

**A SELF-HELP PROBLEM-SOLVING VIDEO FOR PARENTS AND TEENS:  
SOCIAL VALIDITY AND GENERALIZATION OF ACQUIRED SKILLS**

by

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Dissertation submitted to the Faculty of the  
Virginia Polytechnic Institute and State University  
in partial fulfillment of the requirements for the degree of  
DOCTOR OF PHILOSOPHY  
in  
Psychology

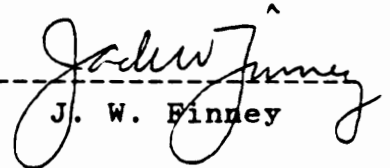
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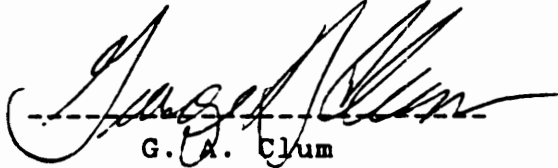
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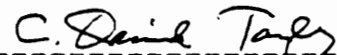
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August, 1993

Blacksburg, Virginia

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**(Abstract)**

A self-administered problem-solving skill training video for nonclinical families with teens is evaluated. The study focuses on the generalization of skills to naturalistic family conversations and the program's social validity: potential iatrogenic aggravation of family problems, perceived effectiveness, and program enjoyment.

Seventy families with young teens were randomly assigned to two treatment groups. One group (skill) viewed a skill training program that included information about the human immunodeficiency virus (HIV). Another group (control) viewed a similar program that lacked the skill training component. Family conversations were recorded in the families' homes before (pretest), two weeks after (posttest), and four months after (follow-up) the families received the programs.

In an associated study, the skill group demonstrated greater levels of skill than controls in role-plays. In the present study, skill families demonstrated greater knowledge of problem-solving than controls at posttest and follow-up ( $p < .001$ ). Analysis of the conversations revealed

generally superior skill performance in the skill group. Significant group differences in skill were found in naturalistic conversations about previously discussed problems at posttest ( $p < .05$ ). Performance differences in conversations about novel topics were not significant. No significant skill differences were observed at follow-up. Correlations of skill measures from the role-play and conversation assessments revealed moderate behavioral consistency ( $r = -.02$  to  $.37$ ). The conversation analysis revealed no significant group differences in the number of families showing increases or decreases in their use of degrading comments after program exposure, but a somewhat significantly greater number of skill families demonstrated a reduction in the number of additional problems raised in their conversations at posttest and follow-up ( $p = .06$ ). No significant group differences were found in observer ratings of problem-solving effectiveness, measures of parent problem-solving confidence, family ratings of the program's effects on their ability to cope with family problems, program enjoyment, or satisfaction with the management of family problems. Implications for the development of effective, socially valid, self-help, media programs are discussed.

### *Acknowledgments*

Without the support of the Center for Research in Health Behavior at the Virginia Polytechnic Institute and State University this dissertation would not have been possible. Acknowledgement must be given to Richard Winett, the Center's director, and Eileen Anderson, director of the *Cartwheels to Car Wheels* project, for their support and generosity in accommodating this critical examination of our work. Acknowledgements must also be given to the many students, friends, and colleagues who assisted with the data collection, and the tedious process of transcribing and scoring the audiotaped conversations: Nicole Bruckman, Curt Buermeyer, Cindy Dillon, Aylice McSherry, Laurie Mundy, Mark Oliver, Ray McNally, Christie Wray, Vicky Chapman, and others. The work involved here was shared by many people, including my sister, Janet Vittum (who had her acting debut in the video) and my wife, Laurie Desiderato, who's talents were greatly appreciated at many points along the way. This research was funded in part by a grant (No. 5RO1 MH44599-03) from the National Institute of Mental Health.

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## *Introduction*

To be effective, a behavior change program must produce changes that generalize beyond the treatment setting to actual situations in a person's life, where the new behaviors are needed. The ultimate effectiveness and value of a program may also depend on its social validity.

Since the concept of social validity was first introduced (e.g., Wolf, 1978) it has come to comprise a diversity of concerns, including program acceptability, social relevance, and iatrogenic effects (Geller, 1991). Program acceptability involves consumer appraisals of behavioral programs, such as whether a program's methods are fair, reasonable, or appealing (Calvert & McMahon, 1987; Kazdin, 1977, 1984, 1986). Social relevance concerns whether a program addresses perceived needs and whether the program is perceived to satisfy these needs (Winett, Anderson, & Moore, 1991). Iatrogenic effects are unintended, undesirable, side-effects associated with a program, effects that can minimize acceptability and present a danger to the public.

This dissertation examines the generalization of problem-solving skills (D'Zurilla & Goldfreid, 1971; D'Zurilla & Nezu, 1982) acquired from *Cartwheels to Car Wheels*, a self-help video program for families with teens. The dissertation also looks at aspects of the social

validity of the program: potential iatrogenic effects, perceived effectiveness, and program enjoyment. The literature review presents a brief overview of literature on the generalization of acquired skills and the social validity of behavior change programs. Particular attention is given to these issues pertaining to self-help media, problem-solving, and other social skills. The literature review closes with a description of the *Cartwheels to Car Wheels* project and a statement about the specific purposes of the study. The discussion focuses on the study's limitations and implications.

## *Literature Review*

### *Overview*

#### *Self-Help Media.*

Many self-help media programs have been shown to be effective (e.g., Bauman, Maxin, Rogers, & Bailey, 1983; Clark et al., 1977; Hunt & Adams, 1989; Miller, Gribbskov, & Mortell, 1981; Scogin, Jamison, & Gochneaur 1989).

Unfortunately, these demonstrations are exceptions rather than the rule. The vast majority of self-help media products available lack empirical support (Glasgow & Rosen, 1984; Rosen, 1990, 1987; Starker, 1989). Even programs disseminated by the government and health professionals are usually untested. The government may spend millions of tax dollars on a single media campaign to change health behaviors. Yet these campaigns often lack appropriate outcome assessments, as well as the behavioral components required to promote and maintain the desired behaviors (Winett, 1990; Winett, 1986; Winett, Altman, & King, 1990).

The seriousness of this problem in the self-help area has long been recognized (e.g. American Psychological Association, 1978). Yet the proportion of evaluative studies to marketed programs has declined over the years (Rosen, 1990, 1987). Moreover, while video technology has blossomed over the past decade, behavioral science has not

kept in stride. Despite the widespread use of self-help video products there appears to be only a few outcome studies that examine the effects of such self-administered programs (e.g., Hunt, Stephen, Adams, Malcom, 1989; Winett et al., 1993, 1992, 1991).

The lack of research involving self-help videos is particularly unfortunate given the seeming potentials of the medium for behavior change. Capable of presenting viewers with both auditory and visual stimuli, action, and drama, the medium can captivate attention, arouse emotions, and vividly present information and modeled examples of behavior. These attributes can enhance the effectiveness of self-help behavior change programs.

Given the public's vast interest in self-help media (Starker, 1989, 1988), and the ease with which media-based programs can be disseminated, self-help videos offer an important means for achieving behavior change objectives in community and health psychology. To realize such potentials program development in the medium must be approached scientifically. Empirical outcome studies of self-help video programs are needed. As with all behavioral programs, generalization and social validity assessments are necessary to establish a program's effectiveness.

### *Generalization*

Social problem-solving in health class will not protect a teen from HIV infection if the teen does not also use these skills in the actual sexual situations they encounter. It can not be assumed that behaviors observed in a training situation will occur under natural conditions. In actual sexual encounters many circumstances affect behavior - intimacy, emotional attachment to a partner, sexual arousal - circumstances unlikely to be replicated in a health class. To be ultimately effective, a behavioral program must establish skills that generalize to natural situations (Baer, Wolf, Risley, 1987; Stokes & Baer, 1977).

Unfortunately, there is considerable evidence that acquired social skills often do not generalize beyond the parameters of the training situation (Chandler, Lubeck, & Fowler, 1992, Haring, 1987). In fact, there appears to be a consensus that, in order to be effective, the training of assertiveness and other social skills must focus on the specific circumstances of the in vivo situations where the skills are needed (Hansen, Watson-Perczel, & Smith, 1989; Tisdelle & St. Lawrence, 1986).

There appears, however, to be no such consensus regarding the generalization of problem-solving skills (Tisdelle & St. Lawrence, 1986). Many studies have demonstrated the generalization of problem-solving skills to

untrained analog or natural situations (e.g., Edelstein, Couture, Cray, Dickens, & Lusebrink, 1980; Foster, Prinz & O'Leary, 1983; Foxx, Martella, & Marchand-Martella, 1989; Foxx, Kyle, Faw, & Bittle, 1989; Guevremont & Foster, 1993; Hawkins, Jenson, Catalano, & Wells, 1991; Martella, Agran, & Marchand-Martella, 1992; Park & Gaylord-Ross, 1989; Robin, 1981).

Problem-solving may comprise a set of unique skills that readily generalize to novel situations and that may facilitate the generalization of other behaviors (Park & Gaylord-Ross, 1989; Plienis et al., 1987). In addition to being a social skill, problem-solving can be construed as an intrapersonal cognitive skill, that is not situationally bound, and that helps a person adapt their behavioral repertoire to novel situations (Hughes, 1992; Kanfer, 1979).

Nevertheless, the generalization of problem-solving can not be assumed. Many studies of problem-solving have found no evidence, or only partial evidence, of generalization (e.g., Foxx and Faw, 1990; McClure, Chinsky, & Larsen, 1978; Ollendick & Hersen, 1979; Tisdelle & St. Lawrence, 1988). In the study by Tisdelle and St. Lawrence (1988), for example, problem-solving skills generalized to untrained role-play situations, but did not generalize to contrived in vivo situations. A similar result was reported by Foxx and Faw (1990).

Table 1. Summary of Selected Problem-Solving Studies: Population and Generalization Assessment

Study	Population	Assessment Method	Generalization Setting
Guevermont & Foster (1993)	5 aggressive boys	Direct observation	Classroom
Kazdin, Siegel, & Bass (1992)	97 conduct disorder children	None	None
Nezu, Nezu, & Areat (1992)	28 psychiatric adult inpatients	None	None
Martella, Agran, & Marchand-Martella (1992)	9 developmentally disabled adults	Direct observation	Novel, contrived, in vivo situations in a sheltered workshop
Hawkins, Jenson, Catalano, & Wells (1991)	141 incarcerated youths	Direct observation	Novel role-plays
Foxx & Faw (1990)	6 psychiatric adult inpatients	Direct observation	Novel, contrived, in vivo situations in a hospital
Foxx, Martella, & Marchand-Martella (1989)	3 head-injured adults	Direct observation	Novel, contrived, in vivo situations in a hospital

Table 1. (Continued)

Study	Population	Assessment Method	Generalization Setting
Fox, Kyle, Faw, & Bittle (1989)	6 psychiatric adolescent inpatients	Direct observation	Novel, contrived, in vivo situations in a hospital
Park & Gaylord-Ross (1989)	3 developmentally disabled youths	Direct observation	Novel, contrived, in vivo situations in a sheltered workshop
Tissdelle & St. Lawrence (1988)	8 psychiatric adolescent inpatients	Direct observation	Novel, contrived, in vivo situations in a hospital
Shinke, Schilling, & Snow (1987)	278 elementary school children	None	None
Plenis et al. (1987)	6 Psychiatric adult inpatients	Direct observation	Novel role-plays
Elias et al. (1986)	158 elementary school students	None	None
Bry, Conboy, & Bisgay (1986)	3 dysfunctional families	None	None
Gilchrist & Schinke (1983)	107 high school students	None	None

Table 1. (Continued)

Study	Population	Assessment Method	Generalization Setting
Foster, Prinz, & O'Leary (1983)	28 dysfunctional families	Self-report	Home
Shure & Spivack (1982)	219 preschool children	None	None
Robin (1981)	33 dysfunctional families	Self-report	Home
Edelstein, Couture, Cray, Dickens, & Lusebrink (1980)	12 psychiatric adult inpatients	Direct observation	Novel role-plays

Studies that demonstrate the generalization of problem-solving skills also appear to be limited in method and scope (see Table 1). These studies tend to focus on generalization in institutional settings, and examine only a few subjects from clinical populations (e.g., Edelstein et al., 1980; Guevremont & Foster, 1993; Hawkins, Jenson, Catalano, & Wells, 1991; Foxx & Faw, 1990; Foxx, Kyle, et al., 1989; Foxx, Martella, et al., 1989; Martella, Agran, & Marchand-Martella, 1992; Park, & Gaylord-Ross, 1989; Tisdelle & St. Lawrence, 1988).

Studies of problem-solving generalization to natural situations outside institutional settings tend to rely on self-report data (e.g., Foster, Prinz & O'Leary 1983; Robin 1981). This data has been demonstrably unreliable, particularly in assessments of verbal behavior and family interactions (Foster, 1987; Foster & Robin, 1989).

Large N studies, and prevention studies involving nonclinical populations have tended to neglect the assessment of skill generalization altogether. These studies typically choose to focus on ultimate outcome measures of personal adjustment (e.g., Albert-Gilles, Pedro-Carroll, & Cowen, 1989; Elias et al., 1986; Gilchrist & Schinke, 1983; Kazdin, Siegel, & Bass, 1992; Nezu & Peri, 1989; Shinke, Schilling, & Snow, 1987; Shure & Spivack, 1982).

Many studies have limited their examination of generalization to untrained role-play situations. Although, skill performances in role-play situations can be valid predictors of in vivo performance (Merluzzi & Biever, 1987), role-play observations provide only tenuous support for a program's effectiveness. Many studies have found only minimum or moderate correlations of .01 to .38 between role-play and in vivo social skill performances, causing researchers to question the validity of standardized role-play assessments (e.g., Bellack, 1983; Bellack, Hersen, & Lamparski, 1979; de Armas & Brigham, 1986; Kern, 1991; Nelson 1983; Williamson, Moody, Granberry, Letherman, & Blouin, 1983).

Finally, although some problem-solving training programs have been media-based (e.g., Elias, 1983; Schinke, Orlandi, Gordon & Weston, 1989), the generalization of problem-solving skills acquired from media-based programs, particularly from self-administered programs, has not been examined. The observed lack of research in this area is consistent with the observations of Glasgow and Rosen (1982), who, after an extensive review of the literature over a decade ago, reported self-help modes of social skill development are notably understudied.

Stokes & Baer (1977) once accused psychologists of relying on "hope" to ensure the behaviors learned from their

programs generalized to appropriate in vivo situations. Although generalization concerns have received increased attention since that time, many behavioral outcome studies still fail to address the issue. In the past decade only a minority of published evaluations of behavioral programs for children and adolescents (46.9%) provided data on the generalization of the targeted behaviors (Allen et al., 1991). The cost and difficulty of conducting naturalistic assessments is one reason generalization data is not more available (Tisdelle & St Lawrence, 1986). Yet, to ultimately establish the effectiveness of behavioral programs these obstacles must be confronted. The problem of demonstrating the generalization of learned behaviors in in vivo settings remains one of the greatest challenges in applied behavior analysis (Baer, Wolf, Risley, 1987). In the area of social problem-solving, generalization studies are particularly needed that involve large samples, nonclinical subjects, naturalistic situations, observational data, and self-administered, media-based interventions.

### *Social Validity*

Iatrogenic effects can have a profound affect on the social validity of a program (Kazdin, 1981). A potent example of an iatrogenic effect in media is reported in connection with a public television program on teen suicide (Gould & Shaffer, 1986). Although the program was broadcast

as a prevention measure, it was found to result in an increase in teen suicide in communities where it was aired. While the program attempted to educate parents about how and why teens commit suicide, it unwittingly modeled lethal acts for depressed teens who also watched the program.

Fortunately, iatrogenic effects of such catastrophic proportions are uncommon. More subtle effects, however, are common and significant. Iatrogenic effects were found in a study of a self-help treatment for anxiety sufferers (Barrera, Rosen, & Glasgow, 1981). In addition to finding this particular product ineffective, the authors report that negative self-attributions and a reduced confidence in behavior therapy were associated with the treatment failure. Similarly, Matson and Ollendick (1977) conducted an outcome study of a widely marketed self-help book for parents: *Toilet Training in Less Than a Day* (Azrin & Fox, 1974). Few of the parents in this study succeeded in toilet training their children by following the prescribed methods. Moreover, the failed attempts to implement the program were found to result in negative emotional states in the parents and children.

Problem-solving skill training programs appear harmless, but even here there are iatrogenic potentials. In theory, problem-solving should facilitate adaptive outcomes by enabling people to make healthier decisions and resolve

interpersonal conflicts. But, in a program targeted at problem-solving in a family, for example, the attention focused on family problems could simply aggravate family conflicts and cause considerable distress. Such a result would not only be a concern in itself, but would diminish the perceived effectiveness and overall acceptability of the program. Like generalization, the social validity of problem-solving programs can not be assumed.

The social validity of problem-solving programs is a somewhat checkered issue. Problem-solving training programs have been reputed to offer great promise. In the 1970's the President's Commission on Mental Health (1978) cited problem-solving skill training as one of the most promising preventive interventions on the horizon. These programs have since been widely adopted, incorporated into many effective school and community prevention programs (e.g., Alpert-Gillis, Pedro-Carroll, & Cowen, 1989; Elias et al., 1986; Evans 1981; Gilchrist & Shinke, 1983; Schinke, Schilling, & Snow, 1987). Many studies have also found improvements in problem-solving ability to be associated with reductions in family conflict (e.g., Bank, Patterson, & Reid, 1987; Foster, Prinz & O'Leary, 1983; Jacobson, 1984; Robin, 1981). Overall, there is considerable evidence that problem-solving programs are associated with positive,

socially valid, changes in ultimate outcome measures of adjustment (Weissberg, Caplan, & Harwood, 1991).

Yet, these positive outcomes appear dependent on certain factors. In order for positive effects to be realized programs may need to include information about the specific problem domains they are attempting to impact (Caplan & Weissberg, 1989), or present a minimum number of hours of skill training (Botivin, Baker, Dusenbury, Tortu, & Botivin, 1990; Weissberg & Caplan, 1991).

There has also been considerable debate over the appropriate purview of problem-solving programs. Critics have noted that the dissemination of problem-solving programs has far exceeded the supporting data. In many cases problem-solving skills have been targeted where there has been little evidence that the selected skills were relevant to the specific goals of the program, targeted situations, or selected population (Dodge, 1989; Durlak, 1985; Kazdin, Esveldt-Dawson, French, & Unis, 1987; Rutter, 1982; Tisdelle, & St. Lawrence, 1986).

Moreover, the mediational role of problem-solving in affecting adaptive changes has been a matter of controversy (Shure & Spivack, 1980). It is not always clear how or if problem-solving training is the operative component of the programs that have demonstrated positive outcomes (Sussman,

Dent, Brannon, Glowacz, Gleason, Ullery, Hansen, Johnson, & Flay, 1989).

Studies that have examined the perceived effectiveness of problem-solving programs have often found negative results. Tisdelle & St. Lawrence (1988) had independent raters assess the global effectiveness of teens' problem-solving behavior in in vivo social situations. The ratings of dysfunctional teens who had completed a skill-training program were compared with the ratings of normal youths. Although the teens completing the program had demonstrated normal levels of skill and effectiveness in test situations, their effectiveness ratings in the in vivo situations remained significantly wanting. Psychometric ratings of overall behavioral adjustment completed by the teens' classroom teachers also revealed no significant improvements in their overall behavioral adjustment after training. Similar findings are reported by Guevermont and Foster (1993) and Kazdin et al. (1987).

It is possible that the above findings are due to a lack of generalization of the acquired skills, or to an insensitivity of the measures to actual changes in behavior that might have occurred. Or, in such cases the targeted problem-solving skills may be functionally irrelevant to the specific outcome objectives, population, or setting.

Problem-solving is not a panacea or necessarily innocuous. Data is needed to demonstrate the relevance, perceived effectiveness, and acceptability of problem-solving skill training programs for different populations, treatment goals, and program formats. Particularly needed is evidence that problem-solving skill training can be instrumental in improving the adjustment of normal families with teens, and that a brief video program can be an effective format for providing this training.

Iatrogenic effects, perceived effectiveness and acceptability can have serious effects on the use and marketability of behavioral programs. Programs judged unsafe, unacceptable, or ineffective by consumers will not be sought or used. If a person is initially attracted to a program, problems with such social validity factors can cause the person to prematurely terminate, or deviate from, the prescribed protocol (Kelly & Drabman, 1977; Witt & Eliot, 1985). Such reactions can diminish the actual effectiveness of a program. The assessment of social validity variables is essential to the development of safe, effective, and marketable programs.

### ***Cartwheels to Car Wheels***

*Cartwheels to Car Wheels* is a brief (135 minute) self-administered video program for families with teens between the ages of 12 and 14. The ultimate objective of the

program is to reduce the teens' risk of HIV infection. Intermediate objectives include increasing parent and teen awareness of the problem, and the enhancement of relevant parent and teen social skills.

The program presents detailed information about HIV: its effects, modes of transmission, and risk reduction strategies. Myths about HIV, such as it being a problem of only homosexuals, drug users, and urban populations, are debunked. The program focuses on the risks all teens face for contracting HIV.

Information alone is a weak influence on health behavior (Jeffery, 1989). Sex education programs often increase teen knowledge about health risks, but rarely result in a reduction in risky sexual behavior (Kirby, 1985). The failure to act in healthful ways can be construed as behavioral deficiencies. Health education programs often fail to modify health behaviors because they lack the program elements required to develop healthier behaviors. Programs designed to affect behavior change need to include information and behavioral skill training (Bandura, 1988; Jeffery, 1989).

*Cartwheels to Car Wheels* includes training in two social skills believed to lead to sexual risk reduction: assertiveness and problem-solving. These skills appear to be effective components in many health risk reduction

programs for teens, including those aimed at sexual risk reduction (e.g., Gilchrist & Schinke, 1983). Assertiveness may help a teen resist unwanted peer pressure to engage in risky activities, such as intercourse without a condom. Problem-solving may prevent a teen from acting impulsively, help them figure their way out of a risky situation, or help them plan a safer course of action. Problem-solving ability has been shown to correlate positively with the adoption and maintenance of contraceptive use in teens (Balassone, 1989).

The dissertation concentrates on the problem-solving component of the *Cartwheels to Car Wheels* program. The specific problem-solving skills taught in the program were derived from the social problem-solving model of D'Zurilla and Goldfreid (1971). Four aspects of this model were taught: (1) generating solutions, (2) appraising the solutions, (3) choosing a solution, and (4) developing an implementation plan. Generating solutions involves the ability to brainstorm, to imagine multiple courses of action to deal with a problem. Appraisals involve an examination of the positive and negative consequences associated with potential courses of action. Choosing involves the decision to try a particular course of action. In interpersonal situations choosing may require an agreement among the affected parties. Planning involves foreseeing the resources and course of action required to implement a

chosen solution. It also can involve the anticipation of potential obstacles and contingency plans.

Several behavioral strategies are employed in the *Cartwheels to Car Wheels* program to teach these skills. Relevant scenarios modeling examples of each targeted skill are presented. Practice exercises, in which viewers are asked to role-play the skills in interaction with characters on the screen or with family members are also provided. A strategy of graduated practice is employed in which the level of difficulty of the exercises is gradually increased through prompt fading and increased response requirements.

Generalization enhancement strategies (Stokes & Baer, 1977) involving the presentation of multiple exemplars and in vivo practice are also included in the program. Multiple examples of the targeted skills are presented in which the skills are demonstrated and practiced in a variety of situations. These scenarios include daily low risk situations as well as high risk situations for which teens need to prepare. Included in the practice exercises are in vivo workbook assignments in which viewers are encouraged to apply the targeted skills to problem situations in their daily lives.

Family problem-solving is a major focus of the *Cartwheels to Car Wheels* program and is the focus of the dissertation. Training problem-solving in a family context

is another means by which the program attempts to stimulate in vivo practice and the generalization of problem-solving skills. Some of the problem-solving scenarios modeled in the program depict parents and teens using problem-solving skills to resolve interpersonal problems within the family. Some of the exercises require parents and teens to practice problem-solving together in role-plays of hypothetical family situations. Other exercises require them to apply these skills to genuine problems in the home.

By teaching problem-solving to the parents and stimulating the use of these skills in the home, *Cartwheels to Car Wheels* attempts to provide teens with the opportunity to observe and practice the skills on a regular basis in vivo. Thereby, the program attempts to increase the probability that teens will use these skills when faced with risky situations outside the home. In addition, if the program is successful in improving problem-solving skills in the home, consequent improvements in family functioning may further reduce teen HIV risks. Parent problem-solving ability and parent-teen conflict have been shown to directly relate to teen engagement in sexual and other high risk behaviors (Bank, Patterson, Reid, 1987; Handelman, Cabral & Weisfeld, 1987; McCubbin, Needle, & Wilson, 1985; Quinn, 1986).

*Cartwheels to Car Wheels* was designed from a formative research orientation. According to this approach, program design is a process of research and development, entailing input from potential consumers and multiple tests of program prototypes (Clark et al., 1977; Kotler & Roberto, 1989; Winett et al., 1990). The purpose of this approach is to ensure program acceptability and maximize effectiveness. Focus groups, involving parents and teens from the target population, were one means by which consumer input in the project was acquired. In these groups participants shared their understandings of teen HIV risks and ideas for the program. Information from these focus groups and from field tests was used to modify a series prototype programs. A detailed account of the development of *Cartwheels to Car Wheels* is presented elsewhere (Winett et al., 1993, 1992, 1991).

Early tests of the program demonstrated significant improvements in parent and teen HIV knowledge, and increases in demonstrated levels of problem-solving skill in role-play situations (Winett et al., 1991, 1992, 1993). In these role-play situations families were presented with a typical problem and asked to act out the situation "as if it was real." In the 1993 study, the performance of *Cartwheels to Car Wheels* viewers was compared with the performance of a control group, who viewed an alternative program that lacked

the skill training component. Based on a composite score of overall problem-solving performance, families who viewed the skill training program demonstrated significantly greater levels of problem-solving skill than controls. A follow-up assessment found this significant difference in group performance had maintained over a four month period.

### ***Statement of the Problem***

Self-help video programs are a popular, but largely untested, mode of service delivery. To develop effective behavioral video programs a formative and empirical approach to research and development is recommended. As with all behavioral programs, outcome studies of video programs need to attend to generalization and social validity variables in order to develop programs that are safe, effective, and marketable.

Early tests of the *Cartwheels to Car Wheels* program demonstrated significant improvements in family problem-solving in structured role-play situations (Winett, et al., 1992, 1991). These results are encouraging, but limited. It can not be assumed that the skill performances evidenced in these role-plays are predictive of actual behavior in the home. Evidence of the generalization of these performances to naturalistic conversations about genuine family problems is needed to show that families who view the program acquire meaningful gains in problem-solving ability.

Also, the early program evaluations did not investigate the potential iatrogenic effects of the program. The possibility that the program may unintentionally aggravate family problems by focusing attention on sensitive issues is quite plausible. Ideally, the program should enable families to resolve their problems. But, focused attention on family problems may simply raise additional problems and occasion hostile exchanges between family members (e.g., degrading comments). Evidence is needed to demonstrate that such iatrogenic effects do not result from exposure to the program.

Evidence is also needed to demonstrate that the families perceive the program to be effective at improving their abilities to cope with family problems, and that the program is seen as somewhat enjoyable, rather than distressing. In prevention programming, where consumer motivation may be slight, minor acceptability factors, such as program enjoyment, may be a pivotal factor in engaging sufficient attention to affect behavior change (Zillmann & Bryant, 1986).

A study focusing on the family problem-solving component of the *Cartwheels to Car Wheels* program was designed to investigate the generalization of acquired problem-solving skills to naturalistic family conversations, to examine potential iatrogenic effects, to assess the

perceived effectiveness of the program in helping family members cope with genuine problems, and to assess the families' enjoyment of the program. The dissertation was conducted concurrently with the study by Winett et al. (1993) mentioned earlier. The two studies focused on the same program trial and the same sample of families.

The present study is unique in several respects: it conducts a behavioral assessment of problem-solving with significant others in the home in conversations about genuine family problems; it evaluates the generalization of problem-solving skills in a large, nonclinical, population; and, it assesses the outcome of a self-administered behavioral video program.

To investigate the generalization of acquired skills to naturalistic conversations the study addresses three specific questions. (1) Do viewers of the skill program acquire greater verbal knowledge of problem-solving strategy than viewers of a control program that lacks the skill training components? (2) Can the treatment effects in family problem-solving demonstrated in the role-play situations by Winett et al. (1993, 1992, 1991) be replicated under more naturalistic conditions, by parents, teens, or the family as a whole? (3) Will measures of skill performance from these two settings be significantly correlated?

To investigate the social validity of the program the study addresses six specific questions. (1) Do viewers find the skill training program more helpful in dealing with family problems than the control program? (2) Do viewers of the skill program see themselves as more competent problem-solvers than viewers of the control program? (3) Do independent observers see the families who viewed the skill program as more effective than controls in their attempts to discuss and solve their problems? (4) Do families who view the skill program report greater satisfaction with the family's management of interpersonal problems than controls? (5) Do program viewers demonstrate greater focus and less hostility in their conversations about family problems than controls (i.e., fewer digressions to additional problems and fewer degrading comments)? Or, do viewers of the skill program iatrogenically demonstrate less focus and more hostility than controls?. Finally, (6) do viewers find the skill program any more, or less, enjoyable to than the control program?

Answers to these questions are needed to demonstrate the ultimate efficacy and social validity of the family problem-solving component of the *Cartwheels to Car Wheels* program. The sections that follow present the methods and results of a study designed for this purpose.

## **Methods**

### ***Subjects and Recruitment***

With the aid of local family physicians 600 families with adolescents between the ages of 12 and 14 years were identified in the Roanoke, Virginia area. Each family received an initial letter from their physician introducing the *Cartwheels to Car Wheels* project. This letter was followed by a phone call from the project staff. Interested families were then sent further information about the benefits and requirements of participating in the project. The information package was followed by a second phone call to answer questions and to identify interested families.

One-hundred-forty-six (25%) of the families approached agreed to participate in the study. Seventy families were randomly selected as subjects. This sample included 39 (54%) families with an identified male teen, 31 (46%) families with an identified female teen, 58 (84%) two-parent households, and 12 (16%) single-parent households. The mean level of parent education in the sample was 14.7 years. The mean age of the teens was 12.9 years.

### ***Intervention Procedures***

The families were given the *CartWheels to Car Wheels* video and workbook to use independently in their homes at their own convenience over a two week period. The families were instructed to use the materials as often as they liked,

although it was strongly recommended that the parents and teen view the program at least once together.

### ***Manipulation Checks***

Two manipulation checks were employed to determine whether the families adequately used the program. First, removable colored vinyl dots were placed on the binder of the video cassette package, along with printed numbers. Instructions embedded in the video program instructed viewers to place certain dots over certain numbers for "scientific purposes." The binders were later checked for compliance with the instructions. The second method of assessing program use was to collect and examine the workbooks that accompanied the video program. Inappropriate placement of the dots after the programs were returned, or unused workbooks would have indicated inadequate program use. Via these methods it was determined that all but one of the participating families had viewed the program and made use of the workbook.

### ***Experimental Design***

Each participating family was randomly assigned to one of two treatment groups. One group (*skill group*) received the complete *Cartwheels to Car Wheels* program, which included the skill training component on problem solving. The other group (*control group*) received a version of this program that included only information about HIV and family

problem-solving, but lacked the behavioral skill training component (i.e., models of family problem-solving behavior and practice exercises).

Families in each treatment group were subjected to three phases of assessment: just before they received the program (*pretest*), two weeks after they received the program (*posttest*), and again four months later (*follow-up*).

#### ***Assessment Procedures***

The procedures in each assessment phase were identical, save a few modifications which will be specified. All assessments took place in the families' homes at prearranged times. A staff of 18 field assistants conducted the assessments in teams of two. Once in the home the assistants administered several self-report instruments and the role-play assessments described in Winett et al. (1993).

Following the role-plays, recordings were obtained of family conversations about genuine problems in the home. To obtain these recordings the field assistants first helped the families identify current problems. Problem selection was limited to five general topics to maximize the uniformity of the assessment situation across families: sibling conflict, homework completion, chore completion, teen money management, and the use of leisure time. Pilot research found these to be the five most frequent concerns in this population of families.

After the family identified one or a number of problems for discussion they were asked to individually assess whether any of the identified problems would be too difficult to discuss (i.e., too embarrassing, emotional, or confidential). If any family member believed they could not comfortably discuss an identified problem, the topic was dropped from consideration.

Once a suitable problem topic was identified the family was asked to briefly describe the circumstances of the problem. Based on these descriptions the field assistants selected the problem that generated the most conversation. The assistants then asked the family to discuss this problem and "try to work it out." The assistants then turned on a tape recorder and went out of sight and sound of the family, explaining that they would return in 10 minutes to end the conversation.

At pretest only one conversation was recorded in each home. At post-test and follow-up two conversations were recorded in each home. In these later phases the families were first asked to discuss the same problem they had discussed at pretest (*repeated conversation*). Then, to assess skill generalization to a completely novel situation, the family identified and discussed an additional problem (*novel conversation*).

The conversation recordings were later transcribed. These transcriptions were then read by trained assessors, and scored for problem-solving skills, digressive statements about additional problems, and degrading comments. The assessors were blind to the treatment group, assessment phase, and the condition of the transcripts they scored. The methods and definitions used in the conversation analysis were adapted from the *Parent-Adolescent Interaction Coding System* developed by Robin (1988). Instructions for the assessors and the specific definitions of the targeted conversation behaviors are presented in Appendix A.

Audio-taped samples of conversation were used in the analysis because pilot research found the conversation analysis too complex to be reliably scored in vivo. This method of data collection was also less obtrusive than having an assessor present and scoring during the families' conversations. In the behavioral literature the use of audio-tapes for the analysis of verbal behavior is a standard procedure (e.g., Foster, Prinz, O'Leary, 1983; Robin, 1981; Tisssdelle & St. Lawrence, 1988).

Families received 50 dollars for each assessment phase they completed. This incentive was contingent only on the completion of the assessments, and was explicitly not dependent on levels of skill performance or program use.

**Measures*****Family Adaptability and Cohesion Evaluation Scales***

To characterize the selected sample of families the third version of the Family Adaptability and Cohesion Evaluation Scales (*FACES-III*) was administered at pretest. *FACES-III* is a 20 item self-report instrument normed for use with families with adolescents (Olson, Portner, & Lavee, 1985). *FACES-III* provides scale scores on two dimensions of family functioning: adaptability and cohesion. The adaptability scale assesses the degree of variability in family behavior. Scores on this scale can be used to classify families into four percentile based categories: rigid, structured, flexible, and chaotic. The cohesion scale assesses the degree of closeness between family members and classifies families into four percentile based categories: disengaged, separated, connected, and enmeshed.

The *FACES-III* has fairly adequate internal consistency, with Chronbach alphas of .77 for cohesion, .62 for adaptability, and .68 for the combined scales. Test-Retest reliability data is available only for earlier versions of the instrument for which the reported coefficients were satisfactory: .83 for cohesion, .80 for adaptability, and .84 for the combined scales. The instrument is resistant to the influences of social desirability. The *FACES-III* score sheet is presented in Appendix B.

### ***Problem-Solving Knowledge***

To assess whether viewers of the program acquired verbal knowledge of the presented skills parents and teens were independently asked to write the four targeted elements of problem-solving on a test form: (1) generate alternative solutions, (2) appraise these solutions, (3) choose a solution, and (4) plan a course of action. The number of elements correctly reported comprised the subject's score for this measure, yielding a range of 0 to 4.

### ***Skill Acquisition and Generalization***

***Composite Score.*** The principal measure used to assess problem-solving in the role-play performances was a composite score based on eight problem-solving criteria (Winett et al., 1993). This method of scoring was also used to assess problem-solving ability in the family conversations. The eight criteria contributing to the score are presented in Table 2. To score these criteria the assessors noted the occurrences of six basic skills in each conversation: (1) suggested solutions, (2) stating details of solutions, (3) appraisals of solutions, (4) choosing a solution, (5) stating implementation plans and (6) stating back-up plans. Based on this data the assessors answered the questions in Table 2 to arrive at a composite score of zero to eight, the total number of criteria met in a conversation.

***Skill Frequencies.*** To permit an assessment of the independent contributions of parents and teens in the problem-solving process the individual skill frequencies of parents and teens were assessed. This measure equaled the total number of times per conversation that a parent or teen stated a solution, stated details of a solution, made appraisals, or stated a back-up or implementation plan.

**Table 2. Criteria Comprised by the Problem-Solving Composite Score**

- 
1. Does someone in the family suggest at least one solution to manage the selected problem?
  2. Is more than one solution to the selected problem suggested in the conversation?
  3. Are there more than two solutions to the selected problem suggested in the conversation?
  4. Are details about the suggested solutions stated in the transcript?
  5. Are any appraisals stated in the transcript?
  6. Are two or more appraisals stated that refer to different solutions?
  7. Did the family choose a solution (agree)?
  8. Is an implementation or back-up plan described?
-

### ***Social Validity***

***Effectiveness Rating.*** After listening to the recording and reading the transcript of a conversation the assessors rated how effectively the family resolved the selected problem. Effectiveness was rated on a seven point scale from (1) very ineffective, to (4) moderately effective, to (7) very effective.

***Degrading Comments.*** To partially assess the level of hostility demonstrated in the conversations any degrading comments that occurred in a conversation were noted. Assessors then scored each transcript for the presence or absence of these behaviors.

***Additional problems.*** An assessment of the occurrence of digressive statements about additional problems provided another measure of hostility in the conversations, and the degree to which families focused on the selected problem. As above, assessors scored each transcript for the presence or absence of these behaviors.

***Family Problem Ratings.*** To provide a measure of family member's satisfaction with the management of interpersonal problems in their homes parents and teens were asked to independently rate their current level of satisfaction with the families management of 15 typical problems affecting families with teens (see Table 3). The items selected for these ratings were based on pilot research and other

findings (Montemayor, 1983) suggesting that these were common problems in families with teens. Family members rated their level of satisfaction with the family's management of each of the 15 problems from (1) Extremely Satisfied to (10) Extremely Dissatisfied. The individual's score on this measure equaled the mean of the 15 ratings, resulting in a potential score of 0 to 10.

**Table 3. Family Problem Rating Topics**

---

1. Sibling conflict	9. Money
2. Keeping the house neat	10. Use of leisure time
3. Homework	11. Phone use
4. School conduct	12. Chores
5. Academic performance	13. Diet
6. Teen's appearance	14. Keeping commitments
7. Behavior during family discussions	15. Showing good judgment
8. Responding to family member's requests	

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**Enjoyment.** As a general measure of program acceptability parents and teens rated how much they enjoyed the program. The rating consisted of a 7-point scale that ranged from (1) None to (7) Very Much.

**Perceived Effectiveness.** Parents and teens also rated how much they believed the program improved their ability to

cope with family problems. This rating also consisted of a 7-point scale from (1) None to (7) Very Much.

*Problem-Solving Inventory.* To additionally determine whether parents perceived themselves more competent in their management of daily problems after viewing the program the Problem-Solving Inventory (*PSI*) (Heppner & Petersen, 1982) was administered. The *PSI* is a 35 item inventory of personal confidence in problem-solving ability (see Appendix B). It has good internal consistency (Chronbach alpha = .90) and good test-retest reliability ( $r = .83$  to  $.89$ ). The *PSI* is capable of distinguishing clinical and nonclinical groups, and has been shown to be resistant to the influences of social desirability, and to reflect skill increases resulting from problem-solving skill training (Heppner & Petersen, 1982).

#### *Reliability of the Conversation Analysis*

Thirty-one percent of the 241 transcripts used in the analysis were randomly selected and scored by two independent assessors to assess the reliability of the conversation measures. An equitable proportion of transcripts from each phase and condition were subject to these reliability assessments to ensure the integrity of the data across all facets of the experimental design. Reliability assessments were dispersed throughout the scoring process, and assessors were unaware of which

transcripts were scored by others, to protect against reactivity and inconsistency in the scoring (Romanczyk, Kent, Diament, & O'Leary, 1973). Three assessors were trained to score the recorded conversations using mock transcripts. Before scoring actual transcripts each assessor was required to demonstrate an acceptable level of agreement (.80) with the other assessors on each measure in three consecutively scored transcripts.

Interobserver agreement for each measure was calculated for all possible pairs of the three assessors. The reliability of the composite score, frequency measures, and effectiveness rating was calculated using Pearson product-moment correlations of independent observer scores, as recommended by Berk (1979). The means and ranges of these correlations are presented in Table 4. Overall, the achieved levels of agreement were satisfactory.

**Table 4. Reliability Coefficients**

	Range	Mean
Composite Score	.91 - .98	.94
Skill Frequency (Parent)	.79 - .86	.84
Skill Frequency (Teen)	.78 - .93	.87
Effectiveness Rating	.77 - .81	.78

To assess the reliability of the bivariate criteria scores contributing to the composite score, the percentage of interobserver agreement was calculated for each criterion using the Kappa statistic (Cohen, 1960) to correct for chance levels of agreement. Kappa coefficients for these measures were satisfactory, ranging from .81 to 1.00 ( $M = .85$ ). Kappa coefficients were also used to assess the level of agreement for the bivariate measures of degrading comments and additional problems. Coefficients of agreement for these measures were also satisfactory: degrading comments (.78 to .96,  $M = .89$ ), additional problems (.79 to .95,  $M = .85$ ).

Different teams of assessors scored the conversation transcripts in the present study and transcripts of the families' role-play performances in the analysis conducted by Winett et al. (1993). To ensure that the composite score common to the two studies was consistently applied, interobserver agreement between the teams of assessors was appraised. Twenty percent of the transcripts from the role-play performances were randomly selected and rescored by the dissertation assessment team. These scores were compared with the scores assigned by the original role-play assessors. These comparisons demonstrated satisfactory

levels of agreement between the two assessment teams ( $r =$   
.81 to .95, coefficient mean = .88).

## *Results*

### *Characteristics of the Sample*

Sixty-nine of the original 70 families completed the pretest and posttest assessments. One family dropped from the study because the teen decided not to participate after the start of the pretest assessment. Recordings of family conversations at posttest were obtained for only 53 families (25 skill, 28 control) because of recording equipment malfunctions. Forty-six of the 53 families with complete data agreed to participate in the follow-up assessment. Further problems with the recording equipment reduced the number of follow-up cases with audible conversation recordings to 41 (18 skill, 23 control). Comparisons of the treatment groups at each stage of the assessment indicated the attrition was unrelated to the characteristics of the samples (see Appendix C).

### *FACES-III*

Overall, the participating families were found to be unusually cohesive and unstructured. Scores from the adaptability and cohesion scales of the FACES-III are typically used as coordinates in a two dimensional matrix of family functioning (Figure 1). The majority of families in the present study (60.8%) evidenced cohesion and adaptability coordinates in the upper-right quadrant of this matrix. Many families evidenced scores in the enmeshed

(30.4%) and chaotic (37.6%) categories. Only a minority of families (30.3%) evidenced scores within the balanced center categories, and very few families were characterized as disengaged or rigid.

		Cohesion				Row Totals
		Disengaged	Separated	Connected	Enmeshed	
Adaptability	Chaotic	0	7.2	21.7	8.7	37.6
	Flexible	1.4	5.8	15.9	14.5	37.6
	Structured	1.4	4.3	4.3	5.8	15.8
	Rigid	0	2.9	4.3	1.4	8.6
Column Totals		2.8	20.2	46.2	30.4	N = 69

Balanced

Figure 1. Percentage of the sample per category of the FACES-III matrix.

The mean cohesion and adaptability scores from the present sample were compared with the corresponding means from families with adolescents in the FACES-III standardization sample (n = 1315) (Olson et al., 1985).

Two-tailed *t*-tests for the difference between a sample mean and population mean were conducted (Bruning & Kintz, 1977). Cohesion scores of the participating families ( $M = 40.7$ ) were found to be significantly higher than the cohesion scores of the standardization sample ( $M = 37.1$ ) ( $t = 6.38$ ,  $df = 68$ ,  $p < .001$ ). Adaptability scores in the present sample ( $M = 27.1$ ) were also found to be significantly higher than the adaptability scores of the standardization sample ( $M = 24.3$ ) ( $t = 4.72$ ,  $df = 68$ ,  $p < .001$ ).

### *Self-Report Measures*

Results from the verbal knowledge assessment, family problems ratings, and PSI are presented in Table 5. Posttest and follow-up scores for these variables were analyzed using a MANCOVA procedure, with pretest scores as covariates.<sup>1</sup> The multivariate analysis of the posttest data revealed significant treatment effects ( $F = 23.00$ ,  $df = 5,58$ ,  $p < .001$ ). Succeeding univariate analyses found significant treatment effects in the measures of parent problem-solving knowledge (ANCOVA,  $F = 68.18$ ,  $df = 1,62$ ,  $p < .001$ ) and teen problem-solving knowledge (ANCOVA,  $F = 68.85$ ,  $df = 1,62$ ,  $p < .001$ ). The multivariate analyses of

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<sup>1</sup> Due to the near equal size of the treatment groups an analysis of the homogeneity of variance was not conducted. Parity in treatment group size provides the MANOVA procedure with sufficient resilience to withstand the otherwise compromising effects of variance heterogeneity (Marascuilo & Levin, 1983, p. 356). The Pillais statistic was used for all multivariate tests of significance in this study.

the follow-up data also revealed significant treatment effects ( $F = 17.74$ ,  $df = 5,35$ ,  $p < .001$ ). Univariate analyses of the follow-up data indicated the significant group differences in problem-solving knowledge at posttest had maintained: parent problem-solving knowledge (ANCOVA,  $F = 40.24$ ,  $df = 1,39$ ,  $p < .001$ ), teen problem-solving knowledge (ANCOVA,  $F = 51.44$ ,  $df = 1,39$ ,  $p < .001$ ).

**Table 5. Self-Report Measures: Means and Standard Deviations**

		Pretest		Posttest		Follow-Up		
		Skill (n = 34)	Control (n = 35)	Skill (n = 34)	Control (n = 35)	Skill (n = 20)	Control (n = 26)	
Problem-Solving Knowledge (0-4)	(Parent)	M	0.62	0.57	* 3.18	1.03	* 2.70	0.70
		SD	0.82	0.95	1.24	1.18	1.26	1.11
	(Teen)	M	0.18	0.63	* 2.97	1.00	* 2.75	0.62
		SD	0.58	1.00	1.53	1.26	1.52	0.90
Family Problem Ratings (1-10) <sup>a</sup>	(Parent)	M	3.42	3.13	3.33	3.08	2.83	2.91
		SD	1.56	1.24	1.43	1.27	1.48	1.09
	(Teen)	M	3.09	3.25	8.22	7.85	2.48	3.09
		SD	1.76	1.60	0.82	1.28	0.96	1.59
Problem-Solving Inventory	M	86.13	79.90	80.25	78.26	76.33	76.67	
	SD	16.34	15.34	14.24	14.98	16.51	15.54	

Notes: a = mean of 15 ratings. \*  $p < .001$

Parent scores from the PSI remained relatively unchanged over the course of the study and reflected no significant group differences at posttest or follow-up. An

alternative analysis based on the PSI confidence subscale scores also revealed no significant group differences. Parent and teen family problem ratings also reflected no significant group differences at posttest or follow-up. At posttest, however, family problem ratings from both groups of teens reflected substantially greater dissatisfaction with their families' management of problems in the home. This effect diminished by follow-up.

Results from the posttest ratings of perceived effectiveness (improved coping with family problems) and program enjoyment are presented in Table 6. A multivariate analysis of variance (MANOVA) revealed no significant group differences in either of these ratings ( $F = 1.91$ ,  $df = 4,64$ ,  $p = .12$ ).

**Table 6. Program Enjoyment and Perceived Effectiveness: Means and Standard Deviations.**

			Skill (n = 34)	Control (n = 35)
Perceived Effectiveness	(Parent)	M	4.85	4.06
		SD	1.22	1.65
	(Teen)	M	4.21	3.75
		SD	1.22	1.57
Enjoyment	(Parent)	M	5.62	5.14
		SD	1.28	1.25
	(Teen)	M	4.33	4.31
		SD	1.59	1.60

Note: All ratings based on a 1 to 7 scale with high values reflecting greater satisfaction.

**Analysis of the Naturalistic Conversations**

Results from the analysis of the naturalistic conversations are presented in Table 7. In general, the skill group demonstrated slightly higher levels of problem-solving skill than the controls at posttest and follow-up, and received higher ratings of effectiveness.

**Table 7. Results from the Naturalistic Conversations:  
Means and Standard Deviations**

			Pretest		Posttest		Follow-Up	
			Skill (n = 25)	Control (n = 28)	Skill (n = 25)	Control (n = 28)	Skill (n = 18)	Control (n = 23)
Skill Composite (0-8)	R	M	--	--	5.40	3.96*	4.28	3.13
		SD			2.31	2.30	2.40	2.49
	N	M	4.20	4.39	4.89	4.00	4.27	4.52
		SD	2.08	2.04	2.17	2.24	1.41	2.29
Skill Frequency (Parent)	R	M	--	--	4.56	3.21	3.22	2.44
		SD			3.29	2.71	2.16	2.30
	N	M	4.76	5.18	5.48	3.79	3.17	3.34
		SD	3.50	3.54	4.57	2.41	1.95	2.41
Skill Frequency (Teen)	R	M	--	--	3.12	2.64	1.61	1.61
		SD			2.24	2.22	1.54	2.41
	N	M	2.12	2.68	3.04	2.50	2.83	2.48
		SD	2.09	1.83	2.30	2.32	2.18	1.71
Effectiveness Rating (1-7)	R	M	--	--	3.24	2.50	3.22	2.46
		SD			1.83	1.50	2.05	1.60
	N	M	2.72	2.68	2.88	2.46	2.94	2.57
		SD	1.57	1.49	1.73	1.60	1.70	1.73

Notes: R = repeated conversation. N = Novel conversation. \* ANCOVA  $p < .05$

Each of the posttest scores derived from the repeated and novel conversation conditions were subject to an analysis of covariance (ANCOVA), with pretest scores as covariates. The same procedures were used for the analyses of the corresponding follow-up data. The analyses of the posttest data revealed a significant treatment effect in the therapeutic direction in the composite score from the repeated conversation condition ( $F = 5.36$ ,  $df = 1,52$ ,  $p = .03$ ). No other effects involving the conversation measures at posttest or follow-up were significant.

The frequencies at which each group met each of the criterion comprised by the composite score were examined to determine which specific skills were most readily performed (Table 8). At pretest almost all families came up with at least one possible solution to their problem, and slightly more than half came up with two solutions, but relatively few generated three or more solutions to their problem. At pretest most families also stated details of suggested solutions and appraised at least one solution. Slightly over half of the families agreed on a course of action (chose a solution) in the pretest conversations, but only a minority appraised more than one solution or constructed an implementation or back-up plan.

For the most part, at posttest, the number of skill group families demonstrating any of the criteria skills

Table 8. Frequency (Percent) of Families Meeting Each of the Problem-Solving Criterion.

		Criteria							
Phase		1	2	3	4	5	6	7	8
		Skills Group							
Pretest	N	22 (88.0)	16 (64.0)	5 (20.0)	21 (84.0)	15 (60.0)	6 (24.0)	13 (52.0)	7 (28.0)
	(n = 25)								
Posttest	R	23 (92.0)	20 (80.0)	12 (48.0)	19 (76.0)	20 (80.0)	12 (48.0)	18 (72.0)	10 (40.0)
	(n = 25)	24 (96.0)	16 (64.0)	9 (36.0)	18 (72.0)	22 (88.0)	11 (44.0)	17 (68.0)	5 (20.0)
Follow-up	R	16 (88.9)	10 (55.6)	7 (38.9)	11 (61.1)	13 (72.2)	7 (38.9)	12 (66.7)	1 (5.6)
	(n = 18)	18 (100)	9 (50.0)	1 (5.6)	13 (72.2)	13 (72.2)	4 (22.2)	14 (77.8)	5 (27.8)
		Control Group							
Pretest	N	27 (96.4)	16 (57.1)	8 (28.6)	22 (78.6)	21 (75.0)	7 (25.0)	18 (64.3)	2 (7.1)
	(n = 28)								
Posttest	R	24 (85.7)	16 (57.1)	7 (25.0)	18 (64.3)	17 (60.7)	7 (25.0)	18 (64.3)	4 (14.3)
	(n = 28)	25 (89.3)	11 (39.3)	8 (28.6)	22 (78.6)	21 (75.0)	7 (25.0)	15 (53.6)	3 (10.7)
Follow-up	R	17 (73.9)	8 (34.8)	2 (8.7)	12 (52.2)	11 (47.8)	3 (13.0)	15 (65.2)	4 (17.4)
	(n = 23)	21 (91.3)	13 (56.5)	8 (34.8)	20 (87.0)	16 (69.6)	9 (39.1)	13 (56.5)	4 (17.4)

Notes: N = novel conversation, R = repeated conversation. Criteria: (1) One solutions. (2) Two solutions. (3) Three or more solutions. (4) Details. (5) One Appraisal. (6) Two of more appraisals. (7) Choose. (8) Plan.

increased in both the repeated and novel conversations, while the number of control families demonstrating these skills decreased or remained the same. At follow-up, the superior performance of the skill group was maintained in the repeated conversation condition, although the percentages of families in either group that met any of the criteria declined. In the novel conversations at follow-up several criteria were met by a higher percentage of control than skill families (i.e., criteria 2, and 6).

Chi-square analyses of the proportions of skill and control families that met criteria at posttest they had not met at pretest were conducted to determine if any of the observed group differences in skill acquisition were statistically significant. Similar analyses were conducted on the proportions of families at follow-up that demonstrated skills they had not demonstrated at pretest. Although, generally higher percentages of skill families than controls demonstrated gains at posttest and follow-up no significant group differences in skill acquisition were found ( $\chi^2$  ranged from .00 to 2.76,  $df = 1$ ,  $p$  ranged from .10 to 1.00).

To examine the impact of the program on family members use of degrading comments at posttest the families were divided into three categories: those who *increased* these behaviors (demonstrated degrading comments and had not

demonstrated these behaviors at pretest), demonstrated *no change* in these behaviors from pretest, or *decreased* these behaviors (demonstrated the behaviors at pretest, but did not demonstrate the behavior at posttest). The same method of categorization was applied in the examination of additional problems, and the examination of both degrading comments and additional problems at follow-up.

**Table 9. Frequency (Percentage) of Families Demonstrating Increases, Reductions and No Change in Degrading Comments and Additional Problems**

			Posttest		Follow-up	
			Skill (n = 25)	Control (n = 28)	Skill (n = 18)	Control (n = 23)
Degrading Comments	R	Increased	2 (8.0)	4 (14.3)	2 (11.1)	0 (0.0)
		No Change	19 (76.0)	22 (78.6)	12 (66.7)	21 (91.3)
		Reduced	4 (16.0)	2 (7.1)	4 (22.2)	2 (8.7)
	N	Increased	2 (8.0)	5 (17.9)	0 (0.0)	2 (8.7)
		No Change	18 (72.0)	22 (78.6)	14 (77.8)	19 (82.6)
		Reduced	5 (20.0)	1 (3.5)	4 (22.2)	2 (8.7)
Additional Problems	R	Increased	2 (8.0)	3 (10.7)	0 (0.0)	1 (4.3)
		No Change	15 (60.0)	22 (78.6)	12 (66.7)	18 (78.3)
		Reduced	8 (32.0)	3 (10.7)	6 (33.3)	4 (17.4)
	N	Increased	5 (20.0)	2 (7.1) *	0 (0.0)	2 (8.7) *
		No Change	13 (52.0)	23 (82.1)	13 (72.2)	20 (87.0)
		Reduced	7 (28.0)	3 (10.7)	5 (27.8)	1 (4.3)

Notes: R = repeated conversation. N = Novel conversation. Increased = families that exhibited behavior they had not exhibited at pretest. No change = families who's behavior matched their pretest behavior. Reduced = families that did not exhibit behavior they exhibited at pretest.

\* p = .06

The frequencies of families falling within each of these categories in each condition and phase are presented in Table 9. Overall, higher proportions of skill families decreased these undesirable behaviors than controls, and higher proportions of control families showed increases in these behaviors. Chi-square analyses of the frequencies of families in each group falling within the three categories of change revealed marginally significant group differences in the frequencies of families increasing and decreasing additional problem statements in the novel conversations at posttest ( $\chi^2 = 5.51, df = 2, p = .06$ ) and at follow-up ( $\chi^2 = 5.62, df = 2, p = .06$ ). No other significant group differences were found in the frequencies of families in these categories of behavior change ( $\chi^2 = 1.39$  to  $4.57, df = 2, p = .10$  to  $.50$ ).

To assess how closely the families' role-play performances (cf., Winett et al., 1993) predicted their performances in the naturalistic conversations in the present study the skill composite scores from the role-play situation were correlated with like scores from each of the conversation conditions (see Table 10). To assess the correspondence of skill acquisition in the two settings, change scores based on pre to post, and pre to follow-up, changes in the composite scores were also computed, and are also presented in Table 10.

**Table 10. Correlations of the  
Conversation and Role-Play Measures: Problem-  
Solving Composite and Composite-Change Scores.**

		Pretest	Posttest	Follow-Up
Composite Score	R	.	.37**	.25
	N	.30	.13	-.02
Composite-Change Score	R	.	.29*	.14
	N	.	.18	-.19

Notes: R = repeated conversation. N = novel conversation. \* =  $p < .05$   
\*\* =  $p < .01$  Presented correlations are based on the entire sample: pretest and  
posttest ( $n = 69$ ), follow-up ( $n = 41$ ).

The correlations of the composite and composite-change scores reflect a minimum to moderate consistency in behavior across the two settings. Composite and composite-change score correlations involving the repeated conversation at posttest were greater than chance ( $r = .29$ ,  $p < .05$ ;  $r = .37$ ,  $p < .01$ , respectively).

## *Discussion*

### *Results Summary and Interpretations*

In the associated study by Winett et al. (1993), families who viewed the skills training program demonstrated significantly greater problem-solving skill in role-play situations than families who viewed the control program. In the present study these same viewers demonstrated significantly greater verbal knowledge about problem-solving strategy than controls at posttest, and again four months later. These findings demonstrate the acquisition of problem-solving knowledge and skills by viewers of the skills program.

In the present study, in more naturalistic conversations, families in the skill group demonstrated generally higher levels of problem-solving skill than controls. In one condition, the repeated conversation at posttest, this group difference in ability was statistically significant. Correlations of skill measures from the role-plays of the associated study and the naturalistic conversations were generally positive, but modest. Correlations between skill measure in the role-plays and the repeated naturalistic conversations at posttest were greater than chance.

The present findings indicate that the acquired problem-solving skills did generalize to some naturalistic

conversations about genuine family problems, conversations about problems that the family has previously discussed. Nevertheless, the modest correlations of skill measures between the role-play and naturalistic settings, and the lack of significant group differences in skill in the novel conversation conditions, indicate a need for more robust and broader generalization effects.

Several factors could be considered in attempting to promote such effects. One factor is the length of the program. Although the complete *Cartwheels to Car Wheels* program was approximately two hours long, the portion of the program devoted to family problem-solving was less than 30 minutes. Although workbook exercises also addressed these skills and encouraged additional practice, the overall amount of instruction was minimal compared to the weeks and years of professionally-directed instruction provided in other programs (e.g., Alpert-Gillis, Pedro-Carroll, & Cowen, 1989; Schinke, Schilling, & Snow, 1987; Wiessberg & Caplan, 1991).

The brief amount of time devoted to family problem-solving in the *Cartwheels to Car Wheels* program may have been insufficient to result in more robust generalization effects. A larger dose of training may achieve more favorable results. Treatment duration has been shown to be positively correlated with the degree of social skill

generalization (Chandler et al., 1992). More attention may need to be given to generalization promotion strategies such as (1) presenting greater numbers of multiple exemplars (multiple examples of the targeted skills in a variety of externally valid situations), (2) encouraging more in vivo practice, (3) using stimuli from the training situation in naturalistic settings (e.g., prompt cards, which could be faded over time), or (4) improve the functional authenticity of the training situations, based on more detailed functional analyses of the eliciting stimuli and reinforcers of the target behaviors in the natural environment (Baer, Wolf, & Risley, 1987; Kimberly & Bickel, 1988; Stokes & Baer, 1977; Stokes & Osen, 1989, 1988, 1986).

The need for more program time for the instruction of family problem-solving skills, however, must be balanced with program acceptability. As it was, families reported in posttest interviews that the program was too long. An increase in program length may reduce program acceptability, lose the attention of the audience, and thereby further diminish the acquisition and generalization of skills. Program acceptability may be enhanced by augmenting the entertainment value of the program, increasing family motivation, or expanding the level of professional direction associated with the program. Another alternative is to

prioritize the targeted skills, placing greater emphasis on the most critical target behaviors and settings.

More robust effects may result, for example, if the program focused on the generalization of the specific problem-solving skills that were lacking in the families' conversation performances. After viewing the program most skill group families failed to generate more than two solutions, state more than one appraisal, or plan a course of action. Training focused on planning and on the volume of responses (brainstorming and evaluating multiple suggestions) may be beneficial.

No significant group differences were found in effectiveness ratings by independent observers of problem-solving ability in the recorded conversations, parent perceptions of their problem-solving ability as assessed by the PSI, and family member ratings of the program's effects on their ability to cope with family problems. Family member ratings of program enjoyment and of personal satisfaction with the family's management of interpersonal problems at home also reflected no significant group differences.

On the one hand, these findings raise some doubts about the program's social validity. Had the skill families acquired meaningful gains in problem-solving ability, significant group differences in these measures should have

been observed (e.g., greater perceived effectiveness and lower family problem ratings in the skill group). On the other hand, the fact that the skill group's ratings of perceived effectiveness and enjoyment were not lower than the controls, and the family problem ratings were not higher than the controls, supports the program. These findings provide evidence that program exposure does not iatrogenically aggravate family programs or otherwise distress its viewers.

Further support for the program comes from the assessments of degrading comments and digressive statements about additional problems in the recorded conversations. These assessments found a reduced incidence of these behaviors in skill families, and an increased incidence of these behaviors in control families, at posttest and follow-up. The group differences in the incidence of digressive statements in the novel conversation condition at posttest and follow-up were marginally significant. It appears that the skills program did not iatrogenically aggravate family problems or increase hostile exchanges in the observed conversations. In fact, exposure to the program may have resulted in a slight reduction in degrading comments and more focused attention on the resolution of a specific problem.

It was observed that teens in both groups were substantially less satisfied with their families management of interpersonal problems at posttest. Because this effect was observed in both groups it is possible that it is a coincidental finding, attributable to factors unrelated to the program (e.g., the end of the school year which coincided with the time of the study). It is possible that this finding is a result of exposure to the HIV information presented in the programs given to both groups. Increased awareness of the HIV risks facing teens may have caused parents to become more vigilant of their teens behavior, inquiring about their friends and activities, as well as their thoughts about dating and sex. While such attention and inquiries are encouraged by the program, it would not be surprising if teens found this parental behavior intrusive, and a threat to their burgeoning independence. If this increase in perceived problems is a result of the HIV program, efforts may be needed to address the problem and determine its impact on the program's efficacy. The increase in perceived family problems by teens at posttest may compromise program acceptability, cause reactance, and result in decreased teen attention to the information.

The limited generalization of acquired skills and the lack of perceived effectiveness demonstrated in this study may be attributable to an insensitivity of the selected

measures to more favorable effects that may have been present. Or, the lack of perceived effectiveness could be a result of an actual failure of the acquired skills to generalize to critical situations. In addition, the lack of perceived effectiveness may be due to the uncertain relevance of the targeted problem-solving skills to the adjustment of normal families with teens.

Functional relevance and generalization are not separate issues. Functionally irrelevant behaviors are unlikely to maintain in the natural environment. But, in order for even functionally relevant skills to affect personal adjustment they must generalize to critical in vivo situations. Unless skills training programs pay serious attention to the promotion and evaluation of the generalization of acquired skills it will not be certain whether treatment failures are the result of poorly selected target behaviors or the failure of subjects to perform the behaviors when they are needed.

The development of the *Cartwheels to Car Wheels* project is not complete. More cycles through the formative research process of testing and development are required. Greater attention to the functional analysis of relevant behaviors in in vivo situations and to generalization promotion strategies in this process may produce more favorable results. Efforts may want to focus on establishing stimulus

control of the program on targeted behaviors in the natural environment (Edelstein, 1989). Achieving this goal may still require multiple program revisions, a potentially costly process.

Cost reductions and stimulus control may best be achieved through a process of numerous, small N studies of low production programs. Although large N studies provide more generalizable results, and professional, high production, programs are more marketable and apt to maintain attention, the costs of these projects may preclude the type of intensive formative research required to develop ultimately effective products.

Marketability, audience attention, and the generalization of results are important considerations, but are mostly concerns that pertain to program dissemination. These concerns may be most appropriately addressed at the end stages of the formative research process, after stimulus control of the target behaviors has been demonstrated in more basic program prototypes.

#### *Limitations of the Study*

The use of multiple univariate analyses for the examination of the conversation data increases the probability of Type I error (that a treatment effect will be erroneously found). Given the number of univariate analyses conducted in this study this is a somewhat liberal analysis

approach. Consequently, the significant treatment effects observed in the repeated conversation condition at posttest and the support this provides for the generalization of skills must be viewed with caution.

It is possible that the absence of significant treatment effects in the novel conversations was a consequence of the assessment process. Because these conversations took place after the self-report measures and role-plays were completed, fatigue may have diminished the level of skill performance in these situations. The order of the repeated and novel conversation conditions place additional limitations on the interpretation of the findings. In all cases, at pretest and posttest, the repeated conversation condition preceded the novel conversation condition.

Moreover, fatigue may have compromised skill performances in the repeated conversation condition as well. The naturalistic conversations occurred after the families completed several questionnaires and participated in the role-play assessments. Had these other assessments not preceded the naturalistic conversations the skill group families may have demonstrated greater involvement and skill in the conversations than they did. Future evaluations of the program may need to consider the effects of fatigue and the order of assessments in the experimental design.

Practical and ethical considerations precluded an assessment of family behavior under purely natural circumstances. Several factors distinguish the recorded conversations in this study from naturally occurring family behavior: the families were assisted in the identification of a problem, they were prompted to discuss the problem, they knew their conversations were being recorded, and they were given a limited amount of time to resolve the problem. Any of these factors could affect the generality of the findings from this assessment. Moreover, emotionally charged problems were often excused from these assessments even though they may represent the most critical circumstances where problem-solving skills are needed. Emotional states can negatively affect problem-solving performance (Masters, Felleman, & Barden, 1981). Thus, the dismissal of some emotional issues from the assessment further restricts the generality, and clinical significance, of the study's findings. Due to these artificial aspects of the situation these conversation conditions might more appropriately be termed *minimally structured* than naturalistic.

Still, these minimally structured conversations captured a high degree of authenticity and were significantly less contrived than the role-play assessments. The recorded conversations focused on genuine problems

currently concerning family members. Although the families knew they were being recorded, they often selected serious problems for discussion, and demonstrated a remarkable willingness to engage in candid conversations. Furthermore, the recordings of these conversations indicated that the assessments were affected by common circumstances of family life. Interruptions by pets, siblings, telephones, door bells, and other scheduled activities were regular occurrences. Parents often exclaimed in exasperation that such events were typical. Despite the somewhat artificial aspects of these assessments, the minimally structured conversations examined in this study appear to represent a reasonable sample of behavior in the home and a degree of naturalism uncommon in the literature.

In addition, it is not clear how the restriction of emotional topics from the assessment might have affected the observed treatment effects. Parent ratings of the five problem areas recommended for the naturalistic conversations taken from the family problem ratings indicated a generally low level of concern about the selected topics (posttest,  $M = 2.65$ ,  $SD = 1.19$ ; follow-up,  $M = 1.14$ ,  $SD = 0.48$ ). More emotional topics, conversations with greater perceived importance, may have occasioned more involvement and resulted in a greater volume of problem-solving responses than was observed. Had the selected topics represented a

greater range of concern greater variance in family problem-solving performances may have been observed.

Another limitation involves the depth of the investigation. The assessments of iatrogenic effects and program acceptability were restricted to a few simple measures of a few relevant factors. More extensive assessments may have been more sensitive to the effects of the program and differences in program acceptability. But, the need for more extensive assessment must be weighed against the factor of fatigue. As it was, families appeared overwhelmed with the extent of the assessment tasks that were required.

Scores from the FACES-III characterized the sample of families who participated in this study as unusually unstructured and cohesive. It is not surprising that the sample of families participating in this study would have these characteristics, given that the subjects recruited for this study were an essentially self-selected sample. Highly cohesive families can be expected to have a greater interest in a family oriented health education program than families that are less involved with each other, separated or disengaged. Unstructured families are more apt to have the flexibility to deviate from their daily routines to participate in the study.

The uniqueness of the sample, however, may not present a methodological problem. Self-selection is an inherent aspect of self-help programming. Once a program is made available to the public people are free to use or to ignore it. Those people who choose to use a program can be expected to have different interests and inclinations than those who do not. The audience of a self-help media program is typically unique and self-selected. Thus, research in this area should recruit subjects via a self-selection process to appropriately match the characteristics of the study sample with the characteristics of the probable audience (McMahon & Forehand, 1981; Rosen, 1981).

### *Summary and Conclusions*

Self-help video programs are extremely popular. But, few of the many programs that have been disseminated have been scientifically designed, and few have demonstrated effectiveness. The findings of the present evaluation of the *Cartwheels to Car Wheels* skill training program provided assurances that the program does not aggravate family problems, and evidence that the program may reduce some aspects of family conflict. Evidence is provided to support the generalization of acquired problem-solving skill to naturalistic conversations about previously discussed family problems. However, generalization to novel conversations was not demonstrated. More robust and broader generalization effects are needed.

Media-based behavior change programs offer great promise as a means of widely disseminating effective behavioral services to the public. The outcomes of the present study illustrate the importance of generalization and social validity issues in the design and evaluation of these programs. The findings also illustrate the value of an empirical and formative approach to media design, through which behavioral efficacy can be evaluated, and programs adjusted to provided maximum benefits.

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## Appendix A: Instructions to Assessors

### Initial Information

**Tape #:** Be sure your transcript, tape, and score sheet numbers match before you begin to read each transcript.

**Selected Problem:** Many statement definitions in this manual refer to "the selected problem"; the problem that the family is supposed to attempt to resolve in the conversation. Before you begin to read each transcript, take notice of this topic as it is defined on the family's score sheet.

**Scorer:** Enter your initials.

### General Instructions

#### Read and Listen to the Tape

Begin the scoring process by listening to the audio recording of the conversation you are about to score. Read the transcript while you listen. Listen to the complete conversation at least once. You may listen to the conversation several times, or pause or rewind the tape if it is needed.

Correct any transcription errors you should discover while listening to the tape. If a transcript appears to be very different from what you are hearing make note of the problem on your score sheet and stop scoring the transcript.

Once you have listened to the conversation, carefully read the transcript a second time and label all relevant statements with the appropriate codes as described in this manual. As you will see, statement codes are grouped into two general categories; Problem-Solving and Communication. First, code only statements that correspond to the Problem-Solving category. Then, read the transcript again, for a third time, and code all statements that fall within the Communication category.

#### Coding Statements

To code statements in the transcript, identify statements that match any of the specific statement categories described in the following pages. When a statement matching one of the categories is identified,

write the corresponding code for that statement in the left margin of the transcript on the line where the statement appears. If more than one code appears to be appropriate for a particular statement label the statement with all codes that apply.

### What are Statements?

Statements are expressions of singular ideas and often appear in the transcripts as single sentences. Frequently, however, the speakers do not speak in complete sentences, or they may use run-on sentences that include several ideas. In these cases be sure to score each expressed idea regardless of the sentence structure. In these cases, place slash marks in the transcript to distinguish discrete ideas.

Speakers also often speak redundantly, repeatedly expressing the same idea *before another person responds* (e.g., "Ok. Ok. Ok"). In these cases treat the expressed redundancy as a single idea and code it only once.

### Completing the Score Sheet

When you are finished reading and coding the transcript, reread the transcript, and check the accuracy of your codes. Correct any errors you discover.

Once you are confident of the accuracy of your codes, count the number of times each code was attributed to each speaker and enter these frequency counts on the family's score sheet.

## Statement Categories and Codes

### Problem Solving

Statements in the Problem-Solving Category should be coded only once, at the point where the idea first appears in the transcript.

#### Alternative Solutions (S)

Refer to stated actions suggests as a means for solving the selected problem.

If several distinct solutions are suggested, code and number each unique suggestion according to the order of appearance (i.e., S-1, S-2). The objective is to keep track of the number of alternatives that each family considers. Alternative solutions should reflect the range of options considered by the family.

Solution statements do not have to be well detailed or fully developed proposals for action. These statements may be mere suggestions of a general course of action, or non-action (e.g., "leave things the way they are"), or a recommended change of attitude (try to be more sensitive to others").

Often it is difficult to determine if a statement represents a true alternative deserving a separate code, or if the statement is simply a further development of an already presented idea. In order to assign a separate code for a presented idea the family should show evidence of considering the idea as an alternative to a previously suggested solution. Alternative solutions reflect either/or thinking (e.g., we could do either X or Y).

Examples:

"You could just give me \$10 each week" (When the problem is that the teen wants an allowance).

"Or, you could get a job to earn some personal money" (Alternative solution).

"We could get a second phone" (where the selected problem regarded the teen's extensive use of the phone).

"We could all move out. Then you can have the phone to yourself!"

#### Appraisals (A).

Refer to any *explicit* statement of a *perceived benefit, advantage, or problem* associated with a previously suggested solution to the selected problem.

Include in this category any statements that simply reflect a person's feelings about a suggested solution (e.g., "I like that idea." or "I don't think dad will like that idea.")

Explicit in these definitions means that the statement, or an immediately preceding or following statement, contains a reference to the suggested solution. Be sure to credit only appraisals of the basic solution. Do not credit appraisals of subordinate details of suggested solutions.

Examples:

"If we got a second phone line then it wouldn't matter how long I was on the phone."

"The problem with your suggestion is that we can't afford a second phone line".

### Chooses a Solution (Ch).

The family reaches a decision, consensus, or compromise as to how to manage the problem situation. *After one family member states that a particular solution is preferred, at least one other member agrees, and no further objections, conditions for acceptance, or preferred alternatives are raised.* Use this code to mark the point in the transcript where this consensus is made. When completing the score sheet simply indicate whether such a consensus was ever met by the family.

### Detail Statements (DS)

Details are statements that elaborate, or impose contingencies (conditions) on a previously suggested solution.

Discriminating details from alternative solutions is one of the most difficult aspects of this coding process. Several considerations should ease these discriminations and facilitate agreement between assessors.

1. Remember, if an idea is considered as an alternative to an earlier idea (either X or Y) than it must be coded as an alternative solution.

2. If a presented idea is merely subordinate, supplementary, or an addition to an already proposed solution than it is probably a detail (e.g., X with Y; X and Y). Whereas alternative solutions reflect the range of

ideas considered by the family, details should reflect the depth of consideration given to a particular idea.

3. If the difference between two ideas is simply one of degree (more or less of something) than the second idea is a merely a detail (e.g., getting \$5 allowance versus getting \$10 allowance).

4. If you are unable to clearly determine which code is most appropriate for a particular statement you should assign an alternative solutions code.

Examples:

"We could put the second line in my room."

"The only way we could do that is if you paid for it."

#### Implementation Plans (IP)

Refer to details that *occur after a solution is chosen* and refer to the details of what they would have to do in order to implement the solution.

Example:

"We'll go to the phone store on saturday to get a second phone, and each month you will pay \$10 from your allowance toward the bill for that line."

#### Back-Up Plan (BU).

Statements about what they will do if their chosen solution does not work. These statements may reflect detailed contingency plans or be a simple proposal to discuss the situation again. These statements must occur *after* a solution is chosen.

Examples:

"If you can't make that payment we will have to discontinue the line, and then we'll have to set a limit of no more than 30 minutes of calls per night."

Degrading Comments (DC)

Demeaning statements, name-calling, or unreasonable or extreme characterizations of another person or their ideas, and threats (not including statements of non-physical disciplinary action by parents).

Examples:

"That jerk, Mr. Jones, won't let us talk in study hall."

"What are you deaf."

"You must be from Mars".

"That's a stupid idea"

Additional problems (AP)

Refer to problems/concerns that are raised that are not directly related to the resolution of the selected problem.

Examples:

"Well not only do you use the phone to much , but you never do your chores."

"I'd like to talk about something else, like the way you always hog the TV."

***Appendix B: Standardized Tests***

## FACES III

David H. Olson, Joyce Portner, and Yoav Lavee

---

1	2	3	4	5
ALMOST NEVER	ONCE IN AWHILE	SOMETIMES	FREQUENTLY	ALMOST ALWAYS

---

## DESCRIBE YOUR FAMILY NOW:

- 1. Family members ask each other for help.
- 2. In solving problems, the children's suggestions are followed.
- 3. We approve of each other's friends.
- 4. Children have a say in their discipline.
- 5. We like to do things with just our immediate family.
- 6. Different persons act as leaders in our family.
- 7. Family members feel closer to other family members than to people outside the family.
- 8. Our family changes its way of handling tasks.
- 9. Family members like to spend free time with each other.
- 10. Parent(s) and children discuss punishment together.
- 11. Family members feel very close to each other.
- 12. The children make the decisions in our family.
- 13. When our family gets together for activities, everybody is present.
- 14. Rules change in our family.
- 15. We can easily think of things to do together as a family.
- 16. We shift household responsibilities from person to person.
- 17. Family members consult other family members on their decisions.
- 18. It is hard to identify the leader(s) in our family.
- 19. Family togetherness is very important.
- 20. It is hard to tell who does which household chores.

**Problem-Solving Inventory**

Read each statement, and indicate the extent to which you agree or disagree with that statement, using the following alternatives:

- |                      |                         |
|----------------------|-------------------------|
| 1 = Strongly agree   | 4 = Slightly disagree   |
| 2 = Moderately agree | 5 = Moderately disagree |
| 3 = Slightly agree   | 6 = Strongly disagree   |

- \_\_\_ 1. When a solution to a problem was unsuccessful, I did not examine why it didn't work.
- \_\_\_ 2. When I am confronted with a complex problem, I do not bother to develop a strategy to collect information so I can define exactly what the problem is.
- \_\_\_ 3. When my first efforts to solve a problem fail, I become uneasy about my ability to handle the situation.
- \_\_\_ 4. After I have solved a problem, I do not analyze what went right or what went wrong.
- \_\_\_ 5. I am usually able to think up creative and effective alternatives to solve a problem.
- \_\_\_ 6. After I have tried to solve a problem with a certain course of action, I take the time and compare the actual outcome to what I think should have happened.
- \_\_\_ 7. When I have a problem, I think up as many possible ways to handle it as I can until I can't come up with any more ideas.
- \_\_\_ 8. When confronted with a problem, I consistently examine my feelings to find out what is going on in a problem situation.
- \_\_\_ 9. When I am confused with a problem, I do not try to define feelings into concrete or specific terms.
- \_\_\_ 10. I have the ability to solve most problems even though initially no solution is immediately apparent.
- \_\_\_ 11. Many problems I face are too complex for me to solve.
- \_\_\_ 12. I make decisions and am happy with them later.
- \_\_\_ 13. When confronted with a problem, I tend to do the first thing that I can think to solve it.
- \_\_\_ 14. Sometimes I do not stop and take time to deal with my problems, but just kind of muddle ahead.
- \_\_\_ 15. When deciding on an idea or possible solution to a problem, I do not take time to consider the chances of each alternative being successful.
- \_\_\_ 16. When confronted with a problem, I stop and think about it before deciding on a next step.
- \_\_\_ 17. I generally go with the first good idea that comes to mind.
- \_\_\_ 18. When making a decision, I weigh the consequences of each compare them against each other.
- \_\_\_ 19. When I make plans to solve a problem, I am almost certain them work.
- \_\_\_ 20. I try to predict the overall result of carrying out particular course of action.

- \_\_\_\_21. When I try to think up possible solutions to a problem, I do not come up with very many alternatives.
- \_\_\_\_22. In trying to solve a problem, one strategy I often use is to think of past problems that have been similar.
- \_\_\_\_23. Given enough time and effort, I believe I can solve most problems that confront me.
- \_\_\_\_24. When faced with a novel situation I have confidence that problems that may arise.
- \_\_\_\_25. Even though I work on a problem, sometimes I feel like I wandering, and am not getting down to the real issue.
- \_\_\_\_26. I make snap judgments and later regret them.
- \_\_\_\_27. I trust my ability to solve new and difficult problems.
- \_\_\_\_28. I have a systematic method for comparing alternatives and making decisions.
- \_\_\_\_29. When I try to think of ways of handling a problem, I do not try to combine different ideas together.
- \_\_\_\_30. When confronted with a problem, I don't usually examine what sort of external things in my environment may be contributing to my problem.
- \_\_\_\_31. When I am confronted by a problem, one of the first things I do is survey the situation and consider all the relevant pieces of information.
- \_\_\_\_32. Sometimes I get so charged up emotionally that I am unable to consider many ways of dealing with my problem.
- \_\_\_\_33. After making a decision, the outcome I expected usually matches the actual outcome.
- \_\_\_\_34. When confronted with a problem, I am unsure of whether I can handle the situation.
- \_\_\_\_35. When I become aware of a problem, one of the first things I do is to try to find out exactly what the problem is.

### *Appendix C: Characteristics of the Sample*

Comparisons of the demographic and family function characteristics of the two treatment groups were conducted at each stage of attrition to ensure that the reduction in the sample was not related to the characteristics of the groups. Table 11 presents this data for the 53 posttest families and the 41 follow-up families with complete sets of data. The characteristics of the original 69 families at pretest are also presented for comparison.

Group differences in family characteristics at each stage of attrition were examined using multiple analysis of variance (MANOVA) procedures. These analyses revealed no significant group differences in the assessed characteristics in any phase of the study: pretest ( $F = 0.31$ ,  $df = 6,62$ ,  $p = .93$ ), posttest ( $F = 0.51$ ,  $df = 6,46$ ,  $p = .80$ ), or follow-up ( $F = 0.57$ ,  $df = 6,34$ ,  $p = .75$ ). Chi-Square analyses of teen gender and the number of parents living at home also revealed no significant group differences in any phase:  $\chi^2(1)$  ranged from 0.00 to 1.03,  $p$  values ranged from .60 to .95 (Yates correction was applied where it was appropriate).

Although 84 percent of the selected families were two parent households, a relatively small percentage of fathers

participated in the study. Table 12 presents the number of families in each group and assessment phase in which both

**Table 11. Characteristics of the Sample Across Stages of Attrition: Means, Standard Deviations, and Frequencies.**

		Pretest (N=69)		Posttest (N=53)		Follow-Up (N=41)	
		Skill (n=34)	Control (n=35)	Skill (n=25)	Control (n=28)	Skill (n=18)	Control (n=23)
Family Cohesion	M	40.3	41.0	39.9	41.2	40.4	40.0
	SD	4.8	4.5	4.5	4.3	4.2	4.5
Family Adaptability	M	27.2	27.0	27.9	27.4	27.5	26.3
	SD	4.9	4.9	4.9	5.0	5.5	4.2
Distance from Center	M	7.3	6.9	7.2	7.1	7.2	6.0
	SD	2.4	3.3	2.8	3.4	3.0	2.8
Parent Age	M	41.8	42.1	41.7	42.4	42.2	42.4
	SD	4.5	4.0	4.8	4.2	5.2	4.6
Parent Education (years)	M	14.8	14.7	14.7	14.8	15.0	14.3
	SD	2.3	2.3	2.4	2.4	2.6	2.3
Teen Age	M	12.9	12.9	12.9	13.0	12.8	13.0
	SD	.66	.66	.64	.68	.71	.67
Teen Gender (frequency)	Male	19	19	13	15	9	9
	Female	15	16	12	13	10	13
Number of Parents Living at Home	1	5	6	5	4	3	4
	2	29	29	20	24	15	19

parents, only mothers, and only fathers participated. At pretest, 91 percent of the families had mothers who participated. Families with participating fathers at pretest represented only 43.8 percent of the overall sample.

These percentages remained quite constant across assessment phases.

Parental participation in each assessment phase was subjected to a 3 X 2 Chi-Square analyses (mother only, father only, and both parents X group). These analyses evidenced no significant group differences in parental participation in any of the assessment phases ( $X^2$  ranged from 3.47 to 3.85,  $df = 2$ ,  $p$  ranged from .15 to .18).

**Table 12. Parental Participation in the Study; Percentages and Frequencies per Group and Phase.**

	Pretest (N=69)		Posttest (N=69)		Follow-Up (N=46)	
	Frequency	(Percent)	Frequency	(Percent)	Frequency	Percent
<b>Both Parents</b>						
Skill	17	(24.6)	14	(20.3)	6	26.4
Control	10	(14.5)	8	(11.6)	8	11.3
Total	27	(39.1)	22	(31.9)	14	37.7
<b>Mother Only</b>						
Skill	15	(21.7)	18	(26.1)	14	18.9
Control	21	(30.4)	21	(30.4)	14	32.1
Total	36	(52.2)	39	(56.5)	28	50.9
<b>Father Only</b>						
Skill	2	(2.9)	2	(2.9)	0	3.8
Control	4	(5.8)	6	(8.7)	4	7.5
Total	6	(8.7)	8	(11.6)	4	11.3

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August 27, 1993

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*Education*

- |       |      |  |
|-------|------|--|
| B.A.  | 1980 | The State University of New York, Binghamton.<br>Psychology.   |
| M.A.  | 1988 | West Virginia University, Morgantown.<br>Clinical Psychology.  |
| Ph.D. | 1993 | Virginia Polytechnic Institute and State<br>University, Blacksburg.<br>Clinical Psychology (APA Approved). |

*Clinical and Research Experience*

McGuire Veterans Administration Medical Center, Richmond, VA. Predoctoral Intern. Full-time position, Sept., 1992 - Sept., 1993.

Clinical Activities - Consultation and referral with medical staff. Individual, group, and couples therapy, and assessment with inpatient and outpatient adults. Principle case work has involved neuropsychological assessment of geriatric and head injured patients, assessment and treatment of substance abuse, PTSD, psychotic disorders, personality disorders, somatization disorders, obesity, coronary risk behavior, and adjustment disorders involving the problems of aging, medical conditions, terminal illness, and bereavement.

Rotations - Health Psychology, Neuropsychology, and Substance Abuse.

Virginia Polytechnic Institute and State University, Department of Psychology, Center for Research in Health Behavior, Blacksburg, VA. Research Assistant. Part-time position, Jan 1989 - Aug 1991.

Research Activities - Assisted with the design and evaluation of an NIMH funded AIDS prevention video program. Duties included formative research, the development of assessment measures and procedures, script writing, supervision of production crews and research assistants, and data collection and analysis. Assisted with the implementation of additional projects: a nation-wide social diffusion program for AIDS prevention in small cities, and an investigation of exercise habits of the elderly.

Virginia Polytechnic Institute and State University, Department of Psychology, Psychological Services Center, Blacksburg, VA. Predoctoral Practicum Student. Part-time position, Aug 1988 - May 1991.

Clinical Activities - Psychological treatment and assessment of outpatient adults, children, and families. Primary case work involved conduct disorders, ADHD, academic underachievement, depression, anxiety, personality disorders, marital conflict, somatization disorders, adjustment disorders, and bereavement. Supervised first year clinical students during my final year.

Case Western Reserve University, Rainbow Babies and Children's Hospital, Medical Behavior Center, Cleveland, OH. Psychology Assistant. Full-time position, Aug 1987 - Aug 1988.

Clinical Activities - Psychological assessment and treatment and of inpatient and outpatient children and families. Primary case work involved eating disorders in adolescents and infants, conduct disorders, ADHD, academic underachievement, developmental disabilities, somatization disorders, and compliance with medical regimens. Consultation and referral with medical staff. Supervision of nursing staff implementation of behavioral treatment programs.

Johns Hopkins University School of Medicine, The Kennedy Institute, Baltimore, MD. Masters Intern. Full-time position, Jan 1987 - June 1987.

Clinical Activities - Psychological treatment and assessment of outpatient children and families. Primary case work involved child conduct disorders, ADHD, academic underachievement, and parent skill deficits.

Research Activities - Data collection and analysis in a study of parent-child behaviors related to childhood injury; Assisted in the development of a successful NIH research proposal investigating psychological factors in the utilization of medical services.

The Summit Center for Human Development (a Community Mental Health Center), Clarksburg, WV. Masters Practicum Student. Part-time position, Aug 1985 - Dec 1986.

Clinical Activities - Psychological assessment and treatment of children, adults, couples, and families. Primary case work involved anxiety disorders, depression, personality disorders, conduct disorders, substance abuse, marital conflict, domestic violence, and crisis intervention.

The May Institute/Harvard University School of Medicine, Home-Based Early Intervention Project, Boston MA. Research Assistant/Teacher. Full-time position, Oct 1984 - Aug 1985.

Clinical Activities - Treatment and education of outpatient autistic children, parent and teacher training, school consultations, home and school evaluations.

Research Activities - Data collection and analysis in a field study of a parent-teacher training program.

The May Institute, Chatham, MA. Teacher. Full-time position, Oct 1980 - Oct 1984.

Clinical Activities - Assessment, education, and treatment of inpatient children with autism and related disorders, development and evaluation of educational programs, immediate supervision of teaching staff.

The State University of New York, Children's Unit for the Learning Disabled, Binghamton, NY. Teacher. Full-time position, Jan 1980 - Oct 1980.

Clinical Activities - Assessment and education of children with learning disabilities, conduct, and attention deficit disorders.

The State University of New York, University Counseling Center, Binghamton, NY. Undergraduate Intern. Part-time position, Aug - Dec 1979.

Clinical Activities - Assisted with the implementation of a structured group counseling program for socially withdrawn college students, provided crisis counseling at the university emergency center.

The state University of New York, Department of Psychology, Binghamton, NY. Research Assistant. Part-time position, Aug - Dec 1979.

Research Activities - Assisted with experiments and the data analysis of cognitive factors in the classical conditioning of physiological responses in humans.

### ***Teaching Experience***

Virginia Polytechnic Institute and State University, Department of Psychology, Blacksburg, VA.

#### ***Courses***

Personality, Spring 1992

Learning, Fall 1991

Introduction to Psychology, Spring 1989 (with Scott Geller Ph.D)

Abnormal Psychology, Fall 1988 (with Russell Jones Ph.D.)

Colombo-American Language Institute, Universidad de Los Andes, Bogota, Colombia, South America, in conjunction with the State University of New York at Stony Brook. An undergraduate internship abroad.

#### ***Courses***

English, Spring 1978. (A course taught to spanish speaking adults.)

Ciudad de Los Ninios, Universidad de Los Andes, Bogota, Colombia, South America, in conjunction with the State University of New York at Stony Brook. An undergraduate internship abroad.

### ***Courses***

Social Studies, Spring 1978. (A course taught at the high school level in a program for disadvantaged youths.)

### ***Editorial Activities***

Student Editor, American Journal of Community Psychology, 1990.

### ***Appointments***

Faculty Committee, Student Representative, Department of Psychology, West Virginia University, 1985 - 1987.

Graduate Training Committee, Student Representative, Department of Psychology, West Virginia University, 1986 - 1987.

### ***Thesis and Dissertation***

*Instruction specificity and the sensitivity of rule-governed behavior to contingency changes.* Masters Thesis. West Virginia University, Morgantown. Chair: Philip N. Chase, Ph.D.

*A Self-Help Problem-solving Video for Parents and Teens: Social Validity and Generalization of Acquired Skills.* Doctoral Dissertation. Virginia Polytechnic Institute and State University, Blacksburg. Chair: Richard A. Winnett, Ph.D.

### ***Publications***

Winnett, R. A., Anderson, E. S., Moore, J. F., Taylor, C. D., Hook, R. J., Webster, D. A., Neubauer, T. E., Harden, M. C., & Mundy, L. L. (1993). The efficacy of a home-based HIV prevention video program for teens and parents. *Health Education Quarterly*.

Finney, J. W., Hook, R. J., Friman, P. C., Rapoff, M.A., & Christophersen, E. R. (1993). The overestimation of adherence to pediatric medical regimens. *Childrens Health Care*.

Winett, R. A., Anderson, E. B., Moore, J. F., Sikkema, K. J., Hook, R. J., Webster, D. A., Taylor, C. D., Dalton, J. E., Ollendick, T. H., & Eisler, R. W. (1992). Family/Media approach to HIV prevention: Results with a home-based, parent-teen, video program. *Health Psychology*.

Cataldo, M. F., Finney, J. W., Richman, G. S., Riley, A. W., Hook, R. J., Brophy, C. J., & Nau, P. A. (1991). The behavior of injured and uninjured children and their parents in a simulated hazardous setting. *Journal of Pediatric Psychology*.

### **Presentations**

Winett, R. A., Anderson, E. B., Moore, J. F., Webster, D. A., Hook, R. J., Taylor, C. D., Neubauer, T. E., Sikkema, K. J., Mundy, L. L., & Winett, E. A. (1992, March). Family/media approach to HIV prevention: Results of efficacy studies with a home-based video program. In A. R. Murrelstein (Chair) *Blue Ribbon Papers: Innovative Approaches to AIDS/HIV Infection*. Paper session (with special citation) presented at the annual meeting of the Society for Behavioral Medicine, New York City.

Hook, R. J. (1990). A home AIDS prevention video. In R. A. Winett (Chair) *Dissemination of Health and Behavioral Information*. Paper presented at the annual convention of the American Psychological Association, Boston.

Hook, R. J. (1990). *Instruction specificity and the sensitivity of rule-governed behavior to contingency changes*. Paper presented at the annual convention of the Association for Behavior Analysis, Nashville.

Finney, J. W., Hook, R. J., Friman, P. C., Rapoff, M. A., & Christophersen, E. R. (1988). *Health care providers' predictions of noncompliance*. Paper presented at the annual convention of The Society of Behavioral Medicine, Boston.

Richman, G. S., Cataldo, M. F., Riley, A. W., Finney, J. W., & Hook, R. J. (1987). *Home hazard simulation: Parent-Child behaviors related to proxy measures of injury*. Paper presented at the annual convention of the Association for Behavior Analysis, Nashville.

Egan, P., Gruber, B. K., Hook, R. J., & Luce, S. C. (1984).  
*A simple fading procedure for the treatment of night-time enuresis.* Paper presented at the annual convention of the Association for Behavior Analysis, Nashville.

**References**

Available on request.

Richard J. Hook