suggested that program modifications to accommodate local needs are necessary and acceptable, provided that the critical features of a program are delivered as planned. Although this suggestion appears to be a logical compromise, many manuals of preventive interventions contain insufficient specificity to facilitate distinctions between essential and non-essential components (Hundert & Taylor, 1993). However, such an
approach seems plausible, and may warrant consideration as a means of resolving the fidelity/adaptation dilemma.

The Present Study

According to many if not most sources, the promotion and verification of program integrity should be an important facet of prevention research. However, the prevalence of these features in prevention research has not been examined. Previous reviews of integrity verification practices have focused on school-based behavioral interventions (Gresham et al., 1993), parent-training programs (Rogers-Weise, 1992), outcome studies in clinical psychology, behavior therapy, psychiatry, marital and family therapy (Moncher & Prinz, 1991), and experimental studies in the Journal of Applied Behavior Analysis (Peterson, Homer & Wonderlich, 1982). These reviews have largely been confined to treatment outcome studies, and none have included studies published after 1990.

The present report describes two studies. Study 1 was undertaken to gauge the extent to which inconsistencies in fidelity and dosage threaten the internal validity of outcome studies in the prevention literature, and compromise the potential effectiveness of these programs. This study contains a review of the extent to which integrity was promoted and verified in evaluations of prevention programs published from 1980 through 1994. Studies examining the effects of integrity and dosage (i.e., participant attendance) on program outcome were also reviewed. Study 2 is an exploration of the provisions for integrity verification and promotion in selected social-skills training and parent-education programs.
Study 1

Literature Search and Inclusion Rules

Articles selected for review met the following criteria. First, the study must have been an outcome evaluation published between 1980 and 1994 in a refereed English language journal. Second, the intervention must have focused on the primary or early secondary prevention of behavioral, social and/or academic maladjustment in children. Programs targeting delinquent children or other children already with clinical disorders were excluded from the study. Third, there must have been sufficient procedural specificity in the intervention under study to permit the verification of program integrity. Interventions limited exclusively to mass-media campaigns, videotaped instruction, and/or general meetings without specified procedures were excluded from the review.

Approximately 4500 abstracts from studies in the prevention literature were scanned to select eligible articles. The abstracts were obtained through a search of the PSYCLIT database, and a manual search of the following journals: (a) the American Journal of Community Psychology, (b) the Journal of Clinical Child Psychology, (c) the Journal of Community Psychology, (d) The Journal of Consulting and Clinical Psychology, and (e) The Journal of Primary Prevention. Other potentially relevant studies were identified from the reference lists of studies in the original pool. A total of 231 studies were subsequently examined in detail. Of these, 162 were deemed to have met the selection criteria. A list of these is available on request.
Coding Procedures

Each article was coded by the first author for the presence or absence of several features of fidelity verification and promotion: the coding categories are listed in Appendix A. A second coding analysis was performed for those studies coded as including procedures for integrity verification; these category definitions are also outlined in Appendix A. The studies were grouped by year of publication, to compare recently published studies (i.e., 1988-1994) to earlier studies (i.e., 1980-1987) on the features of interest. These data were also grouped by journal of publication, for those journals containing more than 10 studies in the review. Studies were also categorized by intervention type. Social-competence training (SCT) programs and parent-education programs accounted for most of the data base. Parent-education programs were defined as interventions designed to prevent behavioral, social and/or academic maladjustment in children by teaching parents effective, theory-based parenting skills (e.g., planned ignoring) or providing them with information intended to reduce family or parental stress. SCT programs were defined as interventions designed to prevent behavioral, social and academic maladjustment in children by enhancing the social skills of participating youngsters. Relevant social skills may have included problem-solving skills, assertiveness, perspective-taking ability, relaxation skills, self-control, affective recognition and/or behavioral prosocial skills.

Additional classifications were made according to implementor type. Interventions were categorized as being implemented by mental-health professionals if the majority of service providers were regularly employed in the field of mental health
(e.g., psychiatrists, psychologists, social workers); otherwise implementors were considered to be nonprofessionals or paraprofessionals (e.g., teachers, community volunteers, students). Studies were also grouped according to the setting in which the programs were implemented. Four such categories were constructed, including programs delivered via home visitation (home-based), within schools (school-based), in traditional mental health clinics (clinic-based; e.g., community mental health centres, hospitals), and in community centres (community-based; e.g., worksites, Boys & Girls clubs).

**Reliability of Coding Procedures**

To determine inter-rater reliability, a random sample of 10% of the studies were independently coded. Kappa coefficients for the various coding categories ranged from .74 to 1.00, with a mean kappa of .93.

**Review of Studies Examining Integrity/Dosage Effects on Program Outcomes**

Studies that incorporated process data into outcome analyses (see Appendix A) were subjected to additional scrutiny. Those that analyzed program outcome as a function of fidelity and dosage were thoroughly reviewed.

**Results**

**Verification and Promotion of Program Integrity in the Prevention Literature**

As Table 1 illustrates, program integrity was verified in a minority of studies evaluating the outcome of preventive interventions. Procedures to promote program integrity were somewhat more common. Manuals and training were provided to implementors in slightly more than half of the studies considered; supervision of service providers was indicated in somewhat less than half. However, manuals, training and
supervision were provided together in only a fifth of the outcome evaluations. Relatively few studies documented participant attendance and even fewer incorporated process data (i.e., integrity and dosage measures) into outcome analyses.

**Year of Publication.** As shown in Table 1, the practice of verifying and promoting program integrity has not increased significantly in more recent journal publications. One exception to this general trend is that process data has been used more extensively in recent studies to determine subject eligibility for outcome analyses, or to examine the effects of dosage and integrity on program outcome ($25\%$ vs $7\%; z = -3.13, p < .05$). Procedures for verifying program integrity were employed somewhat more often in recently published literature, but the increase was not significant ($31\%$ vs $17\%; z = -1.79, p < .07$). The remaining proportions were not significantly different.

**Intervention.** Table 1 illustrates data on integrity verification and promotion by intervention. Implementors of social-competence training (SCT) programs were trained ($60\%$ vs $31\%; z = 2.96, p < .05$) and provided with manuals ($66\%$ vs $43\%; z = 2.35, p < .05$) more frequently than implementors of parent-education interventions. Studies of SCT programs also provided greater detail about the content of program sessions ($53\%$ vs $31\%; z = 2.24, p < .05$). Participant attendance (i.e., dosage) was documented more frequently in outcome evaluations of parent-education programs ($37\%$ vs $12\%; z = -3.24, p < .05$) than in studies of SCT. The distributions of other features of integrity verification and promotion did not differ significantly by intervention.

**Implementor.** Table 1 displays data on integrity verification and promotion by implementor. Nonprofessional implementors were trained in the use of specific
intervention procedures more often than mental-health professionals (68% vs. 44%; z = 2.15, p < .05). Program integrity was verified more often in studies of interventions delivered primarily by paraprofessionals (32% vs. 9%; z = 2.30, p < .05). Supervision was provided more frequently to non/paraprofessional implementors, but the difference only approached significance (52% vs. 30%; z = 1.91, p<.06). There was also a marginally significant difference, favouring studies of programs employing nonprofessional implementors, in the extent to which process data was incorporated into outcome analyses (21% vs. 4%; z = 1.91, p<.05). All other differences were non-significant.

J. Publication. None of the major journals (i.e., those containing 10 or more studies in our sample) seem consistently more stringent in their requirements for the documentation and promotion of program integrity. The percentage of studies in these journals that specified the provision of supports such as manuals, training or supervision to implementors ranged from 38%-68%. Program integrity was verified in 11%-25% of the studies in major journals.

Setting. The provision of supports to implementors varied as a function of program setting. Implementors of school-based (60% vs. 18%; z = -2.67, p<.05) and home-based (60% vs. 18%; z = 2.00, p<.05) interventions were more frequently trained than service providers of clinic-based programs. Supervision was more frequently available to facilitators of home-based programs than it was to implementors of programs delivered in clinics (60% vs. 18%; z = 2.00, p<.05). Training manuals were used more
often in school-based (60% vs. 20%; z = 2.50, p<.05) and community-based programs (67% vs. 20%; z = 2.35, p<.05) than they were in home-visitation interventions.

Program integrity was verified with similar frequencies across settings. Dosage, however, was documented more regularly in clinic-based interventions than it was in programs delivered in schools (55% vs. 12%; z = 2.93, p<.05) and homes (55% vs. 10%; z = 2.58, p<.05). Programs implemented in community centres included a greater percentage of dosage checks than those implemented in schools (33% vs. 12%; z = 2.32, p<.05). Studies of home-based interventions included less detail about program sessions than studies of programs delivered in schools (47% vs. 0%; z = 2.93, p<.05) and community centres (45% vs. 0%; z = 2.35, p<.05).

Procedures for Integrity Verification

Source of Integrity Verification. Implementors frequently supplied information about the integrity of the interventions under study. Program integrity was verified by implementor reports in 61% of the studies containing procedures for documenting fidelity, which amounts to 15% of the articles in the total sample. Integrity ratings were provided by trained observers and participants in 44% and 26% of the studies that verified treatment fidelity, respectively, which constitutes 10% and 6% of the studies in the entire review.

Aspects of Fidelity. Several disparate aspects of program integrity were examined in the studies reviewed. Of those studies that included procedures for documenting fidelity, 54% (13%) focused on exposure, 46% (11%) measured adherence, 28% (7%) documented delivery quality, 26% (6%) assessed program differentiation, and 8% (2%)
examined participant responsiveness (see Appendix A for definitions of terms). Numbers in parentheses indicate the respective percentages of studies from the total sample.

**Effects of Integrity on Program Outcome**

**Exposure.** Table 2 summarizes the 13 studies in which outcome measures were analyzed as a function of one or more aspect of integrity. As shown, five of the 13 studies contained “pure” measures of exposure (i.e., where the score for exposure was not included in a composite score that encompassed other aspects of integrity). Four of these (Gottfredson et al., 1993; Hopkins et al., 1988; Moskowitz et al., 1982; Pentz et al., 1990) relied on implementors as informants regarding exposure; the fifth (Schaps et al., 1984) featured exposure data obtained from both implementors and trained observers.

Three of the 5 studies reported non-significant effects (Hopkins et al., 1988; Moskowitz et al., 1982; Schaps et al., 1984). Pentz et al. (1990) reported consistently positive effects for exposure in a substance-abuse prevention program. The general pattern of findings in Gottfredson et al’s (1993) teacher-training intervention also indicate significant positive effects of exposure. Thus, there is inconsistent evidence that exposure is related to program outcome.

**Adherence.** As indicated in Table 2, five of the 13 studies included “pure” measures of adherence. All of these were evaluations of substance-abuse prevention programs. Trained observers supplied evaluations of adherence in four of these studies (Botvin et al., 1989; Botvin, Baker, Filazoola & Botvin, 1990; Botvin, Baker, Dusenberry, Tortu & Botvin, 1990; Botvin et al., 1992); in the fifth, the adherence rating was obtained from service providers (Pentz et al., 1990).
In two of the five studies, predominantly significant positive effects of adherence were found (Botvin et al., 1992; Botvin, Baker, Dusenberry, Tortu & Botvin, 1990). Mixed effects of adherence were found by Botvin et al. (1989) and Botvin, Baker, Filazoola and Botvin (1990). Non-significant effects of adherence were reported in only one study. (Pentz et al., 1990). Although it appears, therefore, that adherence to the procedures of substance-abuse programs is related to outcome, this inference must be made with caution because most of the studies emanate from the same laboratory.

**Quality of Delivery.** A "pure" measure of quality of delivery was examined in only one of the 13 studies presented in Table 2 (Pentz et al., 1990). In this study, implementors served as informants regarding the quality of implementation. No significant effects of quality of delivery were reported.

**Implementor.** Seven of the 13 studies in Table 2 featured implementors as informants regarding one or more aspect of fidelity. Four of these contained "pure" measures of exposure (Gottfredson et al., 1993; Hopkins et al., 1988; Moskowitz et al., 1982; Pentz et al., 1990); Pentz et al. (1990) also used "pure" measures of both adherence and quality of delivery. Three of the seven studies used composite indices of program integrity, one of which was a combined measure of adherence, quality and responsiveness (Hansen et al., 1991); two others examined a combination of adherence and exposure (Allen et al., 1990; Parcel et al., 1991). Four of the seven studies reported predominantly non-significant findings (Allen et al., 1990; Hopkins et al., 1988; Moskowitz et al., 1982; Parcel et al., 1991). Mixed results were indicated in the remaining three studies (Gottfredson et al., 1993; Hansen et al., 1991; Pentz et al., 1990).
Trained observer. Observers provided ratings of one or more aspect of integrity in six of the 13 studies in Table 2, all describing evaluations of substance-abuse prevention programs. “Pure” measures of adherence were examined in four of the six studies (Botvin et al., 1989; Botvin et al., 1992; Botvin, Baker, Dusenberry, Tortu & Botvin, 1990; Botvin, Baker, Filazoola, & Botvin, 1990); a combined measure of adherence, delivery quality and responsiveness was used in the remaining studies (Hansen et al., 1991; Rohrbach, Graham & Hansen, 1993). Exclusively significant positive effects were reported in two of the evaluations (Botvin et al., 1992; Botvin, Baker, Dusenberry, Tortu & Botvin, 1990). In three of the six studies, a mixture of significant and non-significant results were indicated (Botvin et al., 1989; Botvin, Baker, Filazoola and Botvin, 1990; Rohrbach et al., 1993). Lastly, Hansen et al. (1991) reported non-significant findings. Thus, the general pattern of between-studies comparisons would suggest that there is a far stronger link between integrity and outcome when trained observers provide the data on integrity. However, this is attenuated by the one within-study comparison of these two sources of integrity verification. Hansen et al. (1991) reported significant positive effects of a composite index of integrity (i.e., adherence, quality, and responsiveness), that was derived from implementor reports, on three of seven outcome variables. However, no implementation effects were evident when data obtained from trained observers were analyzed. Additionally, the between-study comparisons must be interpreted cautiously because many of the studies using observational data were conducted by the same group of authors.
Effects of Dosage on Program Outcome

Table 3 summarizes the six studies in which the effects of dosage on program outcome were analyzed. Three of the six studies showed a clear relationship between higher dosage levels and increased participant scores on salient outcome measures (Allen et al., 1990; Felner et al. 1994; Weinman et al., 1992). Mostly non-significant effects were reported in the remaining three studies (Malvin, Moskowitz, Schaeffer, & Schaps, 1984; Moskowitz, Malvin, Schaeffer & Schaps, 1983; Moskowitz, Schaps, Schaeffer & Malvin, 1984). Thus, there is spotty evidence that dosage significantly influences program outcome.

Discussion

As detailed above, the majority of studies in the prevention literature contain no indications of the adequacy of program delivery. Furthermore, most studies include no records of the number of subjects that participated in a satisfactory proportion of planned sessions (i.e., dosage documentation). The internal validity of much of the outcome research in this literature may be compromised by the omission of these data.

Effects of Intermittency on Program Outcome

Despite the inconsistencies in the results, our review of the effects of implementation on program outcome highlights the importance of the documentation of adherence to protocol in particular, in outcome evaluations of preventive interventions. In several of the studies reviewed, program effects emerged only when interventions were implemented with adequate integrity (e.g., Botvin, Baker, Filazoola & Botvin, 1990). Thus, undocumented variations in implementation may well create interpretive
difficulties for prevention researchers. Negative results may be wrongly interpreted as an indication of problems in the conceptualization of a program model, rather than being attributed to incomplete or inadequate program delivery. Integrity verification may provide a basis for distinguishing program effects from implementation effects.

However, a comprehensive understanding of the effects of implementation on program efficacy can not be gleaned from current research, due to methodological limitations in the original studies. In particular, interpretation of salient findings is impeded by a lack of uniformity in the sources used for integrity verification, and in the aspects of fidelity that were considered.

**Source of Integrity Verification.** Significant implementation effects were more often noted when trained observers were employed as raters of program integrity than when service providers served in this capacity. This finding appears to support the contention that observational data are less susceptible to a social desirability bias than data obtained from the reports of service providers or participants (e.g., Leithwood & Montgomery, 1980; Meyer et al., 1993; Pentz et al., 1990; Waltz et al., 1993). Consistent with this theory, Hansen et al. (1991) found that observer-observer inter-rater agreement ($r = .74$) on a measure of adherence was substantially higher than observer-implementor agreement ($r = .40$). Indices of adherence may be particularly susceptible to a social desirability bias, as these estimates require a high degree of subjective interpretation. Moreover, implementors may be reluctant to admit to making changes to a curriculum, for fear of being perceived by researchers as incompetent or uncooperative.
A study by Pentz et al. (1990) appears to illustrate the influence of social desirability bias on implementor reports of adherence. This is the only study in the review to report a non-significant relation between adherence and program outcome. The validity of the finding is somewhat suspect, however, as none of the implementors reported making any significant deviations from the manual. Consequently, the measure of adherence obtained in this study may not be an accurate indication of the extent to which modifications occurred during implementation.

To control for social desirability biases in integrity verification, prevention researchers should employ trained (and uninformed) observers as informants, wherever possible. Trained observers reported on the fidelity of implementation in a minority of the 39 studies containing procedures for documenting program integrity. More research using integrity data derived from observational procedures is needed to clarify the relationship between implementation and program outcome.

**Aspects of Integrity.** There is a lack of consensus among investigators as to what constitutes program integrity (Blakely et al., 1987; Pentz et al., 1990; Waltz et al., 1993). Inconsistencies in the conceptualization of fidelity reduce the interpretability of studies examining its effects. As noted above, five aspects of fidelity have been identified in the literature (i.e., adherence, exposure, quality of delivery, responsiveness and program differentiation, see Appendix A), though the definitions and labels assigned to these aspects vary considerably, and are often not consistent with the terms used in the present review. Each aspect represents an important feature of program delivery. Deficiencies in any of these areas could diminish the impact of a program or confound the interpretation
of an outcome study. Most authors in the present review focused on one or two of these constructs in their assessments of program fidelity. However, to get a complete picture of the adequacy of program delivery, investigators would be well advised to monitor implementation according to all of the above criteria.

The adoption of uniform definitions of the various facets of program integrity would greatly facilitate between-study comparisons. Also, extant examinations of implementation effects are frequently confounded with effects that may be attributable to the source of integrity verification. Specifically, adherence measures were usually obtained through observational procedures, whereas indices of exposure were often derived from implementor reports. Comparisons across studies would be further simplified if appropriate controls for source effects were routinely employed.

The effects of quality of delivery and participant responsiveness have received minimal attention in the literature. More research is needed in this area to ascertain the relationship of these variables to program outcome. Although Hansen et al. (1991) considered measures of adherence, delivery quality and participant responsiveness, the unique effects of each of these features of integrity are not clearly delineated. Future research should partial out the relative effects of each aspect of fidelity, following the approach employed by Pentz et al. (1990). Studies should also examine inter-correlations of the various facets of fidelity, to determine the degree to which they overlap. Some evidence suggests that there is a substantial correlation between measures of adherence and quality of delivery (Botvin et al., 1989).
Several investigators dichotomized subjects into high and low implementation groups (e.g., Botvin et al., 1989; Botvin, Baker, Filazoola & Botvin, 1990; Gottfredson et al., 1993; Hansen et al., 1991; Hopkins et al., 1988; Moskowitz et al., 1982; Schaps et al., 1984). Such arbitrary categorizations of subjects may result in a substantial loss of information. Regressing a continuous implementation variable (using appropriate covariates) onto salient outcome measures (e.g., Allen et al., 1990; Botvin, Baker, Dusenberry et al., 1990; Parcel et al., 1991; Pentz et al., 1990; Botvin et al., 1992) would likely result in a more powerful analysis.

The effects of implementation on outcome were studied most frequently in the substance-abuse prevention literature. To gain a broader understanding of this issue, investigators in other areas of prevention must begin to examine implementation effects. It is encouraging to note that process data have been linked to outcome more frequently in recently published studies of preventive interventions, as detailed in Table 1.

**Effects of Dosage on Program Outcome**

Despite inconsistent findings, our review suggests the benefits of dosage documentation. Programs appear to be less efficacious for subjects who have attended a small proportion of planned sessions. In the three studies that reported non-significant dosage effects (i.e., Malvin et al., 1984; Moskowitz et al., 1982; Moskowitz et al., 1984), dosage groups were exposed to differential degrees of behavior modification, self-concept enhancement and communication techniques. Conversely, positive dosage effects emerged primarily in studies where high and low dosage groups experienced qualitatively different components of a program (Felner et al., 1994; Weinman, Schreiber
& Robinson, 1992). Program efficacy may be threatened most severely when a substantial proportion of participants are absent from sessions in which key concepts are outlined. As relatively few studies have examined this issue, more research is warranted. However, extant evidence may provide sufficient justification for using dosage data to determine subject eligibility for inclusion in samples of program recipients (e.g., see, for instance, Felner et al., 1994).

Patterns of Integrity Verification and Dosage Documentation in the Prevention Literature

Program implementation was monitored more frequently when interventions were delivered by non/paraprofessional implementors. Perhaps greater precautions were taken to ensure that non/paraprofessionals provided a uniform quality of service because of fears that inexperience would contribute to errors in program delivery. However, investigators should keep accurate records of the program components delivered by all personnel, irrespective of background or experience, to protect the validity of outcome evaluations.

It is difficult to determine whether it is any more or less feasible to collect integrity data when programs are delivered in schools, homes and other community centers, as opposed to clinical settings. There were no significant differences in the extent to which program integrity was verified in the various program locales. However, as the levels of integrity verification were low in all settings, it is not known whether increased efforts to document program fidelity could easily be accommodated in each of the locations.
Dosage appears to have been documented most frequently when investigators had less control over participant attendance. For instance, dosage was assessed more often in parent-education programs than it was in social-competence training (SCT) programs. Similarly, participant exposure to program sessions was recorded less often in home and school-based interventions than it was in programs delivered in clinics and community centres. SCT interventions were frequently conducted in schools. Since student attendance is mandatory in such settings, it may have been relatively easy to insure a robust participant turn out to program sessions. In the same vein, home visitation eliminates the need for participants to make complex scheduling and travel arrangements in order to attend program sessions, thereby increasing the likelihood that participants will maintain a consistent involvement in these programs. Hence, dosage documentation may have been a low priority for researchers conducting studies in homes and schools. However, the collection of dosage data is warranted even when participant attendance is expected to be high. Natural variations in subject exposure to a program may be used to determine the effectiveness of individual program components (Felner et al., 1991). Also, dosage data may reveal how frequently the children most in need of services attend school and the program sessions conducted therein.

Although the practice of integrity verification was relatively scant in the prevention literature, program integrity was documented more frequently in the studies in our sample than in previous reviews of the treatment literature. Peterson et al., (1982) found that treatment integrity was assessed in 20% of the experimental studies published from 1968 to 1980 in the Journal of Applied Behavior Analysis. Integrity was verified in
18.1% of the treatment outcome studies published between 1980 and 1988 in journals in the domains of clinical psychology, psychiatry, behavior therapy and family therapy (Moncher & Prinz, 1991). Only 6% of the group-design parent training studies published from 1975-1990 included verification of treatment integrity (Rogers-Weise, 1992). Lastly, Gresham et al. (1993) indicated that treatment integrity was verified in 14.9% of behaviorally based interventions published from 1980 to 1990.

Journal editors and reviewers could play a role in heightening the profile of integrity verification and dosage documentation in prevention research. The intense pressure to publish research findings may discourage researchers from collecting integrity data. Researchers may make unrealistic estimations about the time and financial resources required to complete a research project, in order to field competitive applications for funding (Moskowitz, 1993). Consequently, process evaluations may be eliminated from research designs to accommodate the scheduling requirements of funding agencies. Another problem is that integrity data can expose a study's weaknesses. As a result, some researchers may be reluctant to include these data in outcome evaluations, for fear of jeopardizing the study's chances of being published (Felner et al, 1991). The major journals in our sample did not appear to have enforced a standard for integrity verification in their publications. By consistently enforcing stringent integrity verification standards, journal editors may be able to mitigate the influences discouraging researchers from including these data in their studies.
Patterns of Integrity Promotion in the Prevention Literature

The various methods of promoting program integrity have not been applied consistently or comprehensively in prevention research. Few studies reported that manuals, training and supervision were provided together to implementors. In some cases, this may have been attributable to limitations in site resources. Alternatively, details about supports to implementors may have been omitted due to the author’s perceptions of space limitations in publishing journals.

Supports to implementation (training, supervision) were provided less frequently to service providers who were mental-health professionals. Since professional training in most mental-health fields includes scant coverage of primary and secondary prevention, specific training in the use of intervention techniques is warranted for all implementors. Professional implementors may also need a forum for discussing their experiences in implementing a program with project coordinators, in order to plan suitable strategies for overcoming unforeseen obstacles to the delivery of prescribed procedures.

Studies of parent-education programs included fewer details about the content of program sessions than evaluations of SCT programs. Interestingly, facilitators of parent-education interventions were also supplied with manuals and training less often than service providers of SCT programs. Similarly, training manuals were used infrequently in studies of home-visitation programs, which also contained little session detail. Perhaps implementors were afforded more autonomy in programs with a high level of procedural flexibility. As detailed below, it may be inappropriate for investigators to grant service providers excessive independence around the interpretation of program content.
The Compatibility of Program Integrity and Adaptation

We believe that advocates of program modifications and procedural flexibility should also strive to monitor and promote program fidelity. Even if the program is planned and fine-tuned in active collaboration with the adopting site, it is still possible and important to specify the procedures that were jointly planned, and to verify that they were implemented. Furthermore, consistency in the implementation of a program is more likely if manuals, training, and supervision are available to all implementors. Some degree of standardization in program delivery is desirable, as it facilitates program evaluations and helps to ensure a minimum level of program quality.

Furthermore, it must be noted that the majority of interventions in our sample did not have flexible procedures that evolved from a process of consultation with implementors. Weissberg (1995) observed that most prevention programs to date have been researcher-driven, as opposed to collaborative efforts between project staff and the adopting site. Only a very few programs have aimed to modify procedures in accordance with the specified needs of site staff and the targeted community. The failure of the authors in our sample to include integrity or dosage data in their studies can not likely be attributed to the privileging of the “adaptation” model or of collaborative planning over the “fidelity” model.

A reorganization of research priorities is needed to facilitate better quality, and less confounded evaluations of preventive interventions. If this change is to occur, program integrity must occupy a central position in prevention research. We do not see this as being inconsistent with the need to adjust programs to accommodate collaboration
with target communities in the development of intervention objectives and activities. Essential differences between programs that do and do not engage in the collaborative development of program objectives is the source of the program, not its clarity.

Study 2

The data reported above establish that program integrity is only documented or promoted in the minority of outcome studies on preventive interventions. Considering the variety of obstacles to program integrity that may be present in a site adopting a prevention program, it is surprising that implementation checks are not performed more regularly. Possible impediments to fidelity include inadequate support to implementors (i.e., not providing the manuals, training, and supervision that are needed), insufficient administrative support for the program, time constraints and implementor resistance (Harchik et al., 1992; Meyer et al., 1993; Rohrbach et al., 1993). Accordingly, adaptations to specified program procedures appear to be the rule and not the exception (Bauman et al, 1991). This may well constitute an important threat to the internal validity of these studies, since there is evidence that low program integrity compromises program efficacy (e.g., Botvin et al, 1989; Botvin et al, 1990; Hansen et al., 1991; see Study 1).

Quantitative analyses of program integrity have generally focused only on the program under study in a particular publication. A cross-sectional picture of treatment integrity across a range of programs should provide a better indication of the level of fidelity that is typical or desirable in prevention programs. Such data should facilitate decisions around the level of specificity in procedures manuals, about the degree and type of support to be provided to implementors, and about the extent and nature of the
measures to be used in facilitating acceptance of the program at an adopting site. A previous study by Blakely et al. (1987) assessed treatment integrity across a range of programs, but these did not include social-skills programs or parent education. Therefore, one purpose of the current study was to estimate the extent to which implementors of a cross-section of current parent education and social-skills training programs implement specified program procedures.

Despite widespread acknowledgment among prevention researchers that adaptations to prescribed program activities occur regularly, only the surface of this issue has penetrated the prevention literature. There is some discussion in the educational change literature about adaptations to new curricula entering school systems (Sarason, 1996; Fullan, 1991), and about the relationship between adaptations to educational innovations and program efficacy (Berman & McLaughlin, 1976). In the prevention literature itself, several authors have discussed the need to strike a balance between fidelity to a program model and flexibility in the application of an intervention (Bauman et al., 1991; Blakely et al., 1987; Meyer et al., 1993). These authors stress that rigid adherence to program specifications is rare in the climates in which typical preventive interventions are implemented—that is, in programs delivered in school or community settings by para-professionals or volunteers who are relatively inexperienced with psychosocial interventions. These articles mention conditions that may impede the implementation of an intervention, but they contain only vague descriptions of specific obstacles to program delivery encountered in actual program settings—information that might further elucidate processes contributing to procedural adaptations. Furthermore,
the studies include scant coverage of potential ways of addressing obstacles to program integrity. In addition, little has been written about the fidelity/adaptation dilemma with regard to parent education. Consequently, a second purpose of the present report is to provide a detailed outline of perceived obstacles to program integrity, based on interviews with personnel involved in various capacities with parent education or social-skill training programs, together with information about how these obstacles have been addressed and how treatment integrity has been promoted at the participating sites.

Method

Recruitment of Participating Sites

We first contacted the developers of social-skills training and parent education programs in Ontario that were known by ourselves and our colleagues. In a few instances, initial phone calls to these program developers yielded information about other programs that appeared to be suitable for the study, and similar phone calls were made to representatives of these programs.

Invitations to participate in the study were extended to representatives of sites that appeared to meet the following criteria: a) a primary prevention program was in operation; b) the intervention was either a social skills training or a parent education program (as defined in the literature review in the above section); and c) the intervention was described in a well specified procedures manual. With a few exceptions, preference was given to programs located in the Greater Toronto Area because of budgetary restrictions. However, two leading social skill programs in the north-eastern U.S. were invited to participate in the study because they were known to be particularly
comprehensive and well-established. Furthermore, to obtain a sample that was somewhat representative of prevention activities in Ontario as a whole, we also recruited 2 programs from Northern Ontario, and 2 from rural centres. In total, 9 social-skills programs and 13 parent education programs were asked to participate in the study. Participation was solicited by means of a telephone call to program managers, followed up by a faxed message containing details of the goals and methods of our study.

Representatives of 12 programs agreed to be involved in the study. Eight of these were social-skills programs; four were parent education interventions. Hence, an additional selection process was not required to determine the final sample of programs. The final sample comprised fewer parent education programs than was initially intended, as these programs proved to be difficult to recruit. Three of the parent education programs contacted did not reply to the invitation. The coordinator of one program expressed interest in the project, but could not commit staff time to the study due to recent staff cutbacks. In five instances, appointments to observe the implementation of the program could not be arranged as the intervention was not implemented during the data-collection period. Only one of the social-skills programs contacted about participation in the study could not commit to the project. The developer of the program indicated that the program was unsuitable for the aims of the study, as it was only in the development stage.

Data Collection Procedures

A range of personnel at each program site were interviewed. Interviews were arranged through a contact person at each site. This individual was generally a program
coordinator--someone who had a good overall understanding of program operations. We presented the contact person with a list of staff members, by role, whose participation would help us achieve our objectives.

Accordingly, interviews were requested with the following staff members of school-based social skill programs: a) a school administrator (e.g., vice-principal or principal); b) direct implementors of the program (e.g., teachers); c) any staff member functioning as a trainer or supervisor of direct implementors; and d) personnel involved in the development and/or evaluation of the program model. Interviews were requested with the following staff members of parent education programs: a) direct implementors of the program; b) any staff member functioning as a trainer, supervisor or coordinator of direct implementors; and c) personnel involved in the development and/or evaluation of the program model. Specific personnel were selected for interviews by the program contact from among those who functioned in the roles enumerated above. Where many staff members played similar roles, we interviewed a representative sample.

We conducted the interviews conducted during a visit to the program site. Interviews were semi-structured in order to allow us to tailor questions to circumstances in a particular site. We addressed the following general issues: a) how the program was introduced to staff at the adopting site, and how effective this introduction was in the opinion of the interviewee; b) the supports available to implementors, such as manuals, training, supervision, administrative support, and the importance attached to these; c) any obstacles to program integrity encountered, and, if there were any, how these obstacles
were addressed; and d) the extent to which program integrity was documented in some way at each site, and the ways in which this was done.

Most of these interviews were audiotaped. However, staff members were occasionally unavailable for the interview during the site visit, due to illness or other obligations. Telephone interviews were conducted with these staff members, and detailed notes of these conversations were recorded.

At least one session of each program was observed by the author. Where possible, observed sessions were videotaped. Informed consent was obtained from program participants prior to filming. However, three of the four relevant parent education programs would not permit videotaping. These program coordinators felt that parent groups would be disrupted by the filming. They were particularly concerned that videotaping would cause parents to be less candid. Consent to videotape was also withheld for three of the eight social-skill programs. The difficulty inherent in obtaining parental consent for the taping was the primary reason for the refusal to permit the videotaping of these sessions. Detailed transcripts of the observed session were recorded when videotaping was not permitted. Transcripts included a timeline of group activities, and detailed scripts of comments made during the session.

Two research assistants were trained to code the videotapes or transcripts of observed sessions. The research assistants were provided with a videotape or transcript of each observed session, and the corresponding section of each procedures manual. These coders rated each 15-minute segment of the observed sessions for adherence to specifications in the procedures manual. These integrity ratings were based on a live-
point Likert scale, with 1 representing major deviations from the prescribed procedures in the manual, and 5 indicating close adherence to specified program activities. Observations from nine of twelve programs were coded in this manner. In 50% of the ratings, the coders were in exact agreement. In 91% of the ratings, coders’ ratings were within adjacent points on the 5-point scale. Observation data from three programs were not coded, because these programs either did not employ a manual, or used a manual that lacked sufficient specificity to permit integrity ratings. Mean integrity ratings were calculated by dividing the sum of all ratings of a program session by the number of segments that were rated.

Sample of Sites

Descriptions of each site included in the study are listed below. Pseudonyms are used to protect the identity of the sites studied.

Site SST1: A multiple-component, multiple-year social-skills program was implemented at this elementary school located in the north-eastern U.S. The program model was developed and extensively researched by a psychology professor from an area university: support around the implementation of the program is provided to adopting sites by staff at a second university in the vicinity of this school, when sites contract this agency to do so. To date, the model has been disseminated to sites in a number of states across the U.S. and to other areas of the world. Implementation of the program at Site SST1 was initiated by two special education teachers, who obtained grants to pay for training and consultative support from program personnel during the initial year of program delivery. The program has been functioning at this site for several years.
Site SST2: This is one of four sites across the U.S. involved in a well-funded longitudinal outcome evaluation of a multiple-component, multiple-year prevention program. The authors visited a university in the north-eastern U.S., where the program is delivered in elementary schools in three surrounding counties. We focused on two components of this program during our site-visit to one of these schools: a) a classroom-based social-skills curriculum; and b) a social-skills/friendship intervention for referred children with behavioural difficulties. The program is in its fourth year of implementation at this site.

Site SST3: A classroom-based social-skills curriculum, which is one component of a prevention program intended for students from Kindergarten to Grade 3, was implemented at this school in the Greater Toronto Area (G.T.A.). For four years, Site SST3 was designated as a control school in a five year longitudinal outcome study. In the fifth year of the research project, the year in which data were collected for the present study, personnel at this site exercised an option to participate in the delivery of the intervention. As part of this research project, the program was implemented in 50 schools across Ontario.

Site SST4: Staff members at a community mental health centre in the G.T.A. developed a social-skills program and disseminated it to schools in its vicinity. This agency was contracted by a local school board to set up its program in a school visited by the second author. An on-site facilitator from the agency trained teachers to implement the intervention in their classrooms. Small withdrawal social-skills groups were also lead
by the program facilitator, but these were not a focus of our study. The school implemented the program for the first time this year.

Site SST5: Social-skills instruction was provided to Kindergarten and Grade One students at this school in the G.T.A.. Teachers were encouraged to teach social skills to students when they appeared to need help solving a social problem. This school was one of four sites originally involved in a multiple component social-skills project that was devised and driven by several school psychologists in a local school board. A general program framework was suggested by the psychologists, and materials and other forms of support relating to social-skills instruction were supplied by them to participating schools. However, staff at participating schools autonomously selected social skills interventions they deemed appropriate for their setting. During the 1991-1992 school year, an outcome evaluation of the programs delivered in the four original schools was conducted.

Site SST6: School-wide social-skills instruction was mandatory at this school in the G.T.A. Grant money was used to contract on-site workshops on conflict resolution from several area agencies. A range of social-skill materials were selected from these presentations and teachers autonomously chose to use those activities that best fit the needs and characteristics of their classroom.

Site SST7: At this school in the G.T.A., we focused on a classroom-based social-skills intervention, though several other preventive initiatives took place at the school. The program was implemented from Kindergarten to Grade 5 for the first time this year.
This is one of several sites in Ontario included in a large-scale longitudinal evaluation of the overall efficacy of multiple preventive initiatives.

Site SST8: At this Northern Ontario site, we observed an after-school program for children from a disadvantaged neighbourhood. Social-skills were taught implicitly to program children by several child-care workers, through adult modeling of prosocial behaviour, guided cooperative games and other activities. Child-care workers developed program content prior to each meeting, within a loose framework of guiding principles. Several other preventive interventions were implemented at this site through a partnership of several community agencies and parents. This is one of several sites in Ontario included in a large-scale longitudinal evaluation of the overall efficacy of multiple preventive interventions.

PE1: We observed a parent-education group delivered by nurses from a public health department in the G.T.A. The program model was a loosely prescribed framework of learning activities; weekly group agendas were set according to the needs of participants. Parent-education interventions have been conducted by personnel at this site for approximately seven years.

PE2: The parent education model described above was also employed at a mental health centre in the G.T. A. However, these groups were implemented in various community centres by social workers and volunteer mothers from the community. An outcome evaluation of these groups is currently being conducted by researchers at the mental health centre.
PE3: A tightly prescribed parent education program was delivered by social workers at this community mental health centre in the G.T.A. An outcome evaluation of this intervention and other parent education models implemented in the community is currently being conducted.

PE4: At this school in the G.T.A., parent-education meetings were held for parents with children involved in the school’s social-skills program. Parents were taught about the social-skills learned by the students, to facilitate family communication around these issues. The parent meetings were outlined in a tightly prescribed manual. This is another of the sites in Ontario included in a large-scale longitudinal outcome evaluation of the overall efficacy of multiple preventive interventions.

Results

Program Integrity

Figure 1 illustrates the mean program integrity ratings assigned by our coders to the program sessions. As indicated, programs were implemented with a very wide range of fidelity.

Program integrity was systematically documented as part of the regular procedures at only 2 of the 12 participating sites. A social skills program was implemented at one of these sites and a parent education program was delivered at the other. At both sites, records compiled by implementors and on-site facilitators specified the components of the procedures manuals that were implemented.

In three instances, integrity checks were not carried out at the particular sites visited by the authors, but were done at other sites during the original evaluation of the
programs. For instance, program integrity was documented in initial clinical trials of the program implemented at Site PE3, but it was not measured in the evaluation of the parent group observed in the present study. At Site SST3, integrity checks were not implemented because of the design of a longitudinal study. The site had been a control school for the first four years of a longitudinal outcome study; integrity data were collected at program schools during this phase of the study. However, in the fifth year of the study, the implementation of the program in control schools was optional, and as no outcome data were collected that year, integrity checks were not seen as necessary. Integrity data were not collected at site SST1 because money was not available to hire program staff to set up a system for monitoring the implementation of the program.

When this option is purchased from the program developers, program personnel help school staff to organize a committee that is responsible for monitoring and evaluating the program. Integrity data from these evaluations are used to plan modifications to the program model.

Informal integrity checks were completed at six of the twelve sites. At these sites, formal records of the quality of program implementation were not kept. However, site staff did keep informal records of program activities. For instance, at three of these sites, qualitative records of general program activities were compiled by an on-site researcher. This information is incorporated into yearly reports that specify the initiatives undertaken at each site in that particular year. At another site, the program facilitator kept track of the kinds of social skills lessons implemented in each classroom and her impressions of the effectiveness of each lesson. She intends to use this information to develop a detailed
program manual. Informal records were kept for a similar purpose in another school-based program; a manual detailing successful methods of teaching social skills in the classroom will eventually be compiled from these notes. Lastly, school administrators at one of the participating sites checked to see that social skills were being taught in the classrooms during the course of regular classroom observations carried out by school administration. None of these informal record-keeping procedures entailed a systematic evaluation of adherence to specified procedures.

At five of the participating sites, program integrity was not documented even though the programs were being evaluated in various outcome studies. At two of these sites, the researcher conducting the studies was not convinced of the importance of documenting program integrity. This researcher likened the implementation of a packaged prevention program to the administration of an intelligence test. In his view, trained professionals are likely to use packaged materials in a manner that is consistent with the standardized procedures prescribed in the manuals. However, despite this researcher's assertion, a low integrity rating was assigned by our coders to one of the programs implemented at these sites. Integrity data were not collected at three other sites because these programs were a part of a large-scale outcome study designed to evaluate the overall impact of multiple preventive interventions. This broad focus was seen as inconsistent with documenting the effectiveness of any one particular program, for which there was little interest and no resources.

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1 Intelligence tests are administered with a fair degree of variability and subjectivity. Sattler (1992) cites an extensive array of evidence that indicates that examiners differ in the manner in which they score the same test responses.
Integrity was not documented at five other sites, which were not being evaluated in a systematic way at the time of the present study. Program integrity was not measured in a previous evaluation of one of these programs. Notably, a psychologist involved in this evaluation suggested that social-skills instruction was implemented poorly at one of the four schools participating in the evaluation, in comparison with the other three. Data indicated that the social-skills instruction at this school had less impact on the children than the instruction offered at other schools.

The Promotion of Program Integrity at the Participating Sites

As detailed earlier, the provision of manuals, training and supervision to implementors is seen as crucial to program integrity by several researchers (e.g., Harchik et al., 1992; Ross et al., 1991; Schinke et al., 1985; see previous section). The following section summarizes the extent to which these supports were available at participating sites, and how these provisions were viewed by implementors and program developers.

Procedures Manuals

Tightly prescribed manuals were employed at six (i.e., 50%) of the participating sites. Four of these were in social-skills programs and two were parent education interventions. These manuals contained well-specified instructions about program activities for each session or lesson. In some cases, a range of activities was suggested for a given lesson, but each activity was designed to accomplish the same objective (e.g., to teach the same skill).

Flexible manuals were used at another three of the participating sites. These manuals do not contain well-specified instructions about activities for particular lessons
or sessions, but do nonetheless provide general outlines of program procedures. One of these was used for a social-skills program, while the others were utilized in parent-education programs.

No set manual was employed at the remaining three sites. All three of these programs were social skills interventions. At the SST6 and SST7 sites, various manuals were available to interested teachers but no prescribed program was described in a manual. Instead, teachers were able to select social skill activities from a range of resources made available to them through various staff meetings and workshops. At Site SST8, the implementors developed the content prior to each session within a loose framework of guiding principles.

**Perceived Advantages of Tightly Prescribed Manuals.** Informants mentioned several advantages of using tightly prescribed manuals. Well-specified manuals reduce the amount of preparation time required to implement a program. This is seen by many informants as a valuable feature in promoting use of the program, because even motivated implementors may have little time for preparation. Tightly prescribed manuals also facilitate outcome research by helping to ensure that all research participants receive comparable interventions. Moreover, in the opinion of a social-skills program director, the core elements of a program should be tightly specified as they are derived from an informed reading of the relevant literature so that the program is shaped by theory and previous research. He believes that implementors should be permitted to adapt only non-essential features. Another informant made a similar statement about a parent-education
program. This staff member felt that the specific problems cited by parents could be addressed through the general parenting strategies outlined in a well-specified manual.

According to several interviewees, using a tightly specified manual may also facilitate school-wide social skill activities, which help to promote the generalization of skill use. These informants suggested that tight prescriptions of program activities engender consistency in the way social skills are taught across classrooms and grades. This facilitates the development of a common language shared by students and staff, which enables the principles of the social skills program to be integrated more easily into the school discipline system. Moreover, they indicated that consistency of implementation across classrooms also facilitates school-wide activities designed to highlight a skill of the week through announcements, bulletin board displays or assemblies. Additionally, when all students have been taught social skills in a similar fashion, it is easier to build on the lessons taught in previous years. In multiple-year programs, it is important for students to have learned the salient background skills before they learn more advanced concepts.

Advantages of Loosely Prescribed Manuals. Two main reasons were cited for using flexible manuals, or no set manual, in social-skill programs. First, several informants expected that implementors would be less responsive to the imposition of a set, tightly prescribed program. They felt that teachers would be more enthusiastic about implementing an intervention of which they had a sense of ownership. Some informants believed that allowing implementors the autonomy to make significant choices around the program fosters that sense of ownership. Secondly, some informants believed that
less rigid programs enabled implementors to be more responsive to student needs. Some implementors, for example, disliked the idea of being confined by a manual that specified when certain skills should be taught. These implementors felt that they were in the best position to determine when students needed to learn a particular skill.

A different rationale was used to support the use of flexible parent-education manuals. The program in question (used at sites PE1 and PE2) endorses a learner-centred approach to education. This less didactic, more interactive approach to learning is seen as less intimidating to the parents targeted, namely low SES mothers with limited reading ability and little experience with formal education. A learner-centred approach is used in order to entice a greater proportion of this hard to reach population to attend the groups. According to the proponents of this approach, manuals must be flexible in order to permit parents to have significant input.

Implementor Training

Implementors at 9 of the 12 participating sites received formal training. A pre-service training workshop was mandatory for the implementors involved in all the parenting programs surveyed. A greater variety of methods was used to train the implementors of social-skill programs. Direct implementors at three sites received training in the form of a pre-service workshop. At two of these sites, this was the only form of training provided. Teachers were trained to use the programs by on-site facilitators at three of the participating sites. No formal training was provided to implementors at three sites employing social-skill programs.
One of the respondents pointed to evidence suggesting that training may be more effective when an on-site facilitator is used. He cited data indicating that teacher learning in workshops tends not to be applied in classrooms (Joyce & Showen, 1982). He suggested that applied, hands-on training represented the best way to explain the principles of a program. He also indicated that the presence of a supportive on-site facilitator may motivate teachers to adopt new methods of teaching by reducing the stress inherent in trying new techniques.

The sites that did not provide formal training to program implementors were the ones that did not employ structured programs. Formal training was not considered necessary because implementors were free to teach in the manner of their choosing. However, in-service workshops were held periodically at these sites to keep implementors abreast of new materials that could be used to teach social skills. Also, funds were sometimes available to send interested implementors to conferences or workshops regarding social skills. Furthermore, at two of the sites, experienced school personnel were occasionally available to demonstrate social skill techniques to less experienced teachers.

Implementor Supervision

At five of the participating sites (all SCT programs), implementors were supervised at regular intervals by personnel with experience implementing the program. Supervision was not available to implementors in any of the parent-education programs. At three sites, implementors of parent-education programs had clinical supervisors, but these supervisors had no experience with parent education interventions. Several
methods of supervision were employed at the social-skill sites. On-site facilitators provided supervision at three of the sites. The facilitators observed the implementation of most program sessions, and met with teachers at regular intervals to provide feedback. Teachers and facilitators met prior to each session to develop a lesson plan so that feedback about previous lessons could be incorporated directly into the next lesson. Hence, on-site facilitators provided the most comprehensive form of supervision available at the sites we observed in this study. A similar form of assistance could have been purchased at Site SST1, but funds were unavailable.

At two sites, implementors met regularly with experienced personnel to discuss the implementation of the program. This is a less comprehensive form of supervision, as experienced personnel did not observe implementors delivering the programs. The meetings served essentially as a forum for problem solving around various obstacles to implementation. These meetings were held weekly at Site SST5, and monthly at Site SST8. Group leaders at Site SST8 also met with the program coordinator every eight months for a formal review of their implementation.

When consultation with on-site facilitators is available on a regular basis, teachers seem to view additional supervisory meetings as redundant. In an evaluation of the program used at the Site SST3, teachers were surveyed about a range of program issues. Eighty percent of the teachers surveyed found consultation with facilitators to be helpful, but only half rated monthly meetings with facilitators as important.

Regular supervision was not provided to implementors at the three remaining sites. Sporadic meetings were held to review the progress of the social skills program at
Meetings to discuss the program were held at regular intervals at Site SST7, but all of the staff members involved were relatively inexperienced with the program. Two certified program trainers were on staff at Site SST1, but these teachers were too busy to provide regular supervision to less experienced teachers. As mentioned previously, such supervision was available as an option from the program developers, but no funds were available for this purpose.

Perceived Obstacles to Program Integrity in Social Skills Programs

Implementors of social-skills programs delineated several obstacles to program integrity: a) inadequate program materials; b) time constraints; c) implementor resistance; and d) lack of support to implementors.

Inadequate Program Materials. A number of interviewees suggested that deviations from specified program activities often occurred when the procedures outlined in program manuals and/or the materials were seen as inappropriate in some way for the site in which the program was being implemented. For instance, at three of eight participating sites, procedural changes were made because prescribed program activities were seen as conflicting with the policies or philosophies of school boards, school administration or teachers. Several examples follow.

The procedures manual used at Site SST3 was revised by board staff because the original manual contained procedures that were incompatible with school board policies. For instance, board staff objected to the use of a tangible reinforcement system, which was designed to remind teachers to issue consistent praise to selected students on a given day. A less concrete system of reinforcement was substituted. The program developer
approved this revision because it preserved the objective of the original component. However, the on-site program facilitator indicated that the revised reinforcement system proved to be unwieldy and likely less effective than the original one. Also, board staff wished to incorporate a larger degree of small-group instruction into the program, which they felt was preferable to instruction aimed at the whole class. The program manual specified whole-group instruction because the developer felt that there were advantages to having students share a common instructional experience. Specifically, the developer wanted to ensure that social skills were taught in a consistent manner to all students participating in the program, as this would facilitate the application of social skills in real life situations. Also, the design of longitudinal outcome study made it necessary to ensure that all children in the program received comparable instruction.

Aspects of the program model employed at Site SST5 conflicted with the educational philosophies of the principal and teachers. School psychologists at this board recommended teaching social skills through explicit, whole-class instruction. However, the principal objected; he did not believe that class time should be taken up teaching social skills to children who were already skilled in this area. Instead, teachers were encouraged to work with children on an individual basis when they appeared to need help negotiating a social situation. Furthermore, the kindergarten teachers felt that explicit didactic social skills lessons were inappropriate for children that young. Therefore, they taught the skills more implicitly, mainly by reminding the children to employ basic manners in everyday situations.
Teachers at Site SST2 were reluctant to implement certain components of a social-skills program in their classroom. Many of them were opposed to one of the main principles of this program, which emphasizes that it is acceptable to experience emotions such as anger, provided that one controls one's behaviour. These teachers believed on religious grounds that certain emotions were sinful or immoral.

Modifications to program materials were also made because implementors believed that the activities prescribed in the manual did not fit the needs of the targeted children. For instance, at one site, learning activities that were developed collaboratively by the on-site facilitator and classroom teachers were substituted for the method of instruction prescribed in the program manual. The facilitator felt that it was important to make the lessons more interesting and varied, whereas the manual prescribes the same format for teaching each skill. These changes were made even though the manual specifies that the basic instructional format of each session should remain intact.

Modifications were made to program procedures at two other sites because the prescribed activities were considered by implementors to be too complex for the targeted children. A substance-abuse prevention component was omitted by staff at Site SST2, who did not consider this issue to be relevant to the students in that school board. This part of the program was deemed to be more applicable to inner-city sites utilizing this program. Finally, the staff at two of the participating sites made minor changes to program procedures in order to accommodate students with diverse cultural backgrounds. For instance, they found that parent-child home activities were not being completed consistently because of language and/or cultural barriers. To facilitate family
participation in the parent-child activities of the program, parents will be invited in
subsequent years into the school to work on these tasks with their children during school
hours, whereas the manual prescribed workbooks to be sent home for the parents to use.

**Perceived Time Constraints.** Staff at four of the eight participating sites indicated
that time constraints impeded implementation of their social skill programs. At three of
these sites, some teachers reported having insufficient class time to implement programs
completely. In the view of teachers and program staff, social skills curricula tend to
compete for class time with basic academic subjects and with extra-curricular activities
such as field trips and assemblies. For example, at a school Site SST2, a social skills
curriculum was introduced to teachers together with a vast array of other newly mandated
curricula. On-site facilitators suggested that the program was implemented irregularly at
this school in that year of the project. Apparently, the social skills program was
marginalized due to the demands of instruction in basic academic areas. At another site,
several teachers opted not to implement a social skills program, largely because they
anticipated having difficulty finding the time.

**Implementor Resistance.** Program integrity appeared to be compromised, at three
of eight participating sites, because implementors actively resisted delivering the
program, or at least were unenthusiastic about it. Reports suggest when implementors
are resistant to a social-skills program, prescribed lessons are implemented irregularly
and program content is delivered in a cursory or low quality manner. For example, at Site
SST2, resistant teachers seemed to put minimal effort into helping students practice skill
use on an informal basis. Although they reluctantly implemented the requisite lessons,
they were unenthusiastic about highlighting social-skill themes outside of the structured lessons. Facilitators noted that the impact of the program was probably attenuated by the limited participation of these teachers, as it effectively reduced the number of opportunities available for students to practice the use of the program skills.

According to staff from two of the participating sites, program implementation tended to be less consistent in schools when the adoption of the program was mandated by an "outside" entity such as the school board. Conversely, teachers appeared to implement these same programs with greater integrity when the adoption of the programs was initiated at building level. Some staff members suggested that teachers are unlikely to perceive a need for a program unless they have some stake in choosing to become involved in the initiative. Also, staff members at one site suggested that prior tension between board personnel and school staff can add to the level of implementor resistance to a social-skills program. These staff members speculated that some teachers at this site resisted the mandated program because of ill feelings about not being consulted by board personnel about their general perceptions of the needs of the school, irrespective of any feelings about social-skills training. These teachers seemed to resent the added burden placed on them by inaccessible outside personnel.

At two sites, tensions between project staff and school staff also appeared to contribute to the level of implementor resistance. Teachers occasionally viewed on-site facilitators, who were assigned to schools to train teachers to implement social-skills curricula, as "outsiders." The facilitators felt that some teachers feared they would not be respected by the "expert" educators arriving at the school. Hence, the working
relationship between teachers and facilitators was sometimes strained, particularly in the early stages of the intervention.

Integrity also appears to be related to the willingness of teachers to take on what they see as added responsibilities. The facilitator at Site SST4 believed that government cutbacks to educational funding affected staff participation in the program. In her opinion, staff enthusiasm for "peripheral" school activities such as social skills training was dampened by the possibility of imminent widespread layoffs.

Resistance to social-skill programs may also be related to teacher attitudes about the appropriate role of educators. For instance, some teachers at several sites that were unwilling to get involved in the program because they felt that children should be taught social skills by their parents. A researcher at a participating site suggested that teachers' willingness to try a social skills curriculum may also be related to their beliefs the modifiability of students' behaviour. Teachers who feel they have little control over student behaviour may be inclined to think that a social skills program will not be effective.

Lack of Support to Implementors. At some sites, program integrity seemed to be compromised because there was inadequate support available to implementors. Staff members from four of the eight participating sites spoke of situations in which a lack of support from the school administration seemed to lead to programs being implemented with less integrity. Generally, when principals do not make the program a visible, high-priority feature of school life, staff tend not to implement the program regularly. For example, at a school at Site SST2, a principal announced that implementation of the full
complement of program sessions was optional. Facilitators at this school reported that the program was used very sparingly.

At other sites (SST2 and SST5), program delivery was perceived to slacken when implementors had less access to individuals with experience in social skills training, such as on-site facilitators and school psychologists. Regular exchanges between teachers and experienced individuals appeared to be make teachers more accountable for their part in a program.

**Addressing Obstacles to Program Integrity in Social-Skills Programs**

**Building Flexibility into Manuals.** To maximize the applicability of a manual, program directors sometimes specified a range of optional activities for each lesson, rather than suggesting only one method of teaching a skill. In some cases, manuals included information about previous uses of the suggested lessons, to facilitate the selection of a learning activity appropriate for each class. A related approach involved specifying which program components implementors were free to modify, and which should be implemented strictly as designed. The director who employed this method believed that this information helped teachers to tailor prescribed lessons to the needs of the class without altering the core elements of the program. Decisions about which components constituted the core elements were based on the prevention literature. Clear outlines of lesson objectives have also been included in manuals to facilitate the process of adaptation. Several project directors indicated that modifications to prescribed procedures were usually acceptable as long as the objectives of each lesson were met.
Therefore, objectives were outlined to help teachers determine whether proposed modifications were congruent with the goals of the program.

Extensive field-testing during the development of a manual appears to be a crucial step in "debugging" a program. The program used at Site SS12 was initially piloted at the four diverse sites where the program would eventually be implemented on a full-scale basis. Through this process, the program director was able to get a sense of variations in implementation across sites. This information was then used to make decisions about the degree of specificity required in the procedures manual.

Furthermore, the manual was continually revised on the basis of implementor feedback once the program had been implemented on a large scale. Some activities were deleted from the manual because of problems encountered by implementors; other activities were added because of successful adaptations made by implementors. Sometimes recommendations about appropriate circumstances for using an activity were included, to facilitate the selection of a learning activity. The program director suggested that the content of the manual was greatly strengthened by the input of teachers and other educators. Specifically, the teachers helped her to compile a set of interesting and creative learning activities for teaching program skills. The director felt this was crucial, especially for a program implemented over a number of years, as it is necessary to teach the skills in a way that captures the children's attention and sustains their interest over the course of the program.

Collaborative Program Planning. Another method of preventing loss of program integrity due to inappropriate materials is to ensure that collaborative program planning
takes place between program staff and the staff of the adopting site. A comprehensive model of collaborative program planning has been developed by the director of the program at Site SST1. Having a site-level collaboration between program staff and site staff prior to the implementation of the program enables both parties to express their expectations about the program. Based on this information, site and program staff can draw up tentative plans to tailor the program to the needs of the students and the conditions of the site. Further collaborative planning may take place at the end of each school year. The program can be reviewed at these junctures, and additional changes can be made if necessary. The collaboration process enables program and site staff to work through perceived obstacles to integrity together. Through collaborative problem solving, obstacles to program integrity are more likely to be addressed in a manner that is consistent with the objectives of the program.

Collaborative program planning may occur on a micro-level as well. At several sites, on-site program facilitators collaborated with teachers in the planning of lessons for each classroom. This approach enabled teachers to have input into the program on a regular basis. When planning a lesson, teachers were able to express their perceptions of the children’s needs and to have these ideas incorporated into the lesson plan.

**Addressing Objections to Program Content.** Several approaches helped to mollify disgruntled implementors who raised objections to program content. One project director advised that complaints about the content of a program are best handled through a one-to-one discussion with the complainant. According to this source, problem solving in
group meetings tends to be less constructive, as discussions often become emotional and side-tracked on irrelevant issues.

When disputes arise about program content, it may be helpful to ask site personnel to reserve judgment about the merits of the component in question, until such time as it has been adequately tested in practice. Initial objections to certain program components may wane after implementors become experienced in implementing the intervention. For instance, at Site SST3, the on-site facilitator (a staff member of the board) initially objected to the preponderance of whole-group instruction in the program, and was also uncomfortable with the tangible reinforcement system specified in the manual. These aspects of the program were altered at the request of board personnel. However, as she accumulated experience implementing the program, she revised some of her earlier opinions. In fact, she now acknowledges that through these experiences she has come to see the value of the original approach advocated by the program director. In her opinion, the original design may be superior to the revised version utilized at this site.

Time Constraints. Some of the personnel interviewed in this study also mentioned creative ways to address the time constraints that may hinder the implementation of a social-skills program. The most commonly cited solution is the integration of social skills content into other parts of the curriculum. For instance, in the program manual used at Site SST7, it is suggested that aspects of the program are designed to fulfill the requirements of mandated curricula in the areas of health education, language arts, social studies, and student guidance. Integrating a social-skill program into other mandated curricula alleviates problems of having to find extra time to do the program.
According to facilitators at Site SST2, teachers can fit a program into their schedule more easily when a minimal amount of preparation is required to implement a lesson. A comprehensive, well-specified manual helps in this regard, as such a resource provides teachers with most of the ideas and materials necessary to lead a session. Facilitators also made sure that teachers were supplied with any additional resources required to implement the program. Apparently, avoiding even small hindrances to the implementation of a program is crucial to motivating teachers to use the program regularly.

School staff may also be encouraged to devote time to a program if their efforts are acknowledged in some way by school administrators. For instance, the principal at Site SST5 reduced the assessment case load of school psychologists to enable them to participate more actively in the social-skills program. Rather than spending most of their time on assessments, these psychologists were encouraged to engage in a broader spectrum of activities, like attending program meetings and visiting classrooms to assist teachers in the application of social-skills lessons. Concrete acknowledgments of the time spent on a program may help to reduce feelings among staff of being overburdened by a plethora of curricula and other responsibilities.

In this same vein, administrators can be of further assistance by offering tangible assistance to teachers involved in a social-skills intervention. For instance, principals at three participating sites volunteered to cover classes for teachers to enable them to attend program meetings and/or training workshops. On-site program facilitators have also filled a supportive role at some schools. At two of the participating sites (i.e., SST2, SST3),
facilitators offered tangible assistance in non-program areas to help teachers find time to do the program.

**Implementor Resistance.** The consistent presence of on-site facilitators also seems to be reassuring to teachers who have reservations about using a social-skills program. At some sites (e.g., SST2, SST3, SST4), on-site facilitators have helped teachers to learn the program by modeling the implementation of several lessons. In fact, at one site (e.g., SST3), teachers were not even given program binders until they had observed the on-site facilitators conducting the program on several occasions. The program directors expect that learning from a model is preferable and less intimidating than learning from printed material. Furthermore, on-site facilitators tend to become familiar to school staff because of their regular presence in the school, which enables the facilitators to develop personal bonds with the teachers. These bonds help facilitators to breach the "outsider" stigma that is sometimes attached to program personnel, and thereby to reduce resistance to the program.

Having a site-based steward to monitor program implementation appears to make teachers more accountable for their part in the program. At Site SST2, program implementation dropped off when on-site facilitators became less available to teachers.

Interviews also revealed that many teachers responded positively to a program after having an opportunity to observe its tangible benefits. Although some teachers and administrators mentioned being impressed by data presented in manuals, awareness seminars or training workshops about the demonstrated effectiveness of a program, there were many more comments about being impressed particularly by changes in their own
schools to staff and student behaviour, or overall improvements in school climate. For example, Grade One teachers at Site SST5 volunteered to implement a social skills program in their classrooms after witnessing the school readiness skills of Grade One children who had been taught social skills in Kindergarten. Additionally, some teachers at Site SST2 reportedly became convinced of the benefits of the social-skills program after observing the positive behaviour management skills exhibited by on-site facilitators.

At two of the participating sites (SST1, SST7), the program was initially piloted in a small number of classrooms, which enabled other teachers to observe the program without having to deal with the pressure of implementing it. Some teachers feel that this is an effective way to introduce the program to resistant and/or noncommittal teachers.

Perceived Obstacles to Program Integrity in Parent Education

Inadequate materials and perceived time constraints were also seen as threats to the integrity of parent-education programs.

Inadequate Program Manuals. Deviations from specified procedures were reported to be especially common at sites using tightly prescribed programs. Staff at these sites reported making significant alterations to prescribed activities to accommodate the needs of parents. Examples of such adaptations are outlined below.

Facilitators at the PE3 site developed alternate sessions for initial group meetings to give parents a chance to discuss their expectations around the program. The facilitator justified this decision in claiming that it was important to be responsive to the needs of participants. When parents have shown little interest in a topic, these group leaders have chosen to omit a prescribed session from the group’s agenda. Furthermore, the group
leaders generally chose to facilitate more informal or unstructured interaction between parents and leaders than is specified in the program manual. This component was added to the program to provide emotional support around coping with the stress of parenting. However, certain activities were often omitted from each session to accommodate the unstructured discussion. The leaders of the program at Site PE4 also omitted planned segments to make room for unstructured discussions among parents attending the group. According to a teacher who lead this program, inviting a significant amount of interaction among parents almost invariably results in a lower degree of adherence to planned or prescribed activities.

Adjustments to prescribed procedures have also been made to accommodate variations in the dynamics of parent groups. The characteristics of group participants can vary widely from group to group, or from week to week. Reports suggest that groups often vary in size, cultural composition, and in degree of participant interaction. The style or process of a group is very much affected by the characteristics of the participants, and this in turn seems to affect the content covered in any given session. For instance, at site PE2, changes to the specified procedures have occasionally been made to accommodate the preferences of certain cultural groups. Facilitators at this site found that Chinese mothers initially prefer to learn through didactic presentations, even though the manual specifies that a learner-centred approach should be used. Hence, this style of presentation was adopted at the outset for groups comprised mainly of Chinese mothers. However, to maintain the fidelity of the program, a learner-centred approach was gradually introduced as the group progressed.
Informants also suggested that group dynamics have changed when mothers have revealed a crisis situation during group meetings. None of the programs reviewed herein are designed for crisis intervention. Facilitators at Sites PE1 and PE2 reported that there have been occasional disclosures of family violence during a meeting. At such times, facilitators have tried to be flexible enough to offer support to the mother, which means departing somewhat from planned activities. However, efforts were made to protect the interests of the group by not getting totally sidetracked.

Perceived Time Constraints. Many informants described deviations from specified procedures because of limited time. In some cases, conditions that are fairly common in parent education programs appeared to contribute to the time shortages. For instance, informants at all sites suggested that parents often arrive late for the sessions. This is the norm rather than the exception as the programs are often aimed at young parents from stressful, disorganized environments. Loss of program integrity occurs when sessions are consistently late in starting. Furthermore, a facilitator at site PE2 indicated that stable groups comprised of roughly the same people do not usually congeal until about the third week. This leader tended to conduct more informal groups until some stability was evident. Delays in beginning a group can also limit the amount of material covered.

Site conditions can also limit the amount of time available for a group. For instance, the program implemented at site PE3 is designed to run 12-16 weeks. At this site, only 12 weeks are available. Therefore, certain components of the program are usually omitted. Site conditions at PE4 have also affected the time available for the
parent education program. This year, numerous parent meetings have been held to discuss issues relating to student relocation because of large increases in enrollment at this school. Because parent meetings had been held frequently this year, school staff decided not to implement all the planned parent education meetings. They were concerned that parent attendance would decline if too many meetings were held.

**Ways of Addressing Obstacles to Program Integrity in Parent Education**

**Collaborative Program Planning.** The program used at sites PE1 and PE2 is designed to permit collaborative program planning between facilitators and parents. Parents set the agenda for each session at the end of the prior meeting. Thus, parents are given the opportunity to express their needs, but they are not encouraged to do so in random fashion in the middle of a session. Establishing the agenda for each session in systematic fashion may reduce the incidence of divergent and confusing discussions in the parent meetings. Furthermore, although the topics chosen vary according to parent need, the structure of each session follows a consistent pattern. Therefore, participant input should not interfere with the teaching processes prescribed for this program. The procedures manuals of the program implemented at PE4 also allude to the need for collaborative program planning. Program materials recommend the inclusion of parent representatives on the committee in charge of organizing parent education meetings, although parent volunteers have not yet been found at this site.

The facilitators of the program at PE3 take an active role in shaping the agenda of the group in conjunction with the parents. Specifically, the facilitators demonstrate how the specific problems articulated by parents can be addressed through a set of behaviour-
management strategies covered in the program. The staff feel that the exchange of ideas empowers parents, and helps them to see how the program can be useful to them. However, the program is never drastically altered to accommodate the wishes of the parents.

The Promotion of Skilled Facilitation. As indicated elsewhere, a careful balance must be struck in parent education programs between facilitating participant interaction and implementing planned program content. Facilitators must be carefully trained if they are to learn to balance these two objectives successfully. The manuals and training sessions of the program used at sites PE1 and PE2 are designed to promote the skill of facilitation. Both the manual and training sessions focus heavily on the process of implementing the program—a learner-centred (i.e., non-didactic) instructional approach is advocated—rather than the specific content of the group sessions. For example, the manual includes a variety of tips about learning activities that might be employed to accommodate a variety of group dynamics. The manual also reviews strategies for protecting the interests of the larger group from the excessive input of one or a few parents. A skilled facilitator may be able to use these strategies to shape group discussion into productive exchanges of ideas. This approach places an emphasis on preventing extreme group conditions; neither chaotic exchanges nor meager interaction are desirable.

Provision of Support to Inexperienced Implementors. Where possible, inexperienced facilitators were paired with more experienced ones at three of the participating sites. This was an especially important feature of the program at Site PE2,
where community mothers were used as facilitators. The presence of an experienced facilitator provides novice implementors with a form of extended, applied training. Other supports, such as follow-up training and informal consultation, were available from the developers of the program implemented at Site PE3. Also, during the initial trials of this program, the principal investigator met weekly with the implementors of the program to address any problems they encountered.

**Conditional Adaptations.** A creative solution was applied to resolve a fidelity/adaptation problem at Site PE1. At one point, a group of first-time mothers of infants was recruited for the program. As the children of these mothers were very young, the parents had few parenting issues to discuss based on personal experiences. Leaders of the group wished to provide more didactic presentations of information to these mothers, even though the manual specified a learner-centred approach. To protect the integrity of the intervention, the program coordinator decided to permit the adaptation on the condition that the parents attend a second group in the subsequent year that would be delivered as prescribed. The coordinator labeled the initial group an "introduction" to the program, to distinguish it from groups that are more consistent with the manual.

**Perceived Time Constraints.** Informants discussed a few ways of addressing losses of integrity due to time limitations. For instance, the procedures manual from site PE3 contains suggestions about how to incorporate prescribed lessons into a tighter time frame. While shorter programs will always contain less of the prescribed content than full-length groups, the recognition of this inevitably may help implementors to select the highest-priority lessons, minimizing loss of integrity.
The program materials used at sites PE1 and PE2 are organized in a way that may partially mitigate problems due to time constraints. The informational content (e.g., parenting skills, child development information, coping with stress etc.) of this program is contained in a series of books that parents can take home during and after the program. They are written at an easy reading level and are printed in an attractive, user-friendly style. To facilitate the use of these books, facilitators refer to them throughout the program. When there is insufficient time to cover a topic in detail in the group, parents are referred to the relevant sections of the parenting books so that they can investigate a topic in more detail at home. Questions about the application of the skills contained in these books can be addressed in subsequent meetings.

**Discussion**

It is perhaps not surprising that substantial deviations from prescribed procedures were found in some of the sessions and programs included in our sample. Given the variety of conditions that exist in the settings in which prevention programs are implemented, it may be unrealistic to expect that outlined procedures will be implemented exactly as intended. Many of the project directors interviewed in this study acknowledged the inevitability of procedural adaptations, and some indeed welcomed them, since they reflected active involvement of the implementors in the program they implement. These program developers and direct service providers frequently mentioned that commitment to a program tends to be greater when implementors are encouraged to inject their own ideas into it (see also Graden, 1989; Idol & West, 1987; Sarason, 1982). The general consensus among the project directors interviewed in this study is that the
substitution of innovative learning activities for prescribed procedures is not likely to weaken a program, as long as the objectives of the original components are adequately met. Similar claims have been made by several authors in the prevention literature (Bauman et al., 1991; Hundert & Taylor, 1993; Meyer et al., 1993). However, several authors also point out that integrity to the critical elements of a program must be maintained to ensure the effectiveness of an intervention (Bauman et al., 1991; Blakely et al., 1987; Hundert & Taylor, 1993).

To estimate the full impact of the various adaptations observed at participating sites, it is necessary to consider whether the adaptations included changes to features of the programs that are critical to their success. This is not an easy task, as most manuals do not clearly stipulate which components are essential. However, we were usually able to determine the core elements and objectives from statements made by program directors during the interviews. Accordingly, we believe that essential parts were omitted from some of the sessions we observed, and that the intended objectives of the activity were not otherwise fulfilled. Authors in the field of prevention programming have clearly suggested that adaptations of this nature are problematic, as they result in losses of program integrity that may be detrimental to program efficacy (e.g., Bauman et al., 1991; Hundert & Taylor, 1993).

A sample observation may help to illustrate this point. In one observed session, a review of several program skills was conducted using an activity that deviated somewhat from the prescribed method of teaching the skills in the program. The manual specified that skills should always be taught through a series of role-play activities, each followed
by teacher-facilitated feedback from the class which should highlight the component steps that comprise a given skill. Student role-play activities were to be incorporated into the review session. Students were supposed to be encouraged to role-play a scenario from a story read to the class, making use of the social skills highlighted. However, when soliciting feedback from the class after each role-play, the teacher failed to highlight the component steps comprising the skills being reviewed. Without appropriate feedback, the lesson was incomplete, and probably did little to reinforce the students' understanding of the skills, which was clearly the intent of the exercise. Thus, an essential feature of the program was seemingly omitted in this lesson, with no apparent compensating benefit except for the fact that the teacher taught the lesson in her own way.

In some cases, integrity was not established because of lack of care or lack of interest. However, in most instances, deviations from specified procedures do not appear to be random, unpredictable occurrences, but seem to be symptomatic of underlying difficulties at the adopting site. In most participating sites, changes were made to specified procedures because implementors perceived a poor fit between program specifications and the conditions at the site. Programs were often tailored to fit the personal, regional, cultural or developmental characteristics of the target population. In a few situations, objections were raised regarding the original content of a program because it conflicted with the educational philosophies or policies held by school boards, school administrators and teachers. Adjustments to interventions were also prompted by time constraints facing implementors, a lack of adequate supports to service providers,
and implementor resistance to the program or the individuals responsible for introducing it. In some situations, programs were implemented in a cursory way when staff morale was lowered by conditions that had little or nothing to do with the program.

Based on the impressions that emerged during the data collection and analysis, we recommend that prevention researchers be proactive in building into their programs the conditions that will lead to program integrity. The collective experience of the program developers and program implementors who participated in this study elucidates a number of ways in which program integrity can be improved as underlying resistance to a prevention program is prevented or reduced. Measures to promote program integrity can be implemented at the following critical points during the life of a program: a) the development phase; b) the entry phase; and c) the implementation phase.

The Development Phase

The critical task of the development phase is to devise a manual that facilitates flexible application of a program while providing enough specificity to ensure integrity to the critical elements of an intervention. This balance can be achieved by building flexibility into the tightly prescribed framework of a manual and by making revisions to a manual during its development on the basis of feedback from direct service providers. As discussed earlier, the need for flexibility need not preclude the use of tightly prescribed manuals. In fact, the use of tightly prescribed manuals offers several advantages over program guidelines that are prescribed more loosely. Briefly, these advantages include the following: a) they afford program developers greater control over the structure and content of implemented programs, which better enables them to ensure that critical
program components are delivered: b) they minimize preparation time; c) they enable researchers to ensure that program participants receive comparable intervention; d) they provide the basis for a cohesive and logical sequence of instruction, especially in multiple-year programs; and e) in school-based social-skill programs, they facilitate school-wide applications of a program which are critical to the generalization of skill use.

Moreover, where flexibility takes precedence over specificity, there may be excessive demands on the discretion of individual implementors, and in some cases, participants. Implementors of preventive interventions often have little formal training about the psychosocial theories underlying preventive interventions and little knowledge of related research (Rohrbach et al., 1993). Despite the well articulated need for flexibility in prevention programming and for accommodating the recipients' needs, there are compelling reasons for ensuring that those with expertise in areas such as child development, social competence, parenting skills and preventive programming—namely, program developers—are not deprived (or do not deprive themselves) of the opportunity of sharing this knowledge. The same argument applies to participants in parent-education groups. Parents can make a valuable contribution to a group by explicitly articulating what they hope to get out of the experience. It would be foolish not to incorporate their input into the group. However, we are not sure that their participation should be considered an end in itself, as did several of the program developers and implementors we interviewed. In loosely structured programs, there is a danger of giving excessive attention to issues raised by individual members of a parenting group, which
may not be resolved within the framework of a preventive parent-education group. This excessive attention may make it impossible for the group to deal with issues that can be accommodated, and for the group members to learn parenting skills that are known be to effective.

Procedures used to encourage the flexible use of a tightly prescribed program included outlining a range of possible activities for each session, and/or explicitly indicating the program components that were amenable to adaptations. Indeed, one important first step in promoting adherence to a program appears to be the unambiguous delineation of the essential elements or purposes of an intervention or intervention session. To determine the optimal balance of specificity and flexibility, it may be advisable to revise early editions of the program manual on the basis of feedback from direct service providers. Implementors can provide insightful comments on the feasibility and usefulness of suggested methods of instruction, as well as good suggestions about creative, alternative ways of teaching program skills.

The Entry Phase

The findings of this study have shown clearly that the implementation of a program is likely to be obstructed if staff at the adopting site are not fully supportive of the initiative. Resistance to a new program appears to be most likely when the impetus for implementing the program comes from an outside agency, without adequate consultation with staff at the adopting site. To avoid such complications, program developers need to consider ways of ensuring the support of personnel who are expected to participate in the delivery of the program. The successes and failures of the program
planners we interviewed indicate that this is best accomplished by: a) enlisting the active support of key administrative personnel; b) engaging in collaborative program planning with staff members from the adopting site; and c) where possible, conducting a small-scale pilot of the intervention in the first year at the adopting site.

As noted in this and other studies (e.g., Rohrbach et al., 1993), the implementation of a program is critically affected by the presence or absence of active administrative support for it. If a program is to be implemented in a meaningful way, administrators at the adopting site must promote the program as a high priority activity, and provide tangible supports to implementors where necessary. This is particularly true of school-based programs. Rohrbach et al., (1993) found that the extent of implementation (e.g., percent of lessons implemented) of a substance abuse prevention program was significantly greater at schools where the support of the principal was actively recruited. Principals were asked to encourage and monitor program implementation in their school, by one of the study’s authors, in a single one-to-one meeting lasting an average of 30 minutes. Emphasis was placed on persuading the principal of the effectiveness of the program and of the importance of the principal’s support for implementation. A social-skills package used at one of the participating sites in the present study included a separate administrator’s manual that outlined and explained the supportive function that could be performed by a school principal. This approach may also stimulate the active involvement of a principal in a social-skills intervention.
Where possible, program developers should hold collaborative discussions with site personnel to plan the implementation of a program. It is important to provide site staff with an opportunity to express their perceptions regarding the needs of the site, as well as any concerns they might have about the program. It is equally important for program directors to express their expectations regarding the program. This exchange of information can form the basis for collaborative modifications of prescribed procedures that do not fit circumstances in the adopting site. This process may help to ensure integrity to the critical elements of a program, as it enables stakeholders to jointly develop revisions that are satisfactory to all. Furthermore, meetings of this nature may help to reduce resistance to the program, as they may serve as a forum for discussion around concerns or reservations about the proposed initiative. Program developers can use the occasion to convince site personnel of the need for the program, and review data demonstrating its effectiveness.

Additional measures may be required to convince some stakeholders of the usefulness of a preventive initiative. In school settings, many implementors appear to be hesitant to commit to a major undertaking like a social skills intervention on the basis of only an abstract presentation of its merits. Some significant adjustments may be required to find class time for a social skills curricula, and additional time must be invested to learn how to implement it. Not surprisingly, some teachers seem to want to be sure that the program will be worth the effort. In the present study, several teachers and principals reported being convinced of a program’s worth after witnessing firsthand its impact on the conflict resolution skills of students and teachers. It may be advisable, particularly for
school-based interventions, to conduct a small-scale pilot in the initial year at an adopting site utilizing the most enthusiastic personnel as implementors. Resistant or ambivalent personnel may become more enthusiastic about using a program after observing its application in other classrooms.

The Implementation Phase

During the implementation phase, the following features may be important for the maintenance of program integrity: a) on-going support to implementors; b) a system for monitoring implementation; and c) year-end meetings to fine-tune the program.

Key forms of on-going support include modeling intervention techniques in an applied setting, problem-solving around obstacles to integrity, and providing other tangible supports to implementors. The techniques of preventive interventions are often unfamiliar to the paraprofessionals or volunteers who are frequently recruited to implement the programs (e.g., Rohrbach et al., 1993). As such, procedures manuals and training workshops may not address all the concerns that novice implementors might have about using the program in a real life setting. Some implementors may feel more comfortable with a program after seeing a demonstration of its major techniques in an applied setting. Furthermore, the delivery of a program is less likely to become bogged down if there is a mechanism in place for the quick resolution of problems encountered during implementation. Accessible supervision is important to the furtherance of this objective. The provision of such accessible supports to implementors may help to reduce frustration and stress around the delivery of a program, which in turn may reduce feelings of resistance. In school-based interventions, cooperation among staff may also be
required to facilitate implementation. Specifically, staff members may be asked to volunteer to cover a particular task for another teacher, to enable that teacher to deliver a program session or to participate in other program activities. Given the competition for teacher time in most schools, such tangible supports may be crucial to ensuring the consistent delivery of a program.

Although many of the procedures described to this point may mitigate conditions that threaten program integrity, they will not by any means guarantee problem-free implementation. The documentation of treatment fidelity is still of crucial importance: therefore systems for monitoring implementation should be established at sites where prevention programs are delivered. The value of measuring program integrity in outcome evaluations of preventive interventions has been clearly established: without such data it is nearly impossible to interpret negative or null findings (e.g., Gresham, 1989). Certain benefits may accrue from collecting integrity data besides those emanating from the formal evaluations. Monitoring program delivery is a safeguard against unintended changes to essential program components or objectives, which might dilute the efficacy of an intervention. Once problematic adaptations are identified, experienced personnel can consult with the implementors in question about using the program in more appropriate ways. Most direct service providers interviewed in the study suggested that they would not resent additional supervision provided that it was constructive and delivered with sensitivity. In addition, careless adaptations or omissions may be avoided in the first place, as implementors seem to deliver programs more responsibly when their actions are monitored consistently (Harchik et al. 1992; Peterson et al., 1988; see also
Results section above). Furthermore, integrity data may reveal limitations or gaps in specified procedures that have consistently caused difficulties during implementation, or they may capture adaptations made by implementors that have been successful in helping to surmount problems with prescribed activities. These data may be used to direct periodic fine-tunings of the procedures manual.

Given the time constraints and restricted resources with which the personnel of most preventive initiatives must contend, it may be difficult to identify a person or persons in a program setting who could reliably assume the responsibilities of monitoring or supporting the implementation of an intervention. Where feasible, it may be advisable to appoint or hire an individual(s) who functions primarily as a site-based steward for a program. A staff member who is relatively unencumbered by other responsibilities may play a critical role in motivating other personnel to commit to delivering the program enthusiastically and responsibly.

Limitations of the Study

Although our surveying and observing the experiences of personnel from a cross-section of prevention programs has revealed much about impediments to the delivery of prevention programs and ways of addressing them, it is important to note that these data have some limitations. Certain sampling biases were inevitable given the nature of our study. Participating sites were recruited on a volunteer basis, and this may have compromised the representativeness of our sample. Furthermore, program contact persons made specific arrangements for the site visits and interviews; therefore, in some instances model sites and enthusiastic staff members may have been selected to represent
the programs observed in the study. In addition, our sample of sites included a few
programs that employed procedures manuals with insufficient specificity to permit the
assignment of integrity ratings by our coders. However, we did not view our involvement
with these sites as a drawback of the study, as it enabled us to glean a broader range of
opinions and insights about the implementation of preventive interventions.

Lastly, as the bulk of our data are qualitative, many of our inferences about the
implementation of prevention programs remain untested. Future research might approach
some of these questions in a quantitative paradigm. It would be particularly interesting to
determine empirically whether implementation of the recommended methods of
promoting integrity would significantly influence the extent and quality of program
delivery (see, for example, Rohrbach et al., 1993).

In conclusion, the major lesson learned from this study is that problems in
achieving integrity derive most often from problems in specifying the program in a way
that is consistent with both its intended purpose and the needs and desires of those who
will use it. Considerable effort is needed in order to balance the demands for specificity
and flexibility. However, equilibrium between these considerations is very likely an
indication of the health of a program and its probable longevity; therefore, the effort is
likely to be a sound investment.
References


Flay, B. R. (1986). Efficacy and effectiveness trials (and other phases of research) in the development of health promotion programs. Preventive Medicine, 15, 451-474.


Meyer, A., Miller, S., & Herman, M. (1993). Balancing the priorities of evaluation with the priorities of the setting: A focus on positive youth development programs in school settings. *Journal of Primary Prevention, 14*, 95-113


Appendix A: Operational Definitions of Coding Categories

**Integrity Verification and Promotion: Main Analysis**

Training manual: a training manual, curriculum, or detailed script outlining the intervention procedures was available to the facilitators.

Session Detail: the article contained some detail regarding the content of each session.

Implementor Training: the implementors received specific training in the implementation of the program procedures.

Implementor Supervision: program implementors were supervised by personnel with experience implementing the program.

Comprehensive Integrity Promotion: each of the following were available to implementors: (a) a training manual, (b) training, and (c) supervision.

Integrity Verification: program integrity (i.e., the degree to which specified program procedures are implemented as planned) was systematically documented.

Process Data used in Outcome Analyses: integrity and/or dosage data was used to determine subject eligibility for outcome analyses, or to examine differential program outcome as a function of variability in program implementation.

Documentation of Dosage: participant attendance to program sessions was recorded.

**Source of Integrity Verification and Constructs of Fidelity: Secondary Analysis**

Sources:

Trained observer: a representative sample of program sessions was observed (i.e., in vivo or on videotape) by coders who were trained to rate the integrity of the intervention.

Implementor: integrity ratings were made by the individual(s) responsible for delivering the program.

Participant: integrity ratings were made by program participants.

Aspects of Program Integrity:

Adherence: the extent to which specified program components were delivered as prescribed in program manuals.
Exposure: an index that may include any of the following: (a) the number of sessions implemented; (b) the length of each session; or (c) the frequency with which program techniques were implemented.

Quality of Delivery: a measure of qualitative aspects of program delivery that are not directly related to the implementation of prescribed content, such as implementor enthusiasm, leader preparedness, global estimates of session effectiveness, leader attitude towards program etc.

Responsiveness: a measure of participant response to program sessions, which may include indicators such as levels of participation and enthusiasm.

Program Differentiation: a manipulation check that is performed to safeguard against the diffusion of treatments, that is, to ensure that the subjects in each experimental condition received only planned interventions.
Appendix B

Perceived Obstacles to Program Integrity in Social Skills Programs

1. Inadequate Program Materials

- Prescribed procedures were seen as conflicting with philosophies, policies of school boards, schools, and/or teachers.
- Programs perceived as incompatible with the personal, regional, cultural and/or developmental characteristics of targeted population.

2. Time Constraints

- Social skills curricula tended to compete for class time with basic academic subjects and with extra-curricular activities such as field trips and assemblies.

3. Implementor Resistance

- Implementation of programs was less consistent when mandated by “outside” entities such as school boards.
- Implementors occasionally resisted “expert” advice of program staff, who were often perceived as “outsiders.”
- Program delivery was impeded when staff morale was lowered by conditions that were unrelated to the program.
- Some teachers were unwilling to get involved in programs, feeling that children should be taught social skills by their parents.

4. Lack of Support to Implementors

- Programs tended to be implemented with less integrity when school administrators failed to make the program a highly visible feature of school life.
- Program delivery appeared to slacken when service providers had irregular access to personnel with experience using the program.
Appendix C: Addressing Obstacles to Program Integrity in Social-Skills Programs

1. Building Flexibility into Manuals

- Manuals included a range of options for each session rather than only one lesson plan, and contained information about previous uses to facilitate the selection of learning activities.
- Manuals specified which program components implementors were free to modify, and which should be delivered strictly as designed.
- Outlines of lesson objectives were included in manuals to facilitate the process of adaptation.
- Manuals were "debugged" and/or expanded through continual revisions made on the basis of feedback from direct service providers.

2. Collaborative Program Planning

- When program and site staff plan the implementation of a program collaboratively, obstacles to program integrity are more likely to be addressed in a manner that is consistent with objectives of the program.

3. Addressing Objections to Program Content

- Objections to program content are best handled through one-to-one discussion with the complainant.
- As implementors gain experience implementing a program, some of their initial concerns may prove to be unfounded, thereby obviating the impediment to delivery.

4. Addressing Time Constraints

- Social skills programs can be integrated into curricula for basic academic subjects.
- Well-specified manuals reduce preparation time.
- School administrators can encourage implementation of a program by reducing demands on implementors in other areas.
- Administrators and/or on-site program personnel can aid teachers in finding time to deliver a program by offering them tangible assistance in non-program areas.

5. Addressing Implementor Resistance

- Accessible on-site facilitators, who model program delivery, appear to be reassuring to teachers who have reservations about using a social skills program.
- Teachers seem to be more accountable for their part in a program when implementation is monitored by a site-based steward.
- Teachers frequently became enthused about teaching social-skills after observing a program's effect on staff and student behaviour, which indicates the possibility of initially piloting a program in a small number of classrooms.
Appendix D

Perceived Obstacles to Program Integrity in Parent Education

1. Inadequate Program Materials

- Significant changes were made to tightly prescribed programs to accommodate the expressed needs of participants.
- Prescribed activities were often omitted to allow for more informal or unstructured interaction between parents and leaders than was specified in manuals.
- Adjustments to procedures were made to accommodate variations in the dynamics of parent groups (e.g., degree of participant interaction).

2. Perceived Time Constraints

- Sessions often started late because parents were late arriving for meetings; this is the norm rather than the exception in parent education as programs are often aimed at young parents from stressful, disorganized environments.
- Delays in beginning parent groups were reported at some sites, as stable groups comprised of roughly the same people seldom congeal until about the third week of meetings.
- Extraneous site conditions can limit the amount of time allotted for the delivery of a parent education intervention.
Appendix E

Addressing Obstacles to Program Integrity in Parent Education

1. Collaborative Program Planning

- Program agendas at some sites were established in accordance with the expressed needs of parents; however, to reduce the incidence of divergent and confusing discussions in the parent meetings, these agendas were determined systematically at the end of prior sessions.
- An alternative to the above approach is have facilitators explain to parents, during collaborative discussions about the group’s agenda, how existing program topics can address the specific problems raised by participants.

2. The Promotion of Skilled Facilitation

- In some cases, an emphasis was placed on training group leaders to balance the facilitation of participant interaction and the implementation of planned content.

3. Provision of Support to Inexperienced Implementors

- Where possible, inexperienced facilitators were paired with more experienced ones.

4. Conditional Adaptations

- To protect the integrity of a parent education intervention, a program coordinator permitted a significant adaptation to a program to be made on the condition that the group participants attend a second group in the subsequent year that would be delivered as prescribed.

5. Addressing Perceived Time Constraints

- Procedures manual at one site contained suggestions about how to incorporate lessons into a tighter time frame.
- The informational content of one program was contained in a series of easy-to-read books that parents could take home during and after the program. When there was insufficient time to cover a topic in detail in the group, parents were encouraged to read the relevant sections of the parent books, and to ask follow-up questions at subsequent meetings.
### Table 1

**Integrity Verification and Promotion by Year of Publication, Intervention and Implementor.**

<table>
<thead>
<tr>
<th>Subsamples</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Training Manual</td>
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</tr>
<tr>
<td><strong>Total Sample (N=162)</strong></td>
<td>57%</td>
</tr>
<tr>
<td><strong>Year of Publication</strong></td>
<td></td>
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<tr>
<td>1980-1987 (n=82)</td>
<td>51%</td>
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<tr>
<td>1988-1994 (n=80)</td>
<td>64%</td>
</tr>
<tr>
<td><strong>Intervention</strong></td>
<td></td>
</tr>
<tr>
<td>Social Competence Training (n=99)</td>
<td>66%*</td>
</tr>
<tr>
<td>Parent Education (n=35)</td>
<td>43%</td>
</tr>
<tr>
<td><strong>Implementor</strong></td>
<td></td>
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<tr>
<td>Non/Paraprofessional (n=99)</td>
<td>60%</td>
</tr>
<tr>
<td>Mental Health Professional (n=23)</td>
<td>52%</td>
</tr>
</tbody>
</table>

**Note.** Values represent the percentage of studies containing the specified procedures. Asterisks indicate significantly different proportions (p<.05). CIP = Comprehensive Integrity Promotion. See Appendix A for definitions of procedures.
Table 2

Studies Examining the Effect of Integrity on Program Outcome

<table>
<thead>
<tr>
<th>Authors</th>
<th>Subjects</th>
<th>Content</th>
<th>Integrity Verification</th>
<th>Results by Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moskowitz, Schaps &amp; Malvin (1982)</td>
<td>467, Grade 3, 86% White, 14% minority</td>
<td>Magic Circle; teacher-led discussions on sharing feelings and opinions.</td>
<td>Implementor</td>
<td>Classroom climate, NS</td>
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<td></td>
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<td></td>
<td>Attitudes (school, peers), NS x 3</td>
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<td></td>
<td></td>
<td>Academic knowledge, NS x 2</td>
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<td></td>
<td>Locus of control, NS x 2</td>
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<td></td>
<td></td>
<td>Self esteem, NS x 2</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>Behavior problems, NS x 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>S x 1 for girls</td>
</tr>
<tr>
<td>Schaps, Moskowitz, Condon &amp; Malvin (1984)</td>
<td>997, Grades 4-6, 94% White</td>
<td>Teacher training workshops on communication skills, problem-solving and self-concept enhancement; 1 year intervention.</td>
<td>Implementor Trained observer</td>
<td>Classroom climate, NS</td>
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<tr>
<td></td>
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<td></td>
<td>Attitudes (peers, school), NS x 3</td>
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<td></td>
<td>Academic knowledge, NS x 2</td>
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<td>Locus of control, NS x 2</td>
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<td></td>
<td>Self esteem, NS x 2</td>
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<td></td>
<td>Behavior problems, NS x 4</td>
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<td></td>
<td></td>
<td>Drug knowledge, NS x 3</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Drug use, NS x 3</td>
</tr>
<tr>
<td>Hopkins, Mauss, Kearney, &amp; Weisheit (1988)</td>
<td>6, 808, Grades 4-12, 75.1% White Urban, Rural, Suburban mix.</td>
<td>Teacher-led substance abuse prevention; approximately 15 lessons per grade level.</td>
<td>Implementor Exposotional training</td>
<td>Drug knowledge, NS x 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>except OPP Gr. 5, Gr. 7</td>
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<td></td>
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<td></td>
<td>Self concept, NS</td>
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<td>Drug attitudes, NS x 6, except OPP x 1 Gr. 7</td>
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<tr>
<td></td>
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<td>Problem solving, NS x 4, except S x 1 Gr. 4, OPP x 1 Gr. 7</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Drug use intentions, NS</td>
</tr>
<tr>
<td>Study</td>
<td>Grade</td>
<td>Ethnicity</td>
<td>Program Description</td>
<td>Methodology</td>
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<td>----------------------------------------------------------------------</td>
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<tr>
<td>Botvin, Dusenberry, Baker, James-Ortiz, &amp; Kerner (1989).</td>
<td>7</td>
<td>74% Hispanic, 11% Black, urban, low SES.</td>
<td>Teacher-led smoking prevention curriculum, 15 sessions.</td>
<td>Trained observers</td>
</tr>
<tr>
<td>Allen, Philliber, &amp; Hoggson (1990).</td>
<td>7-12</td>
<td>49% White, 33% Black, 9% Hispanic</td>
<td>Teacher-led classroom discussions on adolescent developmental issues. Also, a community volunteer work component.</td>
<td>Implementor</td>
</tr>
<tr>
<td>Botvin, Baker, Filazoola, &amp; Botvin (1990)</td>
<td>8</td>
<td>69% White, 29% Black.</td>
<td>Teacher-led substance-abuse prevention curriculum, 20 sessions Year 1, 10 sessions Year 2.</td>
<td>Trained observer</td>
</tr>
<tr>
<td>Botvin, Baker, Dusenberry, Tortu, &amp; Botvin (1990).</td>
<td>9</td>
<td>91% White, 2% Black, suburban and rural.</td>
<td>Teacher-led substance abuse prevention curriculum; 15 sessions Year 1, 10 in Year 2, 5 in Year 3.</td>
<td>Trained observers</td>
</tr>
<tr>
<td>Pentz, Trebow, Hansen, Mackinnon, Dwyer, Anderson-</td>
<td>6-7</td>
<td>77% White, 19% Black.</td>
<td>Teacher-led substance abuse prevention; 10 sessions.</td>
<td>Implementor</td>
</tr>
</tbody>
</table>

Cigarette smoking, S
Drinking frequency, S
Frequency of drunkenness, S
Drinking amount, S
Marijuana use, S
Cigarette, alcohol, and marijuana use, NS x 9
<table>
<thead>
<tr>
<th>Study Authors</th>
<th>Sample, Grade, Ethnicity</th>
<th>Curriculum Details</th>
<th>Implementor</th>
<th>Adherence 2</th>
<th>Quality Effects</th>
<th>Exposure Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hansen, Graham, Wolkenstein, &amp; Rohrbach (1991)</td>
<td>3 593, Grade 5, 52% White, 29% Latino, 10% 4% Asian</td>
<td>School-based substance abuse prevention. Four curricula: Resistance training (RT), Normative Education (NE), Info about consequences (IC), and RT + NE combination. Led by program staff, 9 sessions.</td>
<td>Implementor</td>
<td>Adherence 2</td>
<td>Quality Effects</td>
<td>Exposure Effects</td>
</tr>
<tr>
<td>Parcel, Ross, Lavin, Portnoy, Nelson, &amp; Winters (1991)</td>
<td>4 806, Grades 6-12, 74.4% White, 11.5% Hispanic, 10% Black</td>
<td>Teacher-led health curriculum on adolescent development; 16 modules.</td>
<td>Implementor</td>
<td>Adherence 2</td>
<td>Quality Effects</td>
<td>Exposure Effects</td>
</tr>
<tr>
<td>Botvin, Dusenberry, Baker, James-Ortiz, Botvin, Kerner</td>
<td>3 153, Grade 7, 565 Hispanic, 19% Black, 14% White</td>
<td>Teacher-led substance abuse prevention curriculum; 15 sessions.</td>
<td>Trained observers</td>
<td>Adherence</td>
<td>Effectiveness</td>
<td>Effects of NE</td>
</tr>
</tbody>
</table>

Delivery Quality

<table>
<thead>
<tr>
<th>Quality Effects</th>
<th>Exposure Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cigarette, alcohol, and marijuana use, NS x 9.</td>
<td>Cigarette use, S x 2</td>
</tr>
<tr>
<td>Alcohol use, S x 2</td>
<td>Marijuana use, S x 2</td>
</tr>
</tbody>
</table>

Exposure

<table>
<thead>
<tr>
<th>Effects on RT</th>
<th>Effects of NE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normative attitudes, NS x 3</td>
<td>NS on all of above.</td>
</tr>
<tr>
<td>Skills knowledge, S</td>
<td>Effects on NE</td>
</tr>
<tr>
<td>Skills use, S</td>
<td>NS on all of above.</td>
</tr>
<tr>
<td>Self-efficacy, S</td>
<td>Effects of NE</td>
</tr>
<tr>
<td>Intention to use, NS</td>
<td>NS on all of above.</td>
</tr>
</tbody>
</table>

Adherence 2

<table>
<thead>
<tr>
<th>Effects on RT</th>
<th>Effects of NE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS on all of above.</td>
<td>NS on all of above.</td>
</tr>
</tbody>
</table>

Inexperienced Teachers

| Health knowledge, S | Health attitudes, NS |
| Health practices, NS | Priority health practices (e.g., use), NS |

Experienced Teachers

| NS on all of above. | NS on all of above. |

Post-test smoking, S


5719, Grades 6-8, 42% White, urban, suburban mix, range of income levels. Teacher training workshops on behavior management skills. Implementor Exposure

School climate, NS x 3
Classroom climate, S x 2, NS x 1
Student behavior, S x 3, NS x 2 Perceived rewards and punishment (students), S x 1 NS x 1.


Grade 5 students, 36 classes; 51% White, 37% Latino, 9% Asian. Teacher-led substance abuse prevention; 13 sessions; 1 year of implementation. Trained observer Adherence Quality Responsiveness Resistance skills, S Behavioral intentions, NS Normative beliefs about peer substance use, NS Program knowledge, S Drug use attitudes, NS Program acceptance, S

Note. See Appendix A for definitions of source and aspects of integrity verification. NS = non-significant effects. S = significant positive effects. OPP = significant negative effects. Numerals following the above signs denote the number of relevant variables within specified group. 

1 Hopkins et al. (1988) analyzed implementation effects separately for each dependent variable at each grade level. 

2 Allen et al. (1990) and Parcel et al. (1991) used combined measures of adherence and exposure in their analyses. Hansen et al. (1991) and Rohrbach et al. (1993) used combined measures of adherence, delivery quality and responsiveness in their analyses. Therefore, the separate effects of each aspect of integrity can not be reported.
Table 3

**Studies Examining Effects of Dosage on Program Outcome**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Subjects</th>
<th>Content</th>
<th>Dosage Measure</th>
<th>Results by Variable</th>
</tr>
</thead>
</table>
| Moskowitz, Malvin, Schaeffer, & Schaps (1983). | 472, Grade 8, 92% White. | Teacher training workshops on communication skills, problem solving and self-concept enhancement; 2 years of implementation. | Three (high, medium, low) dosage groups were derived from records of student enrollment in classes with trained teachers. | Classroom climate, NS  
Attitudes (school, peer), NS x 2  
Academic knowledge, NS  
Self concept, NS  
Locus of control, NS x 1, OPP x 1 for girls.  
Unexcused Absences, NS |
| Malvin, Moskowitz, Schaeffer, & Schaps (1984). | 270, Grade 9, 93% White. | As above; 3 years of implementation. | As above. | Classroom climate, NS  
Attitudes (school, peer), NS x 1, OPP x 1 for girls.  
Academic knowledge, NS x 1  
Self concept, NS x 1, OPP x 1 for girls.  
Locus of control, NS x 2  
Unexcused absences, NS  
Drug knowledge, NS x 4, OPP x for boys.  
Drug attitudes, NS x 5, OPP x 1 girls. |
| Moskowitz, Schaps, Schaeffer, & Malvin (1984). | 552, Grade 7, 87% White | As above; 1 year of implementation. | As above. | Classroom climate, NS  
Academic knowledge, NS  
Attitudes (school, peers), NS x 2  
Self concept, NS x 2  
Locus of control, NS x 2  
Unexcused absences, NS |
<table>
<thead>
<tr>
<th>Study</th>
<th>Population</th>
<th>Intervention</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allen, Phillibel, &amp; Hoggson (1990)</td>
<td>1487, Grade 7-12, 49% White, 33% Black, 9% Hispanic.</td>
<td>Teacher-led classroom discussions on adolescent development issues. Also, a community volunteer work component.</td>
<td>Number of volunteer hours completed by each student recorded in teacher reports.</td>
</tr>
<tr>
<td>Weinman, Schreiber, &amp; Robinson (1992)</td>
<td>48 mothers, 57% Black, 11% White, 32% Hispanic.</td>
<td>Parent education program; 24 sessions.</td>
<td>High dosage group consisted of mothers who attended 16 or more of the sessions.</td>
</tr>
<tr>
<td>Felner, Brand, Mulhall, Counter, Millman, &amp; Fried (1994)</td>
<td>191 parents, 65% mothers, ages 23-52, 19% minority.</td>
<td>Worksite-based parent education program; 24, 1 hour sessions.</td>
<td>High dosage group consisted of parents who attended 80% or more of the sessions.</td>
</tr>
</tbody>
</table>

**Note.** See Appendix A for definitions of source and aspects of integrity verification. NS = non-significant effects. S = significant positive effects. OPP = significant negative effects. Numerals following the above signs denote the number of relevant variables within specified group.
Figure 1. Frequency of mean integrity ratings (i.e., on a 5-point Likert scale) assigned to programs (N=9) observed by trained coders.