CABLE, TWO-WAY VIDEO, AND EDUCATIONAL PROGRAMMING: THE CASE OF DAYCARE

PREPARED FOR THE NATIONAL SCIENCE FOUNDATION

SUE E. BERRYMAN, TORA K. BIKSON, JUDITH S. BAZEMORE

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OCTOBER 1978

Rand
SANTA MONICA, CA. 90406
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In January 1974, the National Science Foundation announced a two-stage competition for the design and implementation of experiments in the public service uses of interactive cable systems. Rand, in cooperation with TeleCable Corporation and South Carolina public service agencies, submitted one of the seven successful proposals for planning funds provided in July 1974 by NSF's Research Applied to National Needs (RANN) program. The products of the seven planning grants were submitted to RANN in January 1975, and awards were made to New York University for work with senior citizens in Reading, Pennsylvania; to Michigan State University for a program for training firemen in Rockford, Illinois; and to Rand and TeleCable for the Spartanburg, South Carolina two-way cable project. This study reports on an experiment that used interactive cable television to upgrade the quality of daycare by educating daycare center directors and caregivers.

The daycare training experiment was one of several educational experiments conducted in Spartanburg. The other experiments involved the use of simple data terminals and the telephone for education in the home. One home series prepared adults to take the state high school equivalency examination; the other was a course in child development for parents. The results are presented in William A. Lucas, Karen Heald, and Judith S. Bazemore, *The Spartanburg Interactive Cable Experiments in Home Education*, R-2271-NSF, forthcoming.

This report on the two-way video experiment serves two purposes. First, the report is written for citizens and public officials who are concerned about the quality of care in daycare facilities and who might wish to consider telecommunications as a means of in-service training for caregivers. Second, it is a preliminary study of the value of two-way video. This particular application may be representative of other areas where in-service training programs are needed, and it suggests how two-way video can be used to produce local program services.
SUMMARY

The Spartanburg daycare experiment examined the use of interactive cable television for in-service education of daycare workers. It addressed two questions: Do interactive televised workshops on child care affect daycare facilities and caregivers in desirable ways? Do participants using two-way video to interact with each other benefit more from the workshops than those who passively watch the interaction on their screens?

The study has implications for both daycare and telecommunications policy. It assesses televised workshops as a way of upgrading the quality of daycare. It also evaluates whether video interaction enhances educational effects, which will affect future decisions by the Federal Communications Commission regarding channel requirements for cable systems.

The design consisted of three conditions:

- A daycare group that received no treatment (control group);
- A group that viewed the workshops on cable television but had no return capacity (one-way group); and
- A group that had the two-way audio and video capacity to observe the workshops and interact with each other and the workshop staff during the delivery of the workshops (two-way group).

Initially we planned to draw the sample from daycare homes because we considered them in greater need of improvement than were centers, but problems in locating such homes and obtaining their acceptance of the workshops caused us to shift to centers. Although we obtained a 63 percent participation rate of full-day centers in the Spartanburg cable area, the 15 that agreed to participate were too few to construct a minimally acceptable sample size for using random assignment to fill all three conditions. Because the one-way and two-way conditions required access to the cable, the centers in the cable area were used for the two treatment conditions and six centers outside of the cable area were used for the control condition. Thus, there was a random assignment design for the preferred delivery mode and a quasi-experimental design for the effectiveness of televised workshops.

The workshops ran five days a week for a total of 65 hours of interactive programming and five hours of reruns. The topics included center management as well as issues that could be expected to affect the sound development of children—such as cognitive development, health and safety, and social-emotional development. Most of the program material was locally developed.

From the perspective of daycare policy, we judged the benefits of the workshops on the basis of four criteria: (1) whether care facilities and caregivers seem receptive to cable-delivered training programs, (2) whether the workshops can reach facilities that care for large proportions of preschool children, (3) whether the caregivers and care facilities reached by the workshops have low exit rates, and (4) whether caregiver education delivered by cable produces desired changes in caregiver and facility characteristics.

The Spartanburg experience indicates that initially the workshop market will probably be restricted to daycare centers. Under certain conditions we might expect
a daycare home market to emerge. For the market that the workshops did reach, the evidence of acceptance is as follows:

- Of the full-day daycare centers in the cable area, 63 percent enrolled in the study; 88 percent of those stayed in the workshops for the duration of 14 weeks.
- Of the directors and caregivers who initially enrolled, 84 percent stayed in the workshops for the duration.
- Of those who stayed in the workshops for the duration, the mean attendance rate for both treatment conditions was 0.53, the rates being considerably higher for caregiver than for director attendees.
- Respondents were asked whether they would recommend the workshops to any caregiver, only inexperienced caregivers, or not recommend them at all: 79 percent would recommend them to any caregiver and 21 percent only to inexperienced caregivers. No one said that she would not recommend them at all.
- Of the one-way participants, 65 percent found the workshops more interesting with interaction than without. Their appraisals (e.g., "realistic," "personal," "involving") suggest the possibility of substituting low budget, technically less sophisticated interactive programs such as the workshops for expensive studio productions.
- The treatment groups ranked alternative cable returns in the following order: audio return > video return > no return. They wanted access to the workshop director during the workshops without being seen by others (audio > video, audio > no return) and preferred the video to the no return condition for reasons of interest and learning.

We concluded that if the workshop market is restricted to centers, a maximum of 5.5 percent of the children in daycare and 11 percent of the hours spent in daycare could benefit from the workshops. Thus, televised workshops may offer a partial (but hardly a general) solution to the problem of upgrading the quality of daycare.

If the exit rates of facilities and caregivers from the daycare system are high, any benefits from the workshops will be temporary unless the workshops reduce the rates. Because of the quasi-experimental design for the control-treatment comparisons, we were unable to determine whether the workshops reduced exit rates. However, data from a national sample of daycare centers and staff and from one Spartanburg sample indicate that centers and caregivers stay in the daycare system for reasonable periods of time.

Outcomes were selected on the basis of the curriculum content; measures were based on observations and interviews. Data were collected at pretest and posttest on (1) the health and safety characteristics of centers, (2) the role definition and aspirations of caregivers, (3) caregivers' cognitive knowledge of child development and managerial principles, and (4) behaviors of caregivers in interaction with children. At posttest the one-way and two-way participants were asked to evaluate their delivery mechanisms, the interactive program format, and workshop schedules.

- Although both conditions show cognitive gains, the one-way group shows greater gain. The differential effect between conditions may be due to the
greater evaluative anxiety in the video condition and its interference with cognitive learning.

- The two-way condition shows some evidence of changes in basic childcare values of the type encouraged by the workshops. Two-way participants know they are visible to the workshop staff and other participants, so the workshop staff may be able to exert more pressure on two-way than on one-way participants to conform to norms espoused in the workshops.

- Neither condition shows differential changes in caregiver-child interactions relative to the control group or to each other. Because all three conditions show pretest-posttest changes consistent with maturation of the children, aging of the daycare group, and change in season, the lack of differential behavioral change is not plausibly attributed to insensitive measurement. Thus, although the workshops seem able to produce limited cognitive and attitudinal changes, they do not affect participant behaviors.

- We expected locally produced, interactive workshops to create a sense of membership in a local daycare and human services network, thereby increasing participants' professional definition of the daycare role. Although we found increases in networking among caregivers across sites, between caregivers and parents, and between caregivers and community services, increases occurred for all three conditions and in different networks. We concluded that (1) the study itself had some networking effect that was independent of the workshops, (2) the workshops had not exploited the networking potential of the interactive television format well, and (3) measures of network effects were not well-matched to the community-specific "traces" that networking effects would have left if they occurred.

In cost, we found that workshops with 40 to 50 participants may be close to the breakeven point in choosing between a local cable or face-to-face training program. Below that number, two-way cable is not attractive. At about that number, cable may be preferable for caregivers who are unable or unwilling to travel to face-to-face workshops.

The cable approach becomes increasingly attractive as the number of participants rises. If, for example, 100 caregivers in Spartanburg had watched half the program hours, the costs would not have increased more than a few hundred dollars. Cost per hour of training would have dropped to $6.38, or about half the cost of a face-to-face workshop in the same group. The electronic approach merits careful consideration when substantial numbers of participants are to be trained.

Whether the workshop benefits are sufficient to justify any specific cost is a matter of judgment. For the daycare center market, interactive cable workshops are not a general solution to caregiver training. However, they enlarge the training options and may be appropriate when travel is a problem. In cost ranges where alternative training delivery methods are somewhat interchangeable, the choice among options depends on local needs, opportunities, and preferences. The one market that the cable televised workshops might reach at costs possibly lower than other outreach delivery options is the daycare home caregiver, who is unlikely to
leave home for training. Because the quality of care is generally lower in daycare homes than in centers, and homes provide much larger amounts of daycare in the nation than centers, daycare homes remain an important audience to try to reach.
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I. INTRODUCTION

This study reports on an experiment that used interactive cable television to upgrade the quality of daycare by educating daycare center directors and caregivers.

The Research Applied to National Needs (RANN) program of the National Science Foundation decided to assess the social benefits of alternative forms of return on two-way cable television systems. The basic forms were no return, data return, voice return, and voice and video return. RANN funded a consortium of The Rand Corporation, Telecable Corporation, and Spartanburg Technical College to develop and evaluate a series of cable television programs designed to (1) test the markets for locally originated service programs selected according to local needs and (2) test the relative social benefits of alternative interactive modes—e.g., voice return only, data return only, voice and video return.

The NSF cable program is a response to the history of requirements imposed by the Federal Communications Commission that major cable systems include a data return (non-voice) capacity. A brief discussion of these requirements will help the reader to understand the factors that shaped the Spartanburg project in general and the daycare experiment in particular.

FEDERAL POLICIES AND INTERACTIVE CABLE

In the 1960s it was expected that interactive cable television would provide an array of services in the home. Through pay cable, varied entertainment would be available—a heavyweight fight, a report on the latest archaeological dig in Crete, and other specialized programs. Or one could call up from a video library a silent movie, a do-it-yourself plumbing program, or an old documentary. Many predicted that home terminals would permit new commercial endeavors, such as ordering clothes or groceries from a home buyer’s guide. A home or business could have a fire alarm tied into the cable system. In the event of fire, a signal would go directly to the firehouse along with a description of the building structure retrieved from a computer memory. Branch banks could use inexpensive data services to increase their efficiency. Public utilities would be read automatically, and peak energy demands could be reduced by remote computer control of nonessential electrical components. Information and referral systems would help clients find what services were available and then move them more efficiently through the local service agencies to get these services.

Education opportunities were expected to proliferate. Homebound and handicapped children could receive elementary and secondary education at home. Adults would take continuing education courses; illiterate adults could learn to read, and others could finish their high school education. Professional education

would include new medical techniques for physicians and special tax courses for small businessmen.*

Together, these services would use coaxial cable to interconnect urban America, or to create what was called a “wired city.” The economic projections for the wired city were based on two assumptions. Everyone agreed that no one service could justify the expense of the hardware, central systems, and operation of an interactive cable system. However, it was assumed that the central facility hardware and the maintenance of the interactive cable system would be shared by hundreds of services, the cost for any one service therefore being low. It was also assumed that terminals would be used in hundreds of thousands of homes across many “wired cities,” thus driving down production costs per terminal unit and enabling each home to buy its own terminal as it wanted access to this collection of services. The dramatic reduction in the price of the pocket calculator was often heard as an analogy to what would happen to home terminal costs. As a result, the cost of any specific service application was discussed as though the technology were almost free: The marginal cost of the hundred and first service on the system would be pennies, and the use of terminals would involve no additional costs because most people would already have them. Thus, the question was not about the cost of any particular service but about the educational effectiveness of such systems and the extent of their market.

It became clear in 1970 and 1971 that wired cities of this sort were not going to appear in the near future. Initially, the economics of the cable industry were held responsible. Construction of interactive cable systems required to carry all of these services cost substantially more than conventional cable systems. The market for new services was not proven, and profits for cable systems continued to come from subscribers wishing to receive better commercial television signals. Because more miles of cable meant more subscribers and greater profit, cable operators built one-way cable instead of more expensive cable for carrying interactive services.

The FCC decided to use its regulatory authority to intervene in this investment pattern by requiring large cable systems to provide a minimum number of channels and to set aside channels for education, government use, and public access. The FCC also required a return data (non-voice and non-video) capacity to create the potential for “surveys, marketing services, burglar alarm devices, educational feedback, to name a few.” The FCC then made a distinction between existing systems and those to be licensed in the future. New cable systems would have to meet these requirements immediately, but systems already licensed had five years to comply to be able to spread out the costs of retrofitting.

By 1975, the cable picture had changed in ways that challenged the appropriateness of the FCC requirements. The cable industry had badly overextended itself, many systems losing money and some of the major multiple operators skirting the edge of bankruptcy. The flood of applications for the public access channel never developed, and that channel is rarely used outside of a few cities. Indeed, at least half of the total cable channel capacity remains dark. The non-voice return capacity

* Examples of reports that discussed these and many other uses of cable are: National Academy of Engineering Committee on Telecommunications (1971); Sloan Commission on Cable Communications (1971); Smith (1971); and Steiner (1972).

has been rarely used, and for a time the development of interactive home cable terminals came to a halt in the United States.

The FCC responded by "postponing indefinitely" the retrofit requirement but left the two-way capacity as a requirement for the licensing of new systems.4

Although the need for return capability of any sort is still debated, many have expressed interest in video return. With a video capability, individuals or groups scattered about a metropolitan area would be able to interact using "live" two-way television. This interest had its roots in the general enthusiasm for the wired city discussed above. It has continued because technological advances may permit the inclusion of a return video capability in future cable systems at low additional cost, and a number of cable systems have been advertised as already having a video return.5

BASIS FOR SELECTING THE DAYCARE VIDEO EXPERIMENT

The purpose of the daycare experiment was to get a better idea of the potential benefits from a return video capability within a specific well-structured service application. This measure of benefit would provide one of a number of inputs necessary for an eventual FCC decision on expansion of its two-way requirement to include video.6

The decision to use daycare training as a way of assessing social benefits of return video was opportunistic. Daycare training met the NSF specifications of being a service desired locally,7 and it was a service conceivably relevant to other cabled cities.

It tested the utility of the FCC regulation that reserved channels for educational purposes. There are few ways of upgrading daycare arrangements. The federal and state governments have established licensing requirements, but they are directed primarily at the physical environments of daycare facilities and are difficult to enforce. Daycare is a labor-intensive service, and its quality is most directly upgraded by educating those who provide it.

Electronic delivery of education in the daycare field is potentially a suitable means of delivery. Some training programs are available for daycare personnel, but generally they are limited in scope and do not reach many caregivers, who often think of themselves as babysitters, not as professionals, and are not motivated to take courses or attend workshops. Even those who are interested and would like to participate in training programs often cannot do so. The typical caregiver who works in a daycare center in Spartanburg is a woman in her late twenties or early

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4 For a discussion of the postponement and the factors behind it, see Broadcasting, July 14, 1975, p. 22.
5 For example, the report by Malarkey, Taylor and Associates (1971) lists a large number of cable systems. Some are billed as having a return video capability.
6 Of course, the FCC would be concerned with the cost and technical aspects of imposing new requirements as well as the benefits. The Rand study does not address the cost and technical sides, however, because future technological configurations of cable systems would render the Spartanburg experience of little value. Such questions can be more usefully addressed by an examination of some of the more advanced cable systems now being built—Warner Cable's Columbus, Ohio system, for example.
7 The Department of Social Services of Spartanburg County identified caregiver education as a high priority social service.
thirties who has her own children. Those demands, plus an eight hour a day job, mean few opportunities for additional training. Telecommunications offers the opportunity to deliver the training to the caregiver in her job setting.

Daycare training tested the social utility of a two-way video capacity in cable systems. As an educational intervention, the workshops could test the commonly advanced hypothesis that video interactions between student and teacher enhance educational effects. A two-way video program with several local sites also has the potential of creating a sense of community, however electronically linked. Addressed to an audience that tends to need a sense of belonging to a professional community, the workshops could test the networking potential of two-way video.

DESCRIPTION OF THE DAYCARE EXPERIMENT

The two-way video daycare experiment addressed two questions.

- Whether interactive televised workshops on child care increase participants' knowledge about children and change their attitudes and behaviors toward them; and
- Whether participants in audio and video interaction with the workshop director and other participants benefit more from the workshops than participants who simply watch this two-way interaction on their screens.

Briefly, the experiment involved three groups of caregivers. Two groups (the one-way and two-way groups) received the workshops through television sets hooked up to the TeleCable system. The third group (the control group) received all the same contacts as the one-way and two-way groups (e.g., pretest and posttest measurement) but did not receive the workshops in any form.

The small population of centers in Spartanburg meant small sample sizes in all conditions. In the control condition there were 11 participants within six centers; in the one-way condition, 14 participants within eight centers; and in the two-way condition, 16 participants within eight centers. Centers within the cable area were reserved for and randomly assigned to the one-way and two-way conditions. The control group had to be formed from centers outside of the cable area. Thus, comparisons between the one-way and two-way conditions were based on an experimental design but between treatment and control groups on a quasi-experimental design.²

Centers with two-way participants had both a television set for receiving workshops and a microphone and camera return capacity. Thus, two-way participants were able to communicate verbally and visually with the workshop director and with other two-way participants. Centers with one-way participants had only a television set and no return capacity. However, the workshops they watched incorporated all interactions among the workshop director and two-way participants. Although one-way participants could and did telephone the workshop director after the workshop, this practice was not encouraged.

The workshops ran from January 5 to April 9, 1976, from 1 p.m. to 2 p.m., five days a week, for a total of 65 hours of interactive programming and five hours of

² In an experimental design the groups are presumed comparable to each other before the intervention; they are not presumed comparable in a quasi-experimental design.
reruns. All programs were broadcast live for all workshop participants. The topics included center management as well as issues that could be expected to affect the sound development of children (e.g., health and safety, social-emotional development). Most of the program material was locally developed, and at least a portion of each program featured two-way participants and centers.

To judge the effects of televised workshops and alternative delivery modes, we examined changes in center environments and caregiver knowledge, attitudes, and behaviors, comparing treatment groups with controls and the one-way group with the two-way group. Outcomes were selected on the basis of the curriculum content and measured with observations and interviews. Data were collected at pretest and posttest on (1) the health and safety characteristics of centers, (2) the role definitions and aspirations of caregivers, (3) caregivers’ cognitive knowledge of child development and managerial principles, and (4) behaviors of caregivers in interaction with children. At posttest, one-way and two-way participants were asked to evaluate their delivery mechanisms, the interactive program format, and workshop schedules.

ORGANIZATION OF THE REPORT

The main point of the experiment was to assess the potential of interactive local programming for local service delivery and the educational effects of video return. The experiment was not designed primarily to learn about upgrading the quality of daycare. However, the substance and results of the experiment contain information relevant to the problem. The rest of the report is intended primarily for the daycare audience.

Section II specifies criteria by which to judge the social benefits of using cable television to educate caregivers. Section III describes the design of the experiment; the pretest comparability of experimental conditions; the intervention; the covariate, implementation, and outcome measures; and data analysis assumptions. Section IV describes the results of the experiment. Section V assesses the experiment’s implications for the costs and benefits of using cable-delivered training to upgrade the quality of daycare. Appendix A contains copies of the test instruments; Appendix B, suggestions from our experience for others interested in using cable-delivered daycare training.
II. POLICY ISSUES IN THE USE OF CABLE TO DELIVER DAYCARE TRAINING

We believe public policy decisions to use cable television to educate caregivers should consider eight issues. The first three are relevant to any policy targeted on upgrading the quality of daycare—e.g., licensing regulations, government subsidy of daycare, caregiver workshops at local community colleges. The last five are relevant to any policy decision to use cable television to deliver caregiver education.

POTENTIAL BENEFITS OF UPGRADING DAYCARE QUALITY

The benefits to be derived from upgrading the quality of daycare depend on:

- The need for daycare services,
- The effects of high quality care on the development of children, and
- The need for upgrading the quality of daycare.

Need for Daycare Services

We define the need for child care as the number of preschool children (i.e., children under the age of six years) who have working mothers. The absolute number of preschool children declined from 16,243,000 in 1950 to 15,896,000 in 1975, but the absolute number of those whose mothers are working has increased from 1.5 million in 1940 to 6.5 million in 1975. Thus, in 1975, 40.9 percent of preschool children had working mothers and required either full-day or part-day care by someone other than their mothers, depending on whether their mothers worked full-time or part-time.

These statistics indicate a current need for child care. The next question is whether there is reason to think that the need for daycare will decline in the future. There is a positive secular trend in the labor force participation of mothers of preschoolers, their participation rates increasing from 12 percent in 1950 to 39 percent in 1975. Whether or not this positive trend continues depends on the continuation of incentives that mothers of preschoolers now have for working and on future capacity of the labor market to absorb young females. The future ability of the labor force to absorb increasing

3 In 1975, two-thirds of the mothers with preschool children who worked, worked full-time. See Hayghe (1975), Table F, p. A-23.
4 Low and Spindler (1968), Table M-56, p. 58.
numbers of women in the age group of preschooler mothers is unknown. The absolute number of preschoolers may level off or decline, if the trend toward smaller families continues. However, to the extent that mothers of smaller families are more apt to work than mothers of larger families, the absolute number of preschoolers in need of care may increase.

Effects of Quality Daycare on Child Development

The issue of whether society ought to support and encourage daycare is not the central concern of this report. However, using public resources to sponsor daycare workshops implicitly raises this issue.

The literature is remarkably sparse for a question as important as whether parents should be encouraged to share responsibility for rearing their children with daycare workers. In the context of a National Academy of Sciences study on national policy toward children (1976), Bronfenbrenner reviewed the few, well-designed studies of effects of quality daycare on children. These studies are based on middle class homes and high quality substitute care. In stating his conclusions, Bronfenbrenner notes that the results might be different for lower class homes and average or poor quality daycare.

- Interactions with adults may be more frequent and intense in the home environment than in centers.
- Home may provide more opportunities for cognitive exploration.
- Of four studies on the subject, none revealed differences in children’s cognitive performance under home care versus center care. However, no study has yet provided data beyond age five.
- The existing evidence on the child’s development of human attachments is inconsistent. Some data suggest that daycare is not damaging to the development of such attachments; other data suggest that it is. Because the data do not eliminate the possibility of negative effects, centers should provide continuity of caregivers and high ratios of adults to children, especially for children under three years of age.
- There are clear and consistent differences between home-reared and center children in social behavior in group settings. For example, Schwartz et al. (1974) found that daycare children exhibited more verbal and physical aggression toward both peers and adults. They were less cooperative with adults and engaged in more running about than sitting in one place. They tended to show less tolerance for frustration. Lay and Meyer (1973) found that daycare children interacted more with age-mates than with adults, but the opposite was true for home-reared children.
- Because children in group daycare tend to orient more toward peers than toward adults, the nature of peer groups in our culture should be taken into account. Cross-national studies of daycare suggest that group upbringing can lead to delinquency and violence at one extreme and excessive conformity at the other. American peer groups are not at either extreme, but they tend more toward delinquent than conforming behavior.

*The average number of children 18 years or younger per family has steadily declined from 1.44 in 1965 to 1.34 in 1970 to 1.18 in 1975 to 1.13 in 1977 (Bureau of the Census, personal communication).*
- Child development professionals and parents in the Soviet Union and Sweden, two countries with extensive experience with full-day group care, have been raising questions about the possibly deleterious effects of extended care on very young children.  

On the basis of Bronfenbrenner's review the National Academy report (1976) concludes that the current evidence does not indicate high quality group care is damaging to the development of children. However, the questions being raised in countries having extensive experience with daycare indicate the need for caution in daycare policy and for systematic research on the effects of different child-rearing environments.

**Need for Improved Quality of Daycare**

There is a national need for the daycare of preschoolers, and this need can be expected to continue or even increase. However, television workshops to upgrade the quality of care are useful only if the quality of current (and anticipated future) care is not optimal.

Although most research and policy literature addressed to daycare regards the quality issue as critical, quality is not yet well defined. At minimum, daycare is expected to insure children's physical health and safety. At best, daycare should promote optimal cognitive and psychosocial development. Somewhere between these extremes lie the boundaries of adequate, satisfactory, or desirable care.

Estimates of the present quality of daycare tend to vary with the nature of the caregiving arrangement. The literature contains a variety of daycare arrangements (Low and Spindler, 1968; Rodes and Moore, 1976; Westinghouse-Westat, 1971), some complex. For our purposes three simple distinctions are adequate: in-home care by fathers, other relatives, or non-relatives; family daycare homes—i.e., care in another person's home by a relative or non-relative; and daycare centers. Surveys show that 10 to 32 percent of mothers are currently dissatisfied with their child care arrangements, particularly when the arrangement involves care by non-relatives outside the home (Fein and Clarke-Stewart, 1973). Dissatisfaction is most pronounced among minority mothers, 65 percent of whom would prefer center-
based care to family daycare homes (among all mothers, 49 percent would use group care if it were available). Home based daycare has certain advantages. It is typically situated in a convenient neighborhood location and the hours are flexible. There is a low ratio of children to adults, and the adults tend to be warm, responsive, mature women who enjoy looking after children (Fein and Clarke-Stewart, 1973). These advantages, however, have attendant disadvantages. Because the child to adult ratio is at most six to one, home-based daycare is the most costly of all child care arrangements. Further, for low-income mothers the convenience of neighborhood care is offset by poor housing and inadequate play space; only 5 to 10 percent of family daycare homes are licensed, and it is estimated that only a total of 20 percent would be able to meet licensing requirements (Fein and Clarke-Stewart, 1973; Rothenberg, 1973). Play equipment and program materials are lacking, and there are generally no planned activities. The caregiver's level of education is typically lower than the mother's, and their mutual expectation is that child care will be primarily custodial rather than developmental (Fein and Clarke-Stewart, 1973; Keyserling, 1972).

Although there is concern that home-based daycare may not meet minimal demands for children's health and safety, absence of developmental emphasis is also a significant issue. "One thing seems abundantly clear: efforts to optimize development must begin at an early age" (Bruner, 1971). This consideration suggests that primarily custodial arrangements are no longer to be regarded as minimally satisfactory methods of meeting daycare needs (Fein and Clarke-Stewart, 1973). There is substantial agreement, on these grounds, that the quality of home-based daycare is generally in need of improvement.

Center-based care avoids several of the disadvantages associated with daycare homes. First, centers usually meet licensing standards. Second, although such facilities vary greatly in environmental richness, all provide children with some access to play equipment and program materials. Third, centers offer planned activities of which some proportion are educational in intent. Finally, center facilities are larger, allowing them to enroll larger numbers of children at a much lower cost (Fein and Clarke-Stewart, 1973; Rothenberg, 1973). The latter feature of center-based care, however, also gives rise to concern about quality of service. Because personnel account for a substantial part of the per-child expense, centers tend to keep costs down largely by relying on high child to adult ratios and by employing large proportions of untrained staff at low salaries (Rothenberg, 1973). Low status, low-paying positions inevitably attract the "less employable" and partially explain the high turnover rate among caregivers (Meers, 1971). Because it is the quality of adult mediation of the stimulus environment, not availability of physical facilities, program materials, and planned activities, that distinguishes positive developmental from custodial care, there is reason to question the present adequacy of center-based service (Fein and Clarke-Stewart, 1973). The problem is most serious in the South and inner city areas where center-based care has undergone the most rapid expansion (Rothenberg, 1973) and affects poor and minority parents disproportionately. These parents most need and want developmental care with a substantial educational component for their children, yet they are least likely to get it. The intensity of dissatisfaction among these groups is easily underestimated (Hess et al., 1971). In sum, according to Bruner (1971), "By any conservative estimate of what happens in the preschool years, about half a million of the roughly four million children of each age year in the United States are receiving substandard
care in Day Care, nursery school, Kindergarten, guidance and what not.”

In view of accelerating pressure for expansion of day care services, the problems of insuring quality of care is expected to become more acute (Fein and Clarke-Stewart, 1973). Each year through 1980, 23,000 new caregivers will be needed, the anticipated annual shortage of staff being 18,000 (Chambers, 1971; Rothenberg, 1973). “It is apparent that some of the major problems in Day Care revolve around the education and recruitment of competent child care workers” (Chambers, 1971).

Because quality of staffing is linked to training (Kagan, 1971; Prescott, 1967), and because present and expected staffing demands clearly cannot be met through accredited early childhood education programs, the need for adequately qualified staff requires experimentation with new patterns for educating nonprofessional personnel. Thus, in reviewing early childhood programs, Grotberg (1971) cites training of daycare personnel as a critical area most in need of “immediate research attention.” Similarly, Kagan (1971) calls the training of daycare staff “one of the most pressing and major problems of the future.”

BENEFITS OF CABLE TELEVISION
FOR UPGRADED QUALITY

The usefulness of cable television for delivering the needed education to daycare workers depends on several factors:

- The receptivity of care facilities and caregivers to cable-delivered training programs;
- The ability to reach types of facilities that care for large proportions of the preschoolers in daycare;
- The ability to reach caregivers and care facilities with low exit rates;
- The ability to produce desirable changes in caregivers;
- The reasonableness of delivery costs.

We discuss the first three factors here and the last two in Secs. IV and V.

Market for TV Workshops

If there is no market for cable TV workshops, the question of their desirability is irrelevant. Thus, a first problem is to determine whether there is any a priori or demonstrated market among any of the arrangements. There are three basic daycare arrangements: in-home care, daycare home, and daycare centers. Caregivers in both the in-home and family daycare home arrangements can be relatives or non-relatives. The types of caregivers in these three arrangements suggest two reasons that members of the caregiver population might be attracted to the workshops: parenting and professionalism motivations. Fathers and relatives of the child might be expected to have a parental interest in the workshops; non-relatives might have more of an interest as daycare professionals.

The workshop curriculum of this experiment was designed for caregivers who might define themselves or come to define themselves as daycare professionals. It was targeted at non-relatives who provide care in daycare homes and centers and did not test the market for in-home caregivers. Because the quality of care in
daycare homes is demonstrably worse than that in centers, our initial target groups were non-relatives in daycare homes. However, we were unable to enroll daycare homes for this experiment. There are several possible reasons for this, some of which suggest that there may be only a limited market for TV workshops in daycare homes.

First, caregivers in daycare homes are less apt to define themselves as daycare professionals and therefore less apt to seek career-oriented training. They run small operations, which tend to be short term. Many of the caregivers in daycare homes take in children "on the side"—i.e., in addition to their own preschool children. As the latter leave home for public school, their mothers leave the daycare field. Both the size and duration of these operations militate against a sense of professionalism.

A second cause of a weak market is that most daycare homes are not licensed in Spartanburg—or nationally—and serve small neighborhood areas. Therefore, they are not visible at the community level and are hard to locate. Third, daycare home caregivers are more likely to be threatened by the idea of participating in workshops, particularly ones with return video. They are usually not licensed and often do not report their incomes to the IRS.

In this experiment we changed the target group to caregivers in daycare centers. We found that 63 percent of the full-day centers in the cable area were willing to enter the workshop program, and 88 percent of these stayed in the cable TV workshops for a period of 14 weeks, including those assigned to the more intrusive mode of delivery (return video). An attendance check showed that caregivers in the treatment conditions attended 68 percent of the workshops, and directors attended 34 percent. We do not know if the Spartanburg centers' acceptance of the workshops can be generalized to centers nationally. As Sec. III discusses in more detail, Spartanburg centers differ in degree from a national sample of centers on several variables. It is unknown how relevant these differences are to market considerations.

The daycare center market is limited by the number of cabled cities and availability of the cable in areas where centers are located. Because cable systems are financed by household and corporate monthly subscriptions, they are put into income areas that can afford $6–8/monthly fees for cable access. In Spartanburg—and in cabled cities generally—the system does not extend to poor areas and cannot be used to deliver workshops or other services to households or facilities in these areas. Poor families, especially poor black families, are overrepresented in daycare centers and underrepresented in daycare homes.14 To the extent that centers for

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10 The 1970 OEO survey of daycare found that average enrollment per home was 1.6 children and about half of the homes cared for only one child.

11 In Spartanburg in March 1977, 44 centers and 17 daycare homes were licensed. We do not know the size of the population of either centers or homes and cannot estimate the percent of each class that is licensed. However, we surmise that the population of daycare homes is much larger than 17.

12 In the DOE survey, less than 2 percent of the daycare homes were licensed and almost 90 percent of the centers. The National Childcare Consumer Study: 1975 (Rodes and Moore, 1976) estimated that 10.3 percent of "other home, non-relative" arrangements were licensed. This estimate was obtained by asking users, one in ten of whom either did not know the answer to the question or refused to answer it.

13 There were four half-day centers in the cable area whose staffs went home at noon. Because the workshops were scheduled for the children's naptime in full-day centers (1–2 p.m.), only one of the half-day centers participated in the workshops.

14 The 1970 OEO survey estimated that 49 percent of the parents who used centers and 35 percent of those who used family daycare homes had annual incomes or $5,999 or less. On the basis of the
these children are located near their homes, this type of arrangement may be disproportionately outside of the cable area.

In sum, the market for cable TV workshops seems largely restricted to staff and daycare centers in non-poor areas of a city.

**Distribution of Preschoolers Among Arrangements**

The next question is whether improving the quality of those arrangements will affect a significant number of children in daycare. Since 1965 there have been three surveys that showed the distribution of children among alternative daycare arrangements (Low and Spindler, 1968; Rodes and Moore, 1976; Westinghouse-Westat, 1971). We have used the 1975 *National Childcare Consumer Study* figures, (Rodes and Moore, 1976) to estimate the distribution of children in daycare among different arrangements. The survey was based on a representative sample of all households with children under 14 years of age. Table 1 shows that preschoolers are primarily cared for in in-home or other home arrangements, more frequently by a relative than a non-relative caregiver. Only 5.5 percent of preschoolers in daycare use daycare centers, including Headstart, as either a main or supplementary method of care. The absolute number of preschoolers cared for in centers or Headstart is 734,000; 593,000 of these are 3 to 5 years old, the ages at which center care is considered more appropriate. Thus, any attempt to upgrade the quality of center care can potentially affect about 700,000 preschoolers, about 600,000 being 3 to 5 year old preschoolers.

Another way of estimating the effect of cable TV workshops for daycare centers on children is to ask about the distribution of daycare hours among arrangements. The 1975 *Study* does not report the mean number of hours for centers for children one year of age and under, so we restrict the calculation of hours by arrangement to preschoolers 2 to 5 years old. As Table 2 shows, centers and Headstart account for 6.9 percent of the 2 to 5 year old preschoolers in daycare. However, when these arrangements are used, they are used more heavily than any other, accounting for 11 percent of all daycare hours. Table 3 shows the percent of daycare hours by type of care for 3 to 5 year old preschoolers. Although only less than 8 percent of the 3 to 5 year olds in daycare use centers and Headstart, more than an eighth of the hours spent in daycare by this age group are spent in these arrangements.

It can be concluded that a cable TV service designed to upgrade center care can

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10 The 1975 *Study* may underestimate center and Headstart use. Although respondents were interviewed in their homes, the sample was constructed through a telephone screening of households to locate those with children. As Perl (1975) shows, poor households are less apt to have telephones, although it is not known how the presence of children under 14 years of age affects telephone availability among the poor. Because the poor are the main users of Headstart and disproportionately use centers, their underrepresentation among the "telephone population" may produce an underestimate of Headstart and center use.

11 Child development studies suggest that the younger the preschooler, the more important very small groups of children and small child to adult ratios seem to be. These characteristics more frequently occur in in-home and family daycare home arrangements than in daycare centers. Center and parent enrollment choices seem consistent with developmental findings: The 1970 OEO survey shows that as size of enrollment at centers increases, the proportion enrolled who are under three years of age decreases dramatically.
Table 1

PERCENT AND NUMBER (in thousands) OF CHILDREN USING AT LEAST ONE HOUR OF CARE PER WEEK BY TYPE OF CARE AND AGE (including multiple methods)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Type of Care\textsuperscript{b}</th>
<th>Age of Child in Years</th>
<th>Under 1</th>
<th>1 year</th>
<th>2 years</th>
<th>3 years</th>
<th>4 years</th>
<th>5 years</th>
<th>Total Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own home by relative</td>
<td></td>
<td>48.3%</td>
<td>43.6%</td>
<td>36.4%</td>
<td>36.2%</td>
<td>32.4%</td>
<td>30.7%</td>
<td>37.0%</td>
</tr>
<tr>
<td>Own home by non-relative</td>
<td></td>
<td>33.2</td>
<td>41.4</td>
<td>41.8</td>
<td>41.3</td>
<td>39.9</td>
<td>37.4</td>
<td>39.5</td>
</tr>
<tr>
<td>Other home by relative</td>
<td></td>
<td>52.4</td>
<td>49.0</td>
<td>44.5</td>
<td>44.7</td>
<td>44.1</td>
<td>43.5</td>
<td>45.9</td>
</tr>
<tr>
<td>Other home by non-relative</td>
<td></td>
<td>22.5</td>
<td>31.4</td>
<td>33.1</td>
<td>30.3</td>
<td>27.2</td>
<td>26.9</td>
<td>28.8</td>
</tr>
<tr>
<td>Daycare center, including Headstart</td>
<td></td>
<td>0.6</td>
<td>2.2</td>
<td>3.8</td>
<td>5.3</td>
<td>9.8</td>
<td>8.6</td>
<td>5.5</td>
</tr>
<tr>
<td>Nursery or preschool</td>
<td></td>
<td>1.8</td>
<td>4.8</td>
<td>7.6</td>
<td>16.9</td>
<td>23.9</td>
<td>19.9</td>
<td>13.7</td>
</tr>
<tr>
<td>Co-operative program</td>
<td></td>
<td>2.6</td>
<td>3.4</td>
<td>3.3</td>
<td>4.1</td>
<td>3.6</td>
<td>3.7</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Total number of children (in thousands) | 1,589 | 1,880 | 2,373 | 2,453 | 2,621 | 2,408 | 13,324 |

\textsuperscript{a}Based on Table IV-9, \textit{National Childcare Consumer Study: 1975}, Vol. II, p. 4-19.
\textsuperscript{b}These represent the major types of care for preschoolers by individuals other than their mothers.

Table 2

PERCENT AND NUMBER (in thousands) OF 2-5 YEAR OLD CHILDREN USING AT LEAST ONE HOUR OF CARE PER WEEK BY TYPE OF CARE AND PERCENT AND NUMBER OF DAYCARE HOURS BY TYPE OF CARE\textsuperscript{a}

<table>
<thead>
<tr>
<th>Type of care</th>
<th>Percent of 2-5 year olds using care type</th>
<th>Percent of hours spent by 2-5 year olds in daycare by care type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own home by relative caregiver</td>
<td>33.9</td>
<td>14.9</td>
</tr>
<tr>
<td>Own home by non-relative caregiver</td>
<td>40.1</td>
<td>14.3</td>
</tr>
<tr>
<td>Other home by relative caregiver</td>
<td>44.2</td>
<td>22.0</td>
</tr>
<tr>
<td>Other home by non-relative caregiver</td>
<td>29.3</td>
<td>20.4</td>
</tr>
<tr>
<td>Daycare center and Headstart</td>
<td>6.9</td>
<td>11.0</td>
</tr>
<tr>
<td>Nursery or preschool</td>
<td>17.3</td>
<td>16.3</td>
</tr>
<tr>
<td>Co-operative program</td>
<td>3.7</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Total number of children (in thousands) | 9,855

Total number of hours (in thousands): 187,472.9

\textsuperscript{a}Based on Tables IV-9 and IV-10, \textit{The National Childcare Consumer Study: 1975}, Vol. II, p. 4-19 and 4-21.
Table 3

PERCENT AND NUMBER OF DAYCARE HOURS BY TYPE OF CARE FOR CHILDREN 3-5 YEARS OLD

<table>
<thead>
<tr>
<th>Type of care</th>
<th>Percent of hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own home by relative caregiver</td>
<td>13.3</td>
</tr>
<tr>
<td>Own home by non-relative caregiver</td>
<td>14.0</td>
</tr>
<tr>
<td>Other home by relative caregiver</td>
<td>21.5</td>
</tr>
<tr>
<td>Other home by non-relative caregiver</td>
<td>18.6</td>
</tr>
<tr>
<td>Daycare center and Headstart</td>
<td>13.3</td>
</tr>
<tr>
<td>Nursery or preschool</td>
<td>18.4</td>
</tr>
<tr>
<td>Co-operative program</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Total number of hours (in thousands): 139,588.3


potentially affect only a small proportion of the children in daycare, although preschoolers who have the highest mean number of hours in daycare per week will be most affected.

Caregiver and Facility Exit Rates Among Alternative Daycare Arrangements

Caregiver and facility exit rates affect the extent to which any upgrading of the quality of care delivered by caregivers and facilities stays in the daycare system. If these rates are high, even effective programs to upgrade quality are probably not worth the expenditure unless the programs themselves reduce exit or stable subgroups exist that can be targeted by training programs.

We are unable to locate any national data on caregiver and center exit rates from the daycare field. However, the Westinghouse-Westat survey of daycare (1971) collected data on length of operation for centers and caregivers’ years of experience. Certain assumptions permit inferences about center and caregiver exit rates from the daycare system. If the distributions of entrances to and exits from the system through time are rectangular (uniform), between a fifth and a quarter of the centers enter and exit yearly. Entrance and exit rates are lower for larger centers, two-thirds of the centers with enrollments of 45 to 99 children and 86 percent of the centers with enrollments of 100 or more children being in the daycare system for five years or more. The Westinghouse-Westat study reports only median daycare worker experience by education, not the distribution of length of experience.

*17 Caregiver turnover and exit rates are not the same. A caregiver can change facilities but stay employed in daycare. This is an instance of turnover but not exit from the daycare system. The interest here is in rates of leaving the daycare system entirely.

*18 Because caregivers who see themselves as daycare professionals are less likely to leave the field (Meers, 1971), TV workshops that enhance professional identity can be expected to reduce exit.

*19 Surveys of daycare did not estimate caregiver or facility exit rates. Bibliographic searches revealed no sources that might have such data, and conversations with individuals in the Administration of Children, Youth and Families responsible for daycare confirmed that no national figures on caregiver and facility exit rates exist.

*20 Westinghouse and Westat (1971), Table 2.15, p. 42.
ence. However, under the assumptions made for centers, the entrance and exit rates for workers are similar to those for centers. Because the median period of employment at a center is lower than the median period of experience in daycare, we can conclude that workers' rates of entering and leaving centers are higher than their rates of entering and leaving the daycare field.

The distributions of entrance and exit rates of centers and caregivers may not be rectangular. Nevertheless, these data suggest that large enough subgroups of centers and caregivers stay in the daycare system for sufficient periods of time to realize the benefits from effective training. Because directors have more control over center characteristics than regular staff, benefits for centers depend not only on facility exit rates but also on whether effective training reaches directors. In the Spartanburg experiment, directors had low attendance rates—less than 50 percent of staff rates. These rates may be inherent to TV workshops delivered at centers. For example, directors are apt to have multiple responsibilities at the work site, and their time may be inherently more interrupted than staff time. In that case, even effective TV workshops may not be able to change center properties in desirable ways, despite the reasonable stabilities of these institutions.

CONCLUSIONS

There is a current need for daycare of preschool children, and if the labor force participation rates of preschool mothers continue to increase, the need for daycare can be expected to increase. Bronfenbrenner's review indicates that there is no current evidence that high quality group care is damaging to the development of children. However, other evidence indicates that services actually delivered in all arrangement types are not optimal, and there is a need for upgrading daycare services that cable television can potentially fill.

For cable television to affect the quality of child care, there must be a market for the workshops, the arrangements reached must care for a significant proportion of preschoolers, and the exit rates of caregivers and facilities must be low enough for training benefits to stay in the daycare system for a reasonable period of time. The Spartanburg experiment suggests that there is a market for television workshops in daycare centers, but perhaps not in daycare homes. The factors that seem to have produced this differential response in Spartanburg probably also operate in daycare homes and centers nationally. Statistics for 1975 on the distribution of preschoolers among arrangements show that daycare centers provide care for a small, but not insignificant, proportion of the children most appropriately enrolled in group care (3 to 5 year olds). They provide a more significant proportion of daycare hours. Although we do not have national data on caregiver and facility exit rates, data on adherence to the system indicate that large subgroups of centers and caregivers stay in the system for long enough periods of time to realize the benefits of effective training.

Even if cable-delivered daycare education is effective, policy decisions to proceed with such a service should consider these factors.

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21 Ibid., Table 2.43, p. 68.
22 Ibid., Table 2.44, p. 69.
- Foreign reservations about the effects of group care may suggest that we should think more about moving away from group care than about improving its quality.

- If the workshops are effective, the relationship between center locations and cable coverage becomes important. If centers in cabled cities tend to be located in low income areas not served by cable systems, a question of equality of opportunity arises—the workshops will simply exacerbate any existing differences in the quality of group care available to poor and middle class children.

- The proportion of children in daycare cared for by centers and the number of daycare hours delivered may be too small to warrant attempts to upgrade the quality of the care. This is really a question about the worth of the effort and is probably better answered in light of information about effects and costs of the workshops.
III. DESIGN, INTERVENTION, AND MEASURES

This section briefly describes the study design, including analysis assumptions, the pretest comparability of conditions, the intervention, and measures.

EXPERIMENTAL DESIGN

The research questions of the study required a design with three conditions: a group that receives no treatment (control group), a group that observes interactive workshops on cable television but has no return capacity (one-way group), and a group that has the two-way audio and video capacity to interact with each other and the workshop staff during the delivery of the workshops (two-way group).

Our initial intent was to target daycare homes, in the belief that they were in greater need of improved quality than daycare centers. However, for reasons discussed in Sec. II, we had to shift the target of the service to centers. Because we expected to deliver the workshops to caregivers at centers rather than individually at their homes, only centers, not daycare staff members, could be randomly assigned to the three different treatment levels (control, one-way, and two-way). Figure 1 diagrams the design proposed before we drew up the sample: a completely randomized design for center data and a hierarchical design for caregiver data.

<table>
<thead>
<tr>
<th>Control</th>
<th>One-Way</th>
<th>Two-Way</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daycare Center_1</td>
<td>....</td>
<td>Daycare Center_1</td>
</tr>
<tr>
<td>Director_1</td>
<td>....</td>
<td>Director_1</td>
</tr>
<tr>
<td>Caregiver_1</td>
<td>....</td>
<td>Caregiver_1</td>
</tr>
<tr>
<td>....</td>
<td>....</td>
<td>....</td>
</tr>
</tbody>
</table>

Fig. 1—Proposed Design

We compiled a list of both licensed and unlicensed centers based on the files and personal knowledge of public service agency personnel, local daycare association members, and other private individuals in the daycare community. All were then invited to participate. Of 28 centers located in the cable area, four were half-day centers with staffs unavailable for afternoon programming; 15 (63 percent) of the 24 full-day facilities and one half-day center agreed to participate. Because participation was voluntary, the centers in the study were self-selected and not randomly drawn from the population of centers. Results of the study therefore cannot necessarily be generalized to that population.
Although we obtained a 63 percent participation rate of full-day centers in the cable area, there were too few centers to construct samples of minimally acceptable size for all three conditions. Because the relative efficacy of the alternative television delivery modes was the main question of the study, we had to retain both the one-way and two-way treatment conditions. These two conditions required access to cable, and therefore the centers in the cable area were used for the two treatment conditions. We recruited six centers outside of the cable area for the control condition; all of these centers were in urban neighborhoods within two miles of the central city. We thus had a random assignment design for the second question (preferred mode of television delivery) and a quasi-experimental design—i.e., design without random assignment—for the first question (effectiveness of television workshops).

We created eight matched pairs from the cable area sample in order to increase the precision of the experiment for the two treatment conditions. Pairing was made on the basis of size, racial composition and institutional affiliations (e.g., church-sponsored). Members of each pair were randomly assigned to the two treatment conditions.

At pretest the control condition had six centers and 11 participants within centers (five directors and six caregiver staff); the one-way condition had eight centers and 14 participants within centers (five directors and nine caregiver staff); and the two-way condition had eight centers and 16 participants within centers (three directors and 13 caregiver staff). Through attrition the one-way condition was reduced by two caregivers and the two-way condition by two centers, two directors, and four caregivers.

**PRETEST COMPARABILITY BETWEEN CONDITIONS**

Unbiased estimates of treatment effects for centers and staff depend on pretest comparability among conditions. Theoretically, comparability is assured by (1) randomly assigning units to conditions, (2) knowing that pretest differences can be safely ignored because the variables are unrelated to treatment outcomes, or (3) "eliminating" pretest differences related to treatment outcomes by statistical means (Cain, 1977).

In this study, pretest comparability was an issue for two reasons. First, because the probability of comparability increases with the number of units randomized, the small numbers of centers in the one-way and two-way conditions increased the chances of non-comparability between the two conditions. Second, centers were not randomly assigned between the treatment and control conditions, and staffs were not randomly assigned to any of the three conditions.

Detecting and interpreting non-comparabilities among conditions were difficult. Standard significance tests for differences between variable means and variances are less useful with small cell sizes, especially when intra-cell variances are large, as they were in this study. Under these conditions differences between cells have to be large to attain significance, and non-significant differences can still be large enough to raise comparability questions. More serious than the statistical problems is that we lack understanding of which differences between facilities or caregivers influence estimates of treatment effects. The best solution in this situa-
tion was to examine pretest characteristics qualitatively, noting any large, even if statistically non-significant, differences for interpreting posttest results.

Table 4 presents data on the characteristics of centers for the one-way and two-way conditions at pre-attrition and post-attrition, Table 5, for the treatment and control conditions. Table 6 presents data on staff characteristics for the one-way and two-way conditions and Table 7 on the staff characteristics of the treatment and control conditions. The one-way and two-way centers were generally comparable at pre-attrition and post-attrition, the main (but usually statistically non-significant) differences being that two-way centers had larger enrollments, a higher proportion of black children, and a smaller proportion of directors with policy control. The treatment and control centers differed substantially. The control centers had smaller enrollments, cared for more young preschoolers, had larger proportions of white children, cared for children with a different socioeconomic status (SES) distribution, had been in operation longer, and were more apt to be proprietary. One-way and two-way staffs were generally comparable, especially at post-attrition. Treatment and control staffs differed. The controls cared for a different age distribution of children, and fewer were black. They were older and had longer experience in daycare, substantially less formal education, and less training (and less recent training) in child development and care, whether measured by courses, in-service training, or workshops.

In sum, although one-way and two-way facilities and staffs were generally comparable, treatment and control centers and staffs differed on more variables, by greater amounts, and in more patterned ways. The significance of these differences for estimating treatment effects is unknown. The most important differences for estimating effects of a training intervention seem to be that the control centers have been in operation longer and the control staffs were older, more experienced in daycare, less well educated, and less well and less recently trained in child care and development. We would expect control staffs to have less turnover through time and to be more impervious to intervening events, including pretest measurement.

Centers and staffs are fairly comparable on the outcome variables at pretest, although the comparability is greater for one-way and two-way conditions than for the treatment and control conditions. The treatment staffs score systematically higher than control staffs on one pretest outcome battery, professional identification. Treatment and control participants tie on four out of 20 variables. However, on all remaining 16 variables, the treatment group has the higher rank order, a rank order difference significant at $p = 0.004$ for a two-tailed sign test. These 16 variables involve all of the variable subsets except staff adherence to daycare, where the two groups are tied on both indicators. Thus, cable area directors have a more rationalized administration of their centers and higher expectations for future staff training in daycare. Cable area directors and staff have higher expectations for their own future training in daycare, elaborate their roles more, and have more ties to the individuals and institutions delivering care to children.

Even though initial differences in center and staff background characteristics do not signal initial differences across all of the outcome domains, we should not assume that estimates of treatment effects will be unbiased. First, centers have a

---

1 The treatment condition is defined as the combined one-way and two-way conditions.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-Attrition</th>
<th>Post-Attrition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One-Way N=8</td>
<td>Two-Way N=8</td>
</tr>
<tr>
<td>Mean morning enrollment</td>
<td>57.6</td>
<td>69.6</td>
</tr>
<tr>
<td>Distribution of morning enrollment (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. 1-30 children</td>
<td>37.5</td>
<td>37.5</td>
</tr>
<tr>
<td>b. 30-60 children</td>
<td>12.5</td>
<td>12.5</td>
</tr>
<tr>
<td>c. 60-90 children</td>
<td>37.5</td>
<td>25.0</td>
</tr>
<tr>
<td>d. 90 or more children</td>
<td>12.5</td>
<td>25.0</td>
</tr>
<tr>
<td>Ratio of children to caregivers</td>
<td>7.64</td>
<td>9.33</td>
</tr>
<tr>
<td>Ratio of children to caregivers and directors</td>
<td>6.39</td>
<td>7.58</td>
</tr>
<tr>
<td>Mean age of children (in months)</td>
<td>47.8</td>
<td>47.7</td>
</tr>
<tr>
<td>Age distribution of children (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Less than 18 months</td>
<td>8.0</td>
<td>6.9</td>
</tr>
<tr>
<td>b. 18 months to 3 years</td>
<td>15.6</td>
<td>21.3</td>
</tr>
<tr>
<td>c. 3 years</td>
<td>21.7</td>
<td>21.2</td>
</tr>
<tr>
<td>d. 4 years</td>
<td>25.9</td>
<td>19.7</td>
</tr>
<tr>
<td>e. 5 years</td>
<td>24.2</td>
<td>20.9</td>
</tr>
<tr>
<td>f. 6 years or older</td>
<td>4.6</td>
<td>9.9</td>
</tr>
<tr>
<td>Racial distribution of children (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Black</td>
<td>17.9</td>
<td>32.2</td>
</tr>
<tr>
<td>b. White</td>
<td>81.6</td>
<td>67.1</td>
</tr>
<tr>
<td>c. Other</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Occupational distribution of children's household heads (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Middle/upper middlea</td>
<td>51.9</td>
<td>48.0</td>
</tr>
<tr>
<td>b. Middle/lower middleb</td>
<td>45.2</td>
<td>38.4</td>
</tr>
<tr>
<td>c. Lower middle/lowerc</td>
<td>1.7</td>
<td>9.7</td>
</tr>
<tr>
<td>d. Unemployed</td>
<td>1.2</td>
<td>3.2</td>
</tr>
<tr>
<td>e. Housewife</td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Age of institution (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Less than 5 years</td>
<td>62.5</td>
<td>62.5</td>
</tr>
<tr>
<td>b. 5 years to 10 years</td>
<td>12.5</td>
<td>25.0</td>
</tr>
<tr>
<td>c. 10 years or more</td>
<td>25.0</td>
<td>12.5</td>
</tr>
<tr>
<td>Source of financing (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Private</td>
<td>75.0</td>
<td>62.5</td>
</tr>
<tr>
<td>b. Government</td>
<td>12.5</td>
<td>12.5</td>
</tr>
<tr>
<td>c. Church</td>
<td>12.5</td>
<td>25.0</td>
</tr>
<tr>
<td>Director control (in percent)</td>
<td>75.0</td>
<td>37.5</td>
</tr>
</tbody>
</table>

a Defined as professional, administrative and technical occupations.
b Defined as clerical, craft and service occupations.
c Defined as semi-skilled occupations.
Table 5

CENTER CHARACTERISTICS OF TREATMENT AND CONTROL CONDITIONS:
PRE-ATTRITION AND POST-ATTRITION

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-Attrition</th>
<th>Post-Attrition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-cable N-6</td>
<td>Cable N-16</td>
</tr>
<tr>
<td>Mean morning enrollment</td>
<td>36.5</td>
<td>63.6</td>
</tr>
<tr>
<td>Distribution of morning enrollment (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. 1-30 children</td>
<td>66.7</td>
<td>37.5</td>
</tr>
<tr>
<td>b. 30-60 children</td>
<td>16.7</td>
<td>12.5</td>
</tr>
<tr>
<td>c. 60-90 children</td>
<td>16.7</td>
<td>31.3</td>
</tr>
<tr>
<td>d. 90 or more children</td>
<td>0.0</td>
<td>18.8</td>
</tr>
<tr>
<td>Ratio of caregivers to children</td>
<td>8.42</td>
<td>8.05</td>
</tr>
<tr>
<td>Ratio of caregivers and directors to children</td>
<td>6.55</td>
<td>6.99</td>
</tr>
<tr>
<td>Mean age of children (in months)</td>
<td>43.0</td>
<td>47.8</td>
</tr>
<tr>
<td>Age distribution of children (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Less than 18 months</td>
<td>12.4</td>
<td>7.5</td>
</tr>
<tr>
<td>b. 18 months to 3 years</td>
<td>24.8</td>
<td>18.5</td>
</tr>
<tr>
<td>c. 3 years</td>
<td>19.2</td>
<td>21.5</td>
</tr>
<tr>
<td>d. 4 years</td>
<td>24.7</td>
<td>22.8</td>
</tr>
<tr>
<td>e. 5 years</td>
<td>10.6</td>
<td>22.6</td>
</tr>
<tr>
<td>f. 6 years or older</td>
<td>8.2</td>
<td>7.3</td>
</tr>
<tr>
<td>Racial distribution of children (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Black</td>
<td>1.3</td>
<td>25.1</td>
</tr>
<tr>
<td>b. White</td>
<td>98.7</td>
<td>74.4</td>
</tr>
<tr>
<td>c. Other</td>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Occupational distribution of children’s household heads (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Middle/upper middle\b</td>
<td>20.9</td>
<td>50.0</td>
</tr>
<tr>
<td>b. Middle/lower middle\c</td>
<td>75.9***</td>
<td>41.8***</td>
</tr>
<tr>
<td>c. Lower middle/lower\d</td>
<td>0.2</td>
<td>5.7</td>
</tr>
<tr>
<td>d. Unemployed</td>
<td>2.6</td>
<td>2.2</td>
</tr>
<tr>
<td>e. Housewife</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Age of institution (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Less than 5 years</td>
<td>33.3</td>
<td>62.5</td>
</tr>
<tr>
<td>b. 5 years to 10 years</td>
<td>33.3</td>
<td>18.8</td>
</tr>
<tr>
<td>c. 10 years or more</td>
<td>33.3</td>
<td>18.8</td>
</tr>
<tr>
<td>Source of financing (in percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Private</td>
<td>100.0</td>
<td>68.8</td>
</tr>
<tr>
<td>b. Government</td>
<td>0.0</td>
<td>12.5</td>
</tr>
<tr>
<td>c. Church</td>
<td>0.0</td>
<td>18.8</td>
</tr>
<tr>
<td>Director control (in percent)</td>
<td>100.0</td>
<td>56.3</td>
</tr>
</tbody>
</table>

\*\* p = 0.10; \*\* p = 0.05; \*\*\* p = 0.01.
\bDefined as professional, administrative and technical occupations.
\cDefined as clerical, craft and service occupations.
\dDefined as semi-skilled occupations.
Table 6

STAFF CHARACTERISTICS OF ONE-WAY AND TWO-WAY CONDITIONS:
PRE-ATTRITION AND POST-ATTRITION

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-Attrition</th>
<th>Post-Attrition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One-Way N=17</td>
<td>Two-Way N=21</td>
</tr>
<tr>
<td>Percent of centers caring for children:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Of all ages</td>
<td>23.5</td>
<td>33.3</td>
</tr>
<tr>
<td>b. Less than 18 months</td>
<td>5.9</td>
<td>4.8</td>
</tr>
<tr>
<td>c. 18 months to 3 years</td>
<td>29.4</td>
<td>19.0</td>
</tr>
<tr>
<td>d. 3 years old</td>
<td>35.3</td>
<td>23.8</td>
</tr>
<tr>
<td>e. 4 years old</td>
<td>41.2</td>
<td>33.3</td>
</tr>
<tr>
<td>f. 5 years old</td>
<td>47.1</td>
<td>33.3</td>
</tr>
<tr>
<td>g. 6 years and older</td>
<td>5.9</td>
<td>9.5</td>
</tr>
<tr>
<td>Racial distribution of staff (in percent):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Black</td>
<td>17.6</td>
<td>23.8</td>
</tr>
<tr>
<td>b. White</td>
<td>82.4</td>
<td>76.2</td>
</tr>
<tr>
<td>Age distribution of staff (in percent):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Less than 25 years</td>
<td>23.6</td>
<td>23.9</td>
</tr>
<tr>
<td>b. 25 to 29 years</td>
<td>29.5</td>
<td>42.5</td>
</tr>
<tr>
<td>c. 30 to 34 years</td>
<td>11.8</td>
<td>19.1</td>
</tr>
<tr>
<td>d. 35 to 39 years</td>
<td>17.7</td>
<td>0.0</td>
</tr>
<tr>
<td>e. 40 to 44 years</td>
<td>11.8</td>
<td>0.0</td>
</tr>
<tr>
<td>f. 45 to 49 years</td>
<td>5.9</td>
<td>4.8</td>
</tr>
<tr>
<td>g. 50 years and older</td>
<td>0.0</td>
<td>9.5</td>
</tr>
<tr>
<td>Length of employment in daycare (in percent):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Less than 1 year</td>
<td>23.5</td>
<td>19.0</td>
</tr>
<tr>
<td>b. 1 to 2 years</td>
<td>17.6</td>
<td>19.0</td>
</tr>
<tr>
<td>c. 2 to 3 years</td>
<td>5.9</td>
<td>14.3</td>
</tr>
<tr>
<td>d. 3 to 5 years</td>
<td>23.5</td>
<td>23.8</td>
</tr>
<tr>
<td>e. 5 to 10 years</td>
<td>11.8</td>
<td>19.0</td>
</tr>
<tr>
<td>f. 10 years or more</td>
<td>17.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Educational distribution of staff (in percent):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Below high school</td>
<td>0.0</td>
<td>14.3</td>
</tr>
<tr>
<td>b. High school degree</td>
<td>23.5</td>
<td>19.0</td>
</tr>
<tr>
<td>c. Some college</td>
<td>17.6</td>
<td>23.8</td>
</tr>
<tr>
<td>d. College degree</td>
<td>35.3</td>
<td>19.0</td>
</tr>
<tr>
<td>e. Graduate school</td>
<td>23.5</td>
<td>23.8</td>
</tr>
<tr>
<td>Percent of staff having no workshops, coursework or in-service training in child care:</td>
<td>NO DATA</td>
<td>7.1</td>
</tr>
<tr>
<td>Type of child care training taken (in percent):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Workshops</td>
<td>NO DATA</td>
<td>84.6</td>
</tr>
<tr>
<td>b. Courses</td>
<td>NO DATA</td>
<td>76.9</td>
</tr>
<tr>
<td>c. In-service training</td>
<td>NO DATA</td>
<td>38.5</td>
</tr>
<tr>
<td>Recency of last training (in percent):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Current or less than 1 year</td>
<td>NO DATA</td>
<td>75.0</td>
</tr>
<tr>
<td>b. 1 to 3 years</td>
<td>NO DATA</td>
<td>16.7</td>
</tr>
<tr>
<td>c. 3 to 5 years</td>
<td>NO DATA</td>
<td>0.0</td>
</tr>
<tr>
<td>d. 5 to 7 years</td>
<td>NO DATA</td>
<td>8.3</td>
</tr>
</tbody>
</table>

*Respondents misinterpreted this question at pretest. It was asked again at posttest, explicitly excluding the cable workshops.*
Table 7

STAFF CHARACTERISTICS OF TREATMENT AND CONTROL CONDITIONS:
PRE-ATTRITION AND POST-ATTRITION

<table>
<thead>
<tr>
<th></th>
<th>Pre-Attrition</th>
<th>Post-Attrition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-cable</td>
<td>Cable</td>
</tr>
<tr>
<td></td>
<td>N=12</td>
<td>N=38</td>
</tr>
</tbody>
</table>

| Proportion of directors to caregivers | 50.0 | 42.1 | 50.0 | 46.7 |
| Percent of centers caring for children: |     |     |     |     |
| All ages | 16.7 | 29.0 | 16.7 | 23.3 |
| Less than 18 months | 25.0 | 5.3 | 25.0 | 5.3 |
| 18 months to 3 years | 41.7 | 23.2 | 41.7 | 20.0 |
| 3 years old | 50.0 | 29.0 | 50.0 | 33.3 |
| 4 years old | 58.3 | 36.8 | 58.3 | 40.0 |
| 5 years old | 41.7 | 39.5 | 41.7 | 46.7 |
| 6 years and older | 5.3 | 7.8 | 5.3 | 10.0 |

| Racial distribution of staff (in percent) |     |     |     |     |
| Black | 8.3 | 21.1 | 8.3 | 16.7 |
| White | 91.7 | 78.9 | 91.7 | 83.3 |

| Age distribution of staff (in percent) |     |     |     |     |
| Less than 25 years | 8.3 | 23.7 | 8.3 | 26.7 |
| 25 to 34 years | 24.9 | 36.8 | 24.9 | 33.3 |
| 35 to 34 years | 8.3 | 15.8 | 8.3 | 20.0 |
| 35 to 44 years | 16.7 | 7.9 | 16.7 | 10.0 |
| 45 to 49 years | 16.7 | 5.3 | 16.7 | 3.3 |
| 50 years and older | 8.3 | 5.3 | 8.3 | 3.3 |

| Length of employment in daycare (in percent) |     |     |     |     |
| Less than 1 year | 16.7 | 21.1 | 16.7 | 13.3 |
| 1 to 2 years | 8.3 | 18.4 | 8.3 | 16.7 |
| 2 to 3 years | 16.7 | 10.5 | 16.7 | 13.3 |
| 3 to 5 years | 8.3 | 23.7 | 8.3 | 26.7 |
| 5 to 10 years | 33.3 | 15.8 | 33.3 | 16.7 |
| 10 years or more | 16.7 | 10.5 | 16.7 | 13.3 |

| Educational distribution of staff (in percent) |     |     |     |     |
| Below high school | 41.7** | 7.9** | 41.7*** | 0.0*** |
| High school degree | 33.3** | 21.1** | 33.3*** | 23.3*** |
| Some college | 16.7** | 21.1** | 16.7*** | 23.3*** |
| College degree | 0.0*** | 26.3** | 0.0*** | 33.0*** |
| Graduate school | 8.3** | 23.7** | 8.3*** | 20.0*** |

| Percent of staff having no workshops, coursework or in-service training in child care | NO DATA | 25.0 | 13.8 |

| Type of child care training taken by staff (in percent) |     |     |     |     |
| Workshops | NO DATA | 41.7 | 75.9 |
| Courses | NO DATA | 33.3 | 75.9 |
| In-service training | NO DATA | 33.3 | 55.2 |

| Recency of last training (in percent) |     |     |     |     |
| Current or less than 1 year | NO DATA | 75.0 | 50.0 |
| 1 to 3 years | NO DATA | 16.7 | 25.0 |
| 3 to 5 years | NO DATA | 6.0 | 8.3 |
| 5 to 7 years | NO DATA | 8.3 | 16.7 |

*p = 0.10; **p = 0.05; ***p = 0.01.

b Respondents misinterpreted this question at pretest. It was asked again at posttest, explicitly excluding the cable workshops.
school-like schedule. Pretest measures of the outcome variables were taken earlier in the history of that year's group (December) than posttest (May). To the extent that initial background differences signal differences in the paths of centers and staff through time, a lack of relationship between variation in background and outcome variables at pretest does not necessarily imply a lack of relation through time. For example, as the year proceeds, the children age and become increasingly social. To the extent that the lesser education of control caregivers is associated with a more custodial approach to child care, we can expect control and treatment caregivers to differ in their response to the children's increasingly social behavior.

Second, initial differences can also signal differences in how centers and staffs respond between pretest and posttest to external events that affect the outcome variables. For example, the differences between the treatment and control conditions in formal education and child development training could signal differential learning from the pretest experience for the two conditions.

COMPARABILITY OF SPARTANBURG CENTERS AND CENTERS NATIONALLY

The generalizability of the Spartanburg daycare cable TV experiment to other communities depends on the comparability of the Spartanburg centers and staffs to those nationally. The data for estimating comparability are fragmentary and old, the only national survey of daycare centers and staff having been conducted in 1970 (Westinghouse-Westat, 1971). It is not known how the Spartanburg sample would compare with a newer national survey of centers and staffs.

Relative to the Westinghouse-Westat sample, a greater proportion of the Spartanburg centers had enrollments of over 60 children; the Spartanburg and national samples had approximately equal distribution of length of operating time; 77 percent of the sample centers were for-profit centers, as opposed to 61 percent nationally; a smaller proportion of children enrolled in the sample centers were black (19 percent as opposed to 36 percent nationally); a smaller proportion of the sample center staff were black; and the staffs of the Spartanburg control sample were less well-educated but the treatment staffs better educated than the national sample.

It is not known how significant these differences are for generalizing effects of the workshops to centers nationally. Differences in staff education could affect generalizability of effects, the treatment conditions being closer to the ceiling on the workshop curriculum objectives than centers nationally.

THE INTERVENTION

The intervention consists of all direct, electronic, and written contacts by project staff with participants in the experiment. Although the workshops were the major intervention, we briefly describe a variety of ancillary contacts before we describe the workshops.

Ancillary Contacts

There were three kinds of non-workshop contacts: those that occurred at the
beginning of the project only and involved project initiation; those that occurred at the beginning and end of the project and involved measurement; and intermittent contacts, which occurred across the period of the workshops.

**Initiation.** There were two types of initial contact: recruitment and equipment installation. Centers were recruited in a sequence of steps: local media coverage of the project, letters to the directors of daycare centers in the cable and non-cable areas, telephone calls to the directors, visits by project staff to the centers, and a meeting of directors at the project office. Because center directors decided which of their staff members were to participate in the workshops, Rand personnel had no contact with these members of the sample during recruitment.

The second type of initial contact, equipment installation for the treatment conditions, involved little or no social interaction between the project cable technicians and daycare staff.

**Measurement.** All subjects in all conditions received the same amount of measurement contact. Several procedures were used to minimize non-professional interactions between data collectors and study participants.

- Research assistants were trained to administer either the interview or observation instruments, but not both. At each measurement period each participant was observed twice, two different observers being scheduled for each participant. The net effect at each measurement period was to spread observer and interviewer contacts with either a center or a subject across three different people.
- The field staff was locally recruited, and members were questioned to make sure that they were not assigned to a center where they were known.
- Data collection was tightly scheduled to minimize non-professional interactions, the amount of data collection time allowed being based on piloting experiences with the different instruments.

**Intermittent Contacts.** A third group of contacts occurred intermittently throughout the 14 weeks of the experiment. Centers in all conditions received materials designed as an incentive to participate, as a reward for continued participation, and as a means of direct involvement in the workshops for those in the experimental conditions. The project administrative assistant or secretary delivered materials at the beginning of the workshops, three weeks into the workshops, and three weeks before their conclusions. A tight delivery schedule minimized interactions.

The second intermittent contact was a telephone attendance check of all participants in the workshop conditions. The office secretary called each subject on a rotating basis an average of five times during the 14 weeks and asked a standard set of questions.

Table 8 summarizes contacts between project staff and participants by condition.

Although not all subjects received the same contacts, the socially most significant, other than the workshops and attendance check, were probably recruitment

---

*The incentive package, as it came to be called, had two main parts: a box of items to be used in creating games, puzzles, and other teaching devices; and a loose-leaf notebook of schedules and other printed information.*
Table 8

SITE TEAM CONTACTS WITH SUBJECTS BY CONDITION

<table>
<thead>
<tr>
<th>Contact</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
</tr>
<tr>
<td></td>
<td>D(^a)</td>
</tr>
<tr>
<td>Recruitment</td>
<td>X</td>
</tr>
<tr>
<td>Cable installation</td>
<td></td>
</tr>
<tr>
<td>Camera (installation; removal)</td>
<td></td>
</tr>
<tr>
<td>Measurement</td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>X</td>
</tr>
<tr>
<td>Posttest</td>
<td>X</td>
</tr>
<tr>
<td>Incentive package</td>
<td>X</td>
</tr>
<tr>
<td>Telephone attendance check</td>
<td>X</td>
</tr>
<tr>
<td>Workshops</td>
<td>X</td>
</tr>
</tbody>
</table>

\(^a\)D = center director.  
\(^b\)C = center caregiver.

and measurement contacts. These were common across all conditions for directors and all participants. Thus, the major difference in intervention by condition was the workshops.

Workshops

The workshops consisted of the technological, social, and temporal context in which they occurred and their content.

Workshop Context. Starting at 1 p.m., Monday through Friday, from January 5 to April 9, 1976, 65 hours of interactive programming were transmitted an hour a day. One-way and two-way enrollees were expected to be "in class" one hour, five days a week, during the children's naptime, for a period of approximately a semester. Figure 2 shows the standard social context in which caregivers in two-way centers watched or participated in the workshops. The "viewing room" in the one-way condition was the same, except it had only an ordinary black and white television set hooked up to the cable system. The equipment consisted of a black and white television set, a simple camera costing about $1000 per camera trained on the enrollees, and a microphone placed on the table at which participants sat. The lighting in the two-way room was its usual lighting.

The workshops emanated from a studio at the cable television station, set up as shown in Fig. 3, with the workshop professionals and any program guests seated at a table facing a camera. The workshop professional controlled the image on the screen by switching on the studio camera or a camera at one of the two-way centers. Thus, one-way enrollees saw on their sets either the workshop studio or caregivers at another center in the community. Two-way enrollees saw the workshop studio, caregivers at another two-way center in the community, or themselves.

The workshop experience was not the experience of ordinary commercial television. Both one-way and two-way enrollees saw interactive programming, and two-way enrollees were part of that interaction. Because it had been decided that
Fig. 2—Daycare center participants watching the workshop

Fig. 3—Workshop director and assistant director in the cable television studio
cable delivery of social services had to be tested under technically simple conditions, the technical quality of the workshops was also clearly different from—and below—commercial standards.

**Workshop Content.** In this study social benefits of the cable-delivered service were defined as those changes in center environments and caregiver cognitions, attitudes, and behaviors that increase the welfare of children in daycare.

As Table 9 shows, 77 percent of the workshops addressed aspects of child development. With regard to cognitive development, the curriculum stressed the importance of: activities (i.e., environmental interactions); quantity and variety of activities; activities appropriate to the developmental stage of the child; and activities that maximize feedback to the child. With regard to the child's socio-emotional development, the curriculum stressed the importance of providing chances for the child to enter into a variety of social relationships and express and identify his emotions. It stressed feedback to children on their behavior and feedback of particular kinds: emotionally honest feedback, feedback with situationally based rather than authority-based reasons, positive feedback to the child about himself as a person, and feedback that, when negative, distinguishes between evaluation of the child's act and the child.

**Table 9**

<table>
<thead>
<tr>
<th>Workshop Substance</th>
<th>Workshop Time in Hours (% of workshops)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Development</td>
<td>54 hours (77%)</td>
</tr>
<tr>
<td>Presentation of Principles</td>
<td>21 hours (30%)</td>
</tr>
<tr>
<td>Application of Principles</td>
<td>33 hours (47%)</td>
</tr>
<tr>
<td>Center Management</td>
<td>1 hour (1%)</td>
</tr>
<tr>
<td>Center Environment</td>
<td>5 hours (7%)</td>
</tr>
<tr>
<td>Use of Space</td>
<td>4 hours (6%)</td>
</tr>
<tr>
<td>Construction, use of materials</td>
<td>1 hour (1%)</td>
</tr>
<tr>
<td>Center health, nutrition, and safety</td>
<td>5 hours (7%)</td>
</tr>
<tr>
<td>Center contacts with parents and community resources</td>
<td>5 hours (7%)</td>
</tr>
</tbody>
</table>

The workshops emphasized the application more than theories of child development principles; 30 percent of the workshops presented principles and 47 percent demonstrated them in particular activities and events. The following excerpts from the curriculum outline show this mix of theory and application.

- Cognitive principles
  - Age-appropriate techniques for teaching
    1. Representation
       a. Art
       b. Music

* If the service works only under specialized technical or viewing conditions, it is much less accessible to local communities.
c. Dance
  d. Language

2. Logico-mathematical concepts
   — Interrelationships of stages of development
     1. Cognitive
     2. Motor
     3. Socio-emotional
   — Interaction with the environment
     1. Experiences in movement
     2. Experiences with sound
     3. Experiences with media

• Socio-emotional principles
  — Communications
    1. Labeling and expressing emotions
    2. Mixed messages
    3. Feedback
  — Feeling good about one’s self
  — Behavior management
    1. Consistency
    2. Immediacy
    3. Relevancy
  — Handling unusual events
    1. Divorce
    2. Adoption
    3. Death
    4. Abuse
    5. Sex

Twenty-two percent of the workshops were devoted to environmental characteristics conducive to positive child development. The characteristics were grouped as: center management; center environment (use of space and construction, purchase, and use of materials); connections with parents and community resources; and health, nutrition, and safety. Each of these is discussed briefly below.

• The session on center management concentrated on center records as a basis for planning the individual child’s program, a reference for him as he moves to the next educational unit, an information source in emergency situations, and a means of communicating with the child’s parents.

• Sessions on the center environment emphasized (1) how to arrange objects in space so as to create unimpeded and uncongested access to them and (2) how to select age-appropriate and developmentally challenging equipment and materials. Because economic considerations sometimes limit center purchases of appropriate materials, emphasis was placed on locally developed materials. One workshop was devoted to background ideas—e.g., where and how to purchase materials—and materials were actually developed in 18 other sessions.

• The workshops pointed out what services were locally available to daycare centers: for example, the use of parents as advisors, aides, or simply
as input for coordinating home and center activities; public health services; social services; services for retarded children; library programs.

- Although licensing standards for daycare centers specify the minimum healthy environment, the workshops conveyed the knowledge required to carry out these standards—e.g., emergency techniques, recognition of symptoms of childhood diseases, health records, forms for administering medicines, meal planning, and the relationship between a child's behavior and his physical state.

MEASUREMENT

Measures were selected on the basis of six principles.
1. Outcomes were selected to assess the social benefits of cable-delivered social services and tradeoffs between alternative forms of return. The delivery of daycare workshops was instrumental to and not the objective of the study and therefore was not the primary determinant of outcomes.

2. Although the study was expected to assess the benefits of locally originated cable services, there was no intent to leave behind an ongoing cable-delivered system. The battery therefore included measures of the implementation of the experiment, but not of the social service itself.

3. Measures were selected to assess only those changes in center environments and caregiver cognitions, attitudes, and behaviors that the curriculum actually sought to produce.

4. Measures of changes in facility characteristics were included on the basis of two assumptions: the workshops sought center changes that were under the control of participating directors, and the connections between the workshop content and expected changes were simple and direct.

5. Measures of child outcomes were not included. Although children are ultimately the intended beneficiaries of improved daycare, there is little theoretical or empirical basis for mapping specific adult outcome variables onto specific child measures, or even for deciding when changes in facilities and in adult cognitions and behaviors should show significant child effects. Further, the intervention was targeted at caregivers only (with no programming aimed directly at children), so changes in children would be second-order effects. Preschool effects are hard to obtain even when the intervention is aimed at the children. Thus, it seemed unlikely that a 14-week workshop treatment for caregivers would produce significant child effects, and their failure to occur would not inform us about the effectiveness of the intervention for its intended target.

6. Redundancy of measurement was traded for substantive extensiveness. Although redundancy increases the precision and reliability of measurement, we faced several uncertainties that compelled us to use a more extensive and less focused and repetitive battery than we would have liked:

- We did not know in detail what the treatment would be and therefore precisely which properties of centers and staffs might be affected.

*Local groups have continued some services delivered in the Spartanburg experiment. Although their continuation evidences a local market for those services, it was not a goal of the study.*
- We did not know very much about the properties of daycare centers and staffs nationally or in Spartanburg. We therefore had limited abilities to identify where centers and staffs needed to and could change.
- We had little experience with this kind of intervention for these sorts of institutions and groups. We therefore were not sure what we could reasonably expect the intervention to change in centers and staffs—or when we could reasonably look for effects.

Table 10 lists the instruments that composed the battery. The table indicates their status in the study (covariates, implementation measures, or outcomes), their type (self-report or observational), their data source (the facility, the director, or a member of the caregiver staff), and the schedule for their administration.

The instruments were piloted two months before the pretest by Rand project staff and research assistants hired locally. To avoid contaminating centers in Spartanburg, we collected pilot data in Greenville, 30 miles west of Spartanburg and roughly comparable on dimensions of normative orientation, race and class distribution, and types of daycare arrangements. We used the pilot test to make sure that concepts were properly operationalized and could be applied by the locally recruited nonprofessional research staff. In addition to changes made during the pilot test, there were minor changes made in the instruments between pretest and posttest.

**TRAINING OF DATA COLLECTORS**

The data were collected by research assistants hired locally and trained by the Rand staff. Assistants were trained either as interviewers or observers, but not both. Training occurred for two weeks for observers and four days for interviewers before pretest and posttest. The training included a variety of techniques: presentations by Rand staff on topics such as professional standards of conduct, manuals that described the instruments and defined the concepts used in them, tests on the contents of the manuals, videotapes of caregiver-child interactions that allowed observers to practice coding caregiver behaviors, and field trials at centers outside of the city of Spartanburg. Observers were trained until they reached acceptable inter-coder reliabilities for each of the instruments. Interviewers were trained until they understood the questions and skip patterns and could ask questions and conduct probes in non-leading and standardized ways.

**INSTRUMENTS**

Table 10 portrays characteristics of the study’s measurement battery. It shows the measures’ content, type (interview or observation), data source (caregiver or director), and schedule. Of the three classes of instruments (covariate, implementa-
Table 10
DAYCARE MEASUREMENT BATTERY

<table>
<thead>
<tr>
<th>Instruments</th>
<th>Type of Measure and Data Source</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observational</td>
<td>Self-Report</td>
</tr>
<tr>
<td>Covariate Measures</td>
<td>Facility Director</td>
<td>Caregiver Staff</td>
</tr>
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<td>Facility and Children Characteristics</td>
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<td>X</td>
</tr>
<tr>
<td>Director and Caregiver Characteristics</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Implementation Measures</td>
<td>Telephone Attendance Check</td>
<td>Media Questionnaire</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Physical Context of Daycare</td>
<td>Physical Environment Checklist</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Role Relevant Knowledge and Attitudes</td>
<td>Facility Director Information Form</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Staff Member Information Form</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Cartoon Booklet</td>
<td>X</td>
</tr>
<tr>
<td>Caregiver Behavior</td>
<td>Planned Activities Check</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Event Record</td>
<td>X</td>
</tr>
</tbody>
</table>

*a* Treatment conditions only.
*b* If director takes care of children

tation, and outcome measures), the covariate and implementation measures were used to obtain what is often called “side information”—data that can be used to interpret the outcomes of the study. Appendix A contains copies of all measures.

**Covariates**

There were two covariate forms, one for center characteristics filled out by directors and one for staff characteristics filled out by all participants. The center characteristics were ones that might be related to the capacity and desire for change (size and age of the institution, political control, and profit-making status) and the racial, age, and SES distribution of the children enrolled. The staff form concentrated on characteristics expected to affect responses to an educational intervention: age, daycare experience, formal education, and training in child care and development.

**Implementation Measures**

A telephone attendance check and media questionnaire measured the implementation of the experiment. The attendance check was a traditional “take” measure (was the treatment reaching its intended audience?). The office secretary conducted the check by calling each subject on a rotating basis an average of five times during the 14 weeks of workshops. She asked a standard set of questions at each call:

1. Did you watch today?
2. About how many programs have you watched in the last two weeks?
3. If respondent answered “yes” to question 1, a question was asked about the
specific content of that day's program.

4. Do you have suggestions?
5. May we use your suggestion?
6. How many people were watching with you?

A participant was coded as having attended that day's workshop if she said that she had attended and showed some knowledge of the content of that day's program.

The media questionnaire was a standard debriefing instrument. It assessed the reactions of one-way and two-way participants to: (1) the form of cable return available to them during the workshops, (2) interactive programming, (3) the workshops themselves, and (4) the workshop schedule.

**Outcome Measures**

Four criteria were used for identifying and selecting particular outcomes: (1) the face validity or theoretical importance of the dimension, (2) the availability or feasibility of constructing a reliable and valid measure of the dimension, (3) an expectation that the workshops would address the dimension, and (4) the likelihood that the workshops could produce a change in the dimension by the time of posttest.

**Physical Environment Checklist and Questionnaire.** The most widely accepted mechanism for controlling the quality of daycare has been the licensing of daycare facilities. Licensing regulations have concentrated on health and safety features of the facility, and we used federal and state regulations to identify important health and safety variables.

We also examined the literature for measures of the physical environment developed by other investigators. The results of these literature searches are presented in Table 11, the sources of health and safety standards appearing in the first four columns and the sources of measures in the last three.

We eliminated some items in Table 11 because of reliability and validity problems with the item—e.g., toxicity of paints on walls, woodwork, and equipment. We could not observe toxicity, and directors either would not have the information or could be expected to bias their responses in a socially desirable direction. We also eliminated items that the workshops were not expected to address or change, at least by the time of posttest. For example, although the workshops might point out the desirability of providing screening tests and dental services, it was known that some facilities could not afford to carry out the recommendation even if they wanted to.

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* We had hoped to supplement the physical environment measures with measures of the "ecological environment." (Barker, 1968). It is generally agreed that the ecological environment affects the nature and quality of occupants' behaviors, especially when the occupants are of preschool age (Barker, 1968; Bruner, 1971; Fein and Clarke-Stewart, 1973; Kritchevsky et al., 1969; White and Held, 1966).

The behavior space of daycare facilities lends itself to caregiver education. However, in attempting to use the behavior space measures reported in Kritchevsky et al. (1969) and Prescott et al. (1969), our pretest inter-coder reliabilities varied substantially across pairs of coders (e.g., 0.83 to 1.00) for individual dimensions of the behavior space instrument. Concepts had to be so theoretically compromised in attempts to improve inter-coder reliabilities that the overall validity of the instrument was in question. After our attempts to use the theoretically appealing concepts of the 1967 Prescott study, we learned that all of the behavior space data for that study had been collected by one observer (Prescott et al., 1975). Although a single coder can develop a theoretically meaningful coding scheme and use it consistently, our operational problems with the scheme show that it is not yet developed to where it can yield reliable and valid data across coders. For example, we could not concur with Kritchevsky et al. (1969) that "paths are very difficult to describe in words, but when they are well-defined they are easily seen." Rather, we found them fairly easy to define and very difficult to see.
<table>
<thead>
<tr>
<th>Sources of Standards&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Measurement Sources&lt;sup&gt;b&lt;/sup&gt;</th>
<th>IDCR</th>
<th>SC</th>
<th>OCD</th>
<th>AAP</th>
<th>KC</th>
<th>WODO</th>
<th>DA</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>Compliance with requirements of safety and sanitary authorities</td>
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<td>Periodic health and safety inspections</td>
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<td>Supervision of health and safety by physician</td>
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<td>X</td>
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<tr>
<td>Adequate indoor and outdoor space</td>
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<td>X</td>
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<td>Adequate ventilation, temperature, light</td>
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<td>Continual adult supervision of children</td>
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<td>Parent information and education program</td>
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<td>Health</td>
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<td>Initial health evaluations of each child</td>
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<td>Availability of immunizations</td>
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<td></td>
<td></td>
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<td>X</td>
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<td>Provision of screening tests</td>
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<td>Dental services</td>
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<td>Space for care and isolation of sick children</td>
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<td>Periodic staff health assessments</td>
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<td>Staff immunization, inoculation</td>
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<td>X</td>
<td></td>
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<td>Staff sick policy</td>
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<td>X</td>
<td></td>
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<td>Maintenance of health records on staff and children</td>
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<td>X</td>
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<td>X</td>
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<tr>
<td>Nutritious meals and snacks</td>
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<td>Nutrition education of children</td>
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<tr>
<td>Records of diet requirements of children</td>
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<td>X</td>
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<td>X</td>
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<tr>
<td>Clean kitchen</td>
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<td>X</td>
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<td>Provision for perishable food</td>
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<td>Covered trash receptacles</td>
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<td>Clean and accessible toilets</td>
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<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>Scheduling of extermination for rodents, insects</td>
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<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encouragement of good health habits</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>(e.g., hand washing)</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrangement for naps</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Safety</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Clean, nonhazardous walls and floors</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Safe play materials, equipment</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>Locked storage of potentially dangerous equipment, supplies, medicines</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Protective cover over hot surfaces</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>(e.g., water pipes, equipment, registers)</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>Glass windows secure, marked, screened on inside</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Nontoxic paint on walls, woodwork, equipment</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>Nonflammable curtains, equipment</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Disposal or storage of combustible materials</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
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### Table 11 (Continued)

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<tr>
<th>Safety (cont’d)</th>
<th>Sources of Standards&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Measurement Sources&lt;sup&gt;b&lt;/sup&gt;</th>
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<tr>
<td>Covered electrical sockets</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Capped gas jets</td>
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<tr>
<td>Guard rails on stairs</td>
<td>X</td>
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<tr>
<td>Safety gates for toddlers</td>
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</tr>
<tr>
<td>Fenced outdoor space</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fence gate latched and out of reach</td>
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<td></td>
</tr>
<tr>
<td>of children</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Soft outdoor turf under moving outdoor equipment</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Outdoor grounds free of nails, broken glass, etc.</td>
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</table>

<table>
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<tr>
<th>Emergencies</th>
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<tr>
<td>Telephone service</td>
<td></td>
<td></td>
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<tr>
<td>Emergency telephone numbers posted</td>
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</tr>
<tr>
<td>Provision for emergency medical care</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Staff knowledge of or training in first aid</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>First aid supplies</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Scheduling of fire drills</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Posted procedures for fire, first aid, etc.</td>
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<td></td>
</tr>
<tr>
<td>Fire extinguishers accessible</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Exit doors opening from inside to outside</td>
<td>X</td>
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</tbody>
</table>

<sup>a</sup>Sources standards: IDCR = federal Interagency Day Care Requirements; SC = Rules and Regulations Relating to Licensing Day Care Facilities in South Carolina; OCD = Office of Child Development guidelines for day care administration; AAP = American Academy of Pediatrics.

<sup>b</sup>Sources of measures: KC = King County Child Care Coordinating Committee; WODC = Keyseling’s *Windows on Day Care* report; DA = Development Associates’ report for Family Home Day Care Systems Demonstration Project.

In developing physical environment instruments from these sources, we tried to limit ourselves to observational measures to avoid the influence of social desirability factors. However, the pilot revealed that it was impossible to observe some variables of interest. For instance, unless a child became sick while an observer was present, an isolation area might go undetected. Therefore, interview questions were devised to measure variables that could not be observed and on which social desirability influences were unlikely to have great effect.

The literature review, subsequent elimination procedures, and pilot tests yielded a 24 item observation checklist and 17 item physical environment questionnaire. Based on the ratio of agreements to agreements-plus-disagreements, inter-observer reliabilities for the checklist at the end of the training period were 0.86.

**Role Relevant Knowledge and Attitudes.** The second major class of outcomes was caregivers’ knowledge about and attitudes toward caregiving. The assumption that adequacy of substantive knowledge affects program quality in day-care probably needs no justification. Most sources we reviewed (e.g., Bruner, 1971; Fein and Clarke-Stewart, 1973; Kagan, 1971) concurred that knowledge of child development stages and age-appropriate teaching techniques was particularly important. Beller (1971) finds that less trained teachers are more apt to rely on restriction, discipline, and arbitrary authority to structure children’s activities—
modes of control that do not foster exploration and autonomy. Rothenberg (1973) finds that less training leads to more custodial styles of care.

Contributors to the daycare literature (Beller, 1971; Fein and Clarke-Stewart, 1973; Prescott, 1967) also concur that caregivers’ role conceptions are important, especially the extent to which caregivers see themselves as babysitters rather than educators. According to Rothenberg, persons involved in family daycare are most likely to conceive of themselves as babysitters and consequently are most likely to provide care that is primarily custodial (1973). Rothenberg cites similar consequences with the use of paraprofessionals in daycare centers, arguing that, as their number increases, the need for training with a developmental orientation should be underscored. Most such persons like children, but nothing in their background leads them to assume an educator role.

Increased professionalization is also important because of its expected effect on caregivers’ commitment to the daycare field. To the degree that daycare is conceived of as a low status unprofessional occupation, it is likely to attract only the “less employable,” and the turnover rate will remain high (Grotberg, 1971). Conversely, increasing the perceived status of the occupation should increase caregiver tenure in daycare. The TV workshops, in providing both the knowledge necessary to carry out a developmental program and the sense of belonging to a community of caregivers, hoped to create such conditions.

Although the need for assessing caregiving knowledge and attitudes was clear, there were no readily available instruments. Members of the research team devised the Cartoon Booklet and Caregiver Staff/Director Information Forms to measure these domains. The Cartoon Booklet was intended to assess caregiver learning that could not be predictably observed with the caregiver-child interaction instrument—e.g., knowledge of child development stages, methods of dealing with rare but emotionally important events such as death, divorce, or adoption. The booklet consisted of 33 items, each represented by three frames of a cartoon sequence depicting some sort of event in the daycare setting; caregivers selected a last frame from three choices to complete the sequence. This cartoon format, adapted from Goodchilds and Raven (1974), was chosen to avoid verbal descriptions of situations that might discriminate against teachers with less education.

The intent of the professional identity forms was to assess caregiver role perception and attitudes. Item content was based primarily on role theory (e.g., Goslin, 1969). We also adapted suggestions from Prescott et al. (1967) for assessing caregivers’ implicit philosophies of how daycare should be construed. Our participant group included two daycare roles, facility director and caregiver employee. Because we felt that increased professionalism would manifest itself somewhat differently depending on role, some items were asked of one and not the other class of participant. The professional identity instrument ultimately consisted of four classes of items: definition of self as a center administrator (e.g., record keeping, curriculum plans, health and safety plans); definition of self as a member of the daycare and human services community (e.g., occupational definition of self to outsiders, connections with other caregivers in the community, connections with parents, connections with community social services); standards for the daycare program (e.g., childcare philosophy, key activities in the daycare curriculum, importance of training); and personal commitment to daycare (e.g., plans to remain in the daycare field). The first set of items was asked of directors only, the last of caregivers only, the second and third of both groups.
Although both the Cartoon Booklet and professional identity instruments were piloted, there was not sufficient time to investigate their intra-respondent reliability and validity. As discussed in the next section, there is reason to think that some of the Cartoon Booklet items contained more than one appropriate answer, and that some of the professional identity items evoked a positive response bias. Thus, findings based on these instruments should be regarded as suggestive, not conclusive.

**Caregiver Observation.** The two-part Caregiver Observation Form, the major instrument in the outcome battery in terms of administrative time, cost, and quantity and quality of information collected, was designed to assess the effects of the workshops on caregiver behaviors. As social psychological research shows, behavior cannot be inferred immediately from knowledge of cognitions and attitudes (e.g., Kiesler et al., 1969). At the same time, everyday behavior in the daycare environment has the strongest influence on children’s development (e.g., Beller, 1971). Thus, it was important to assess the effects of the workshops on caregiver behaviors by observing the behaviors themselves in the natural daycare setting.

The observational system that we developed was based on the following decisions about boundaries, categories, and sampling.

- The boundaries of the system were determined by three considerations. First, the study was restricted to facility and caregiver outcomes, indicating the observation system should be adult-focused. Second, we did not know enough about the group care setting to exclude classes of caregiver behavior a priori. Therefore, we needed a system that exhaustively recorded behavior of staff members whenever they were responsible for a group of children. Third, situational constraints exert a considerable influence on caregiver activity (Barker, 1968; Prescott, et al., 1975; Stallings and Kaskowitz, 1974). Therefore, the system should describe both caregiver behaviors and the social context in which they occur.

- The observational domain was divided into categories that scored all caregiver behaviors. However, consistent with the cognitive-developmental emphasis of the workshops, the category system gave far more attention to social interactions with children than nonsocial events.

- Event sampling or time sampling were the alternative bases for sampling the behavior stream. With a time-sampling procedure (e.g., the SDC 1972 Headstart study), records are divided into equal time intervals and each such interval receives a behavior score. With an event-sampling procedure (e.g., Walker et al., 1973) a target behavior is recorded whenever it is performed. Frequency of scores represents frequency of discrete behaviors. Following Stallings and Kaskowitz (1974), we decided to embed event sampling within time sampling. That is, every five minutes the observer was asked to record the overall social setting. After this information was entered, each caregiver behavior was recorded in order as it occurred. At the end of each five-minute interval, a new observation sheet was begun. In this way, information about the order and pacing of activity could be preserved without requiring minute temporal segmentation.

The actual instruments were based as much as possible on the observation
systems developed by others (Bales, 1950; Barker, 1968; Bijou et al., 1969; Brandt; 1973; Flanders, 1970; Prescott et al., 1967; Risley and Cataldo, 1973; Stallings et al., 1974; Walker et al., 1973; White et al., 1973) to benefit from their experience and to yield data as comparable as possible to those collected by others.

The first part of the Caregiver Observation Form registers what activity is occurring at the time of the observation, the arrangement of children into groups, and the number of members per group who are in fact engaged in the planned activity. This information provides a "social snapshot" of the classroom every five minutes (Stallings et al., 1974). Although many proponents of behavior sampling recommend gathering data about the social environment as well (e.g., Barker, 1968; Prescott et al., 1975; Stallings, et al., 1974), we found the Planned Activity Check (or PLA-Check) developed by Risley and Cataldo (1973) best suited for our purposes.³

Although the Caregiver Observation Form method of recording the activity differs somewhat from Risley and Cataldo's, the procedure for taking and recording PLA-Check is the same. Because that instrument had proved robust in the field, and the procedures had been refined through use in several studies (Krantz and Risley, 1972), no basic changes were required. Operational definitions for "participating," "planned activity," "off-task behavior," and the like were incorporated directly from the PLA-Check Handbook for Observers (Risley and Cataldo, 1973). Spacing observations at five-minute intervals allowed adequate time for coding sequences of caregiver behaviors while still falling within the range of useful PLA-Check sampling established by Risley and his colleagues. The mean inter-coder reliability for the PLA-Check part of the Caregiver Observation Form at the conclusion of pretest training was 0.89 with a range of 0.85 to 1.00.

With regard to the second part of the Caregiver Observation Form, the Event Record, we relied primarily on Prescott et al. (1967) for definitions and coding of the noninteractive categories. Among these (see Focus types 1-4, Caregiver Observation Form, Appendix A), the first two had no ostensible relationship to the ongoing activity: interaction with individuals other than daycare children (e.g., talking with other staff); and individual, noninteractive behavior (e.g., bookkeeping, haircombing). The remaining two were more child-centered, including behavior related to program activities (e.g., getting out paints) and silent supervision of children. All such behaviors were simply to receive a frequency count and required no further description.

Interaction with daycare children was first assigned a simple frequency count (Focus 5). We then described the behavior unit more fully. We relied on Stallings' (1974) practice of coding each such event in terms of the What (i.e., what type of interaction was involved), the How (i.e., what was the manner of the interaction),

³ This instrument is based on the assumption that the direction and extent of engagement with the environment (physical, social, and intellectual) is "an almost universal indication of the quality of a setting for people" (Risley and Cataldo, 1974). It also assumes that children's engagement in a particular activity over a period of time is related to their acquisition of appropriate skills and understanding.

⁴ Changes in the coding rules were required in a few cases. For example, the definition of the individual grouping arrangement was modified to refer to activities that a child pursues by himself or in parallel with others—i.e., without interaction with others. Thus, napping was classified as an individual activity even if the total group was pursuing the activity simultaneously. Although interaction occurs among children during napping, it is illegitimate and represents "off-task" behavior.
and the To Whom (i.e., who was the target of the interaction). In defining these codes, we adapted suggestions from both Prescott et al. (1967) and Stallings (1974). For example, we followed Prescott’s procedure of recording targets of teacher interaction as either a single individual, a subgroup of children, or the total group. In selecting modality codes, we consulted a variety of sources and decided that affective theme (positive, neutral, negative) had enough distinctions for our research purposes. We also coded whether or not the interaction involved physical contact (Stallings and Kaskowitz, 1974).

Recording the What, or the nature of caregiver-child interactions, required more innovation. In terms of assessing quality of care, it was clearly relevant to score simply custodial behavior or barely social acts of attention to physiological needs of children (Fein and Clarke-Stewart, 1973). Beyond this category, we attempted to account for the most important activities in which developmentally oriented caregivers might be involved: structuring the child’s time in activities (by permitting a child’s request, by denying a child’s request, by providing alternatives, by commanding); evaluating (providing feedback about the child’s activities); and exchanging comments (either in ritualistic exercises or in less constrained information sharing). Interactions that structured the child’s activities could be further coded by type of reason given for the structure. The alternatives here were no, power-based, or situational reason given. Each type of interaction could be further coded to indicate it involved nonroutine elaboration ("extended event"), because the carrying out of extended social interactions is thought to have some developmental importance (Beller, 1971; Hess and Shipman, 1965).

Inter-coder reliabilities for the Event Record were calculated separately for four categories of observations: (1) number of events recorded in a five-minute period, (2) orientation, defined as the caregiver’s focus, and, if the caregiver’s focus was social interaction with daycare children, as her manner and target of the interaction; (3) interaction type; and (4) extent of the interaction. The mean inter-coder reliabilities for these four categories for pairs of observers were, respectively: 0.82, 0.86, 0.83, and 0.82. Although we would have liked higher inter-coder reliabilities, these are acceptable for the rapid behavior stream in a daycare group. During training and in the pretest and posttest data, we also found a very low percentage of interactions coded as “not ascertainable.” The minimal use of this coding category suggests that the Event Record represented a comprehensive categorization of caregiver activities and that the coding rules governing the use of these categories were fairly unambiguous.

**ANALYSIS**

The analysis of the data was conducted as follows.

- The effects of cable TV workshops on daycare facilities and caregivers and the relative advantages of one-way versus two-way delivery modes were assessed by comparing the control group with the pooled one-way and two-way (treatment) groups and the one-way group with the two-way group.

* It was not necessary to code the actor, since in every case we were only observing caregivers.
• An analysis of variance single factor model was used to estimate center effects; an analysis of variance hierarchical model, caregiver effects.\textsuperscript{10}

• Analysis of covariance was used to increase the precision of the one-way and two-way comparisons and to "correct for" initial pretest differences between groups in the control and treatment comparisons.\textsuperscript{11}

• Chi-square tests were used for hypotheses involving nominal variables with more than two categories; the Mann-Whitney \textit{U} test was used for hypotheses with ordinal variables.\textsuperscript{12}

• Because there was generally more variation between directors and caregivers than within either of these two classes of participants, we expected to use role as a control variable to reduce within-cell variances. However, cell sizes were so small that we found this control variable reduced the power of the test more than the higher within-cell variance without the control. We therefore controlled on role when it was of substantive interest, but not for statistical purposes.

• Summative scores were calculated for some measurement domains (e.g., the Cartoon Booklet) that lacked but had not been theoretically expected to evidence systematic inter-item correlations. Items were unweighted.

• Although the basic hypotheses of the study implied one-tailed tests, specific hypotheses were allowed to take both one-tailed and two-tailed forms, the latter for exploratory reasons.

• The \( \alpha \) level used was 0.10. It was deliberately selected to be larger than usual because of small cell sizes and the added intra-cell variance attributable to the pilot nature of the study.

• The data collected were analyzed only if the workshops actually addressed the variables and neither of the two conditions in the comparison was at ceiling at pretest.

• Generally, the data were examined for evidence of differential growth or increase. However, if there was reason to expect centers or staff to "decay" between pretest and posttest in the absence of treatment, the data were examined for evidence of differential decay.

• Estimates of workshop effects were based on caregivers who remained in the sample from pretest to posttest. Because of missing data, \( n \) varies slightly from measure to measure.

\textsuperscript{10} The statistical models were:

\begin{align*}
X_{ij} &= \mu + \beta_j + \xi_{ij}, \\
X_{ijm} &= \mu + \alpha_i + \beta_{jm} + \xi_{ijm},
\end{align*}

\textsuperscript{11} Analysis of covariance produces biased estimates of effects if measures do not have high reliabilities (e.g., Porter, 1967). Although the observation measures achieved respectable levels of reliability, we do not have estimates of intra-subject reliabilities for the interview instruments.

\textsuperscript{12} Because all the ordinal variables involved a number of ties between conditions, the Smirnov test is preferred over the Mann-Whitney \textit{U} test.
IV. EXPERIMENTAL RESULTS

ATTENDANCE RATES

Data on attendance rates are interpreted in three ways. First, they are evaluated as a "take" measure—they determine whether there is reason to expect workshop effects. Second, attendance rates are treated as an outcome variable in the comparison of alternative delivery modes. Although attendance checks probably increased attendance rates by some amount over what they would have been in the absence of measurement, both treatment conditions were exposed to the obtrusive measurement. Thus, differential rates can plausibly be attributed to differences in delivery mode. Finally, attendance rates provide an estimate of the market for televised daycare training. Although the act of measuring the rates probably inflated them, attendance checks are commonly used in the delivery of education. Thus, the rates observed in the daycare experiment can be expected to obtain in televised daycare workshops with standard "classroom" attendance checks.

Figures 4 and 5 show attendance by three week segments of the course by condition and role. The mean attendance rates for the the one-way and two-way conditions are 0.55 and 0.52, respectively. There are clear rate differences by role. Mean attendance for caregivers was 0.68 and for directors 0.34. The differences by role occur for both conditions, being 0.71 for caregivers and 0.40 for directors in the one-way condition and 0.68 for caregivers and 0.27 for directors in the two-way condition. Attendance rates for both conditions were lower in the second than the first half of the workshops, dropping to 0.52 for the one-way condition and to 0.45 for the two-way condition.

The functional relationship between rate of attendance and occurrence of effects is completely unknown. We can say that the overall rates for both conditions are not so low as to make it unreasonable to expect effects. However, the average participant missed about half the workshops. The substantial attendance difference between caregivers and directors implies that there is more reason to expect effects for caregivers than for directors.

The overall attendance rates for the two conditions were the same. This means that any differences in other outcome variables between the one-way and two-way conditions cannot be attributed to an overall difference in workshop attendance. It also indicates no differential in the ability of the alternative delivery modes to induce attendance. The decline in attendance over time was also the same for both conditions. Thus, the alternative delivery modes also do not differ in their ability to maintain attendance over time.

Finally, the rates indicate that televised daycare training with periodic attendance checks can maintain moderate attendance levels over time. The differential rates between directors and caregivers can be explained in a variety of ways. Directors tend to have more daycare experience than caregivers, and thus workshops per se—at least these workshops—may not inform and attract them as much as they do caregivers. To the extent that workshops are seen as time off, they will be more attractive to employees (caregivers) than to employers (directors). Finally, directors are administratively responsible for the center, including external con-
Fig. 4—Mean Attendance by Condition Over Time

Fig. 5—Mean Attendance by Role Over Time

\*The time has been divided into one and one-half week intervals.
tacts (e.g., parents). Thus, their time is more apt to be interrupted than caregivers’
time.

CENTER EFFECTS

Center effects are indicated by measures of the physical environment. Ceiling
for a condition was defined as follows: More than 2/3 (67 percent) of the centers at
pretest had the desired trait (nominal scale) or its most desirable manifestation
(ordinal scale). The implications of a small n for chances of effects become clear
when ceiling rules are applied. There can be as few as two chances for the control,
one-way, and two-way conditions to show change between pretest and posttest and
four chances for the treatment condition.

Ceiling for a comparison (control versus treatment or one-way versus two-way)
was defined as follows: At pretest one or both conditions in the comparison on
variable i were at ceiling. For control/treatment comparisons, it might be argued
that only the treatment condition has to be below ceiling for a valid comparison on
variable i. However, the effects of historical events during the workshop period are
theoretically expected to be detected through pretest-posttest changes in the con-
trol group on the outcome variables. If control centers are at ceiling on a variable
at pretest, they are able to reflect downward, but not upward, effects of these
events.

Workshop effects on the center environment have to be estimated from a small
number of items: six for the treatment/control comparison and eight for the one-
way/two-way comparison. Applying the ceiling rule to both comparisons eliminates
all but seven variables from the treatment/control comparison and nine variables
from the one-way/two-way comparison. The ceiling rule was applied to each vari-
able in the physical environment battery for each of the four conditions (control,
treatment, one-way, and two-way). The treatment and control conditions are not at
ceiling on only seven variables. Both the one-way and two-way conditions are not
at ceiling on nine variables. Of the variables not at ceiling, one is eliminated from
both comparisons for validity reasons. Posttest data from the physical environment
questionnaire suggest a systematic upward bias on some variables at pretest. The
bias is plausibly a social desirability bias, which can be expected to be stronger at
pretest than at posttest.

There are several plausible reasons for the large number of ceiling effects. First,
for some items, measures may have been too gross, so that they did not display the
true distributional spread of centers. Several items—e.g., presence/absence of a fire
extinguisher—were genuinely binomial. Other items allowed ordinal distinctions—
e.g., kitchen cleanliness. Most of these variables have the number of distinctions

1 These variables are: center policy on keeping children with a fever at the center; presence of a
thermostat/thermometer in each classroom, no rooms with uncovered accessible electrical outlets, no
harmful ingestibles, cushioning material under outdoor accessible equipment, fire escape route posted,
an overall physical environment rating of “very good.”

2 These variables are: center policy on keeping children with a fever at the center, presence of a
thermostat/thermometer in each classroom, a rating of “very clean” for the kitchen, presence of safety
gates for toddlers, no rooms with uncovered electrical outlets, no harmful ingestibles, fire escape route
posted, an overall physical environment rating of “very good,” and children never left without adult
supervision.

3 This variable was the center policy on children with a fever.
that pilot tests revealed could be meaningfully made. The meaningfulness of distinctions is positively related to inter-coder reliability and to the interpretability of data. Thus, even though in theory the distribution of centers on ordinal items could have been spread out by adding distinctions, it is not clear what the spread would have meant or that it could have been reliably coded.

A second possible explanation of ceiling effects is a systematic positive bias on the part of observers and respondents. We have already mentioned evidence consistent with this explanation for some respondent items. Although there was general pretest-posttest stability on the checklist items that were at ceiling at pretest, there is some pretest-posttest decline on some items, including the overall rating of physical condition. However, such a decline is consistent with a true decline in condition. Centers had been in continuous use since the pretest five months earlier. They follow a school cycle, and standards tend to relax as such institutions near close of term. Repairs also tend to be made in the summer, and the pretest was closer to the last repair period than the posttest.

A third explanation of the large number of ceiling effects is that the centers in the sample in fact had good physical environments. At the conclusion of the physical environment checklist, observers were asked to make a summary rating of the center's physical environment. Obviously, to the extent that a systematic positive bias affected individual items, we can expect the same bias in the summary item. However, if the ratings are accepted as valid, we find that 90 percent of the centers were rated at pretest as having a "good" or "very good" overall physical state (100 percent of the control and one-way centers and 67 percent of the two-way centers).

There are no significant differences between conditions on the six items not at ceiling. There is some evidence that the treatment groups decayed less between pretest and posttest on overall physical condition, but this difference is not statistically significant. It could also be a function of differential natural decay processes between the treatment and control conditions—i.e., entirely independent of the workshops.

There are no significant differences between the one-way and two-way conditions on the eight items not at ceiling. There are also no statistically non-significant, but patterned, differences between conditions.

STAFF EFFECTS

Staff effects are indicated by four measures: a cognitive knowledge test (Cartoon Booklet); measures of professional daycare orientations; daycare "classroom" activities, grouping of children for activities, and their participation rates (PLA-Check); and caregiver-child interactions.

Cognitive Knowledge Test

Caregivers' knowledge of stages of child development, teaching methods, emergency procedures, community resources, and other workshop curriculum contents was evaluated by means of the Cartoon Booklet.

The answers to the 33 items were scored as correct (1) or incorrect (0). A knowledge item was defined to be at ceiling if at least 90 percent of the caregivers answered it correctly before the intervention. Under this criterion, 11 items were
eliminated from subsequent analyses of Cartoon Booklet data, so that usable scores could range from 0 to 22. The remaining 22 items from the pretest were then examined to determine whether they formed associative clusters related to the several curricular areas they sought to tap. An intercorrelation matrix revealed that items conceptually relevant to the same knowledge domain did not tend to be positively correlated; rather, r values among many of the items were not statistically related. Further, factorial analysis of this matrix did not yield underlying dimensions interpretable for the distinct knowledge areas that had guided item construction. Having ascertained that knowledge about one teaching method did not imply knowledge about another, that familiarity with one community resource did not entail familiarity with another, and so on, we felt it inappropriate to treat such content-based groupings of items as if they constituted coherent subtests. Rather, for purposes of subsequent analyses, we used only total test scores. Such scores are taken to represent an index of general information about daycare service delivery that workshops attempted to convey.

Table 12 summarizes the results of a repeated measures analysis of variance with condition and time as the independent variable. As the table indicates, the scores were significantly higher at posttest than at pretest (F = 11.87, p < 0.01). A strong main effect emerged for condition as well, the two treatment groups performing substantially better than the control group (F = 4.39, p < 0.05). How-

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Control (n = 12)</th>
<th>One-way (n = 14)</th>
<th>Two-way (n = 15)</th>
<th>Rows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>$\bar{x} = 13.92$</td>
<td>$\bar{x} = 15.5$</td>
<td>$\bar{x} = 16.07$</td>
<td>$\bar{x} = 15.16$</td>
</tr>
<tr>
<td>Posttest</td>
<td>$\bar{x} = 14.92$</td>
<td>$\bar{x} = 17.0$</td>
<td>$\bar{x} = 16.53$</td>
<td>$\bar{x} = 16.16$</td>
</tr>
<tr>
<td>Columns</td>
<td>$\bar{x} = 14.42$</td>
<td>$\bar{x} = 16.25$</td>
<td>$\bar{x} = 16.30$</td>
<td>$\bar{x} = 15.56$</td>
</tr>
<tr>
<td>sd</td>
<td>1.77</td>
<td>1.86</td>
<td>2.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sources of variation</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>2</td>
<td>4.39</td>
<td>.05</td>
</tr>
<tr>
<td>Unit</td>
<td>38</td>
<td>(not tested)</td>
<td></td>
</tr>
<tr>
<td>Pre/post</td>
<td>1</td>
<td>11.87</td>
<td>.01</td>
</tr>
<tr>
<td>Condition X Pre/post</td>
<td>2</td>
<td>1.08</td>
<td>n.s.</td>
</tr>
<tr>
<td>Unit X Pre/post</td>
<td>38</td>
<td>(not tested)</td>
<td></td>
</tr>
</tbody>
</table>
ever, the predicted time-by-condition interaction effect did not appear, a significant interaction term being interpreted as indicating that treatment groups gained more information relevant to daycare service delivery over time than the control group.

A series of planned cell comparisons helped interpret these results. First, as Table 12 shows, the means of the three conditions differed at pretest. The treatment group scored significantly higher than the control group on the test of caregiver knowledge ($T = 2.42, p = .021$). At posttest the treatment group continued to score higher than the control group, the difference being even greater than at pretest ($T = 2.95, p = .007$). However, gain scores show no significant change from pretest to posttest for treatment subjects or for two-way subjects. The one-way group, in contrast, showed the greatest positive change ($T = 3.40, p = .005$) and the control group also improved substantially ($T = 2.45, p = 0.03$). Thus, although pooled treatment group scores show overall significant gains relative to the control group ($T = 2.59, p = 0.16$), the effect is accounted for in large measure by the one-way group.

In sum, all conditions showed a positive change, the control and one-way groups by statistically significant margins. Although the two-way group showed no substantial change, their pretest scores were higher than those of the one-way and control group pretest scores—by a statistically significant amount relative to the control group. Thus, the two-way condition was closer to ceiling at pretest and had less room to evidence change at posttest. There are several plausible explanations for this effect observed in the treatment and control conditions. First, hiring tends to occur in the fall, so staff should be more experienced and knowledgeable about daycare at posttest than at pretest. This maturation explanation is less plausible than other explanations because staffs in all conditions were fairly experienced at pretest, especially the control staff. Second, the pretest represents a learning opportunity that can plausibly be expected to affect scores on retesting. Third, all conditions, including the control condition, were part of the daycare experimental study independent of specific treatments. In particular, all conditions had an opportunity to become aware of community resources relevant to daycare, because the incentive package distributed to all centers before the workshop included a directory of community resources. These sources of temporal effect, combined with high initial scores for treatment groups, reduced the possibility of producing a significant time-by-condition interaction.

The one-way condition shows the strongest effect relative to both the control and two-way conditions. This difference may be a function of the workshops and of a delivery medium that might interfere less with cognitive learning than the two-way camera medium. As discussed later in this section, the cameras in two-way centers increased participants’ concern with how they were perceived by others. This sort of anxiety tends to interfere with cognitive learning.

**Professional Identification with Daycare**

The intent of this measurement domain was to determine if the workshops affected directors’ and caregivers’ definitions of their daycare roles. We expected that directors and caregivers would become more conscious of themselves as members of a daycare community and conceive of their roles more professionally as the result of the workshops.

The measurement battery included items in four substantive domains: defini-
tion of self as center administrator (relevant only to center directors), definition of self as a member of a daycare and human services community, standards for the daycare program (some items here relevant only to directors), and personal commitment to daycare (items relevant only to caregivers).

**Definition of Self as Center Administrator.** The items in the first domain were intended to assess the directors' rationalization of the center. The domain included items on record-keeping (e.g., medical records on children, parent payments, attendance), curriculum plans, and health and safety plans. The items in this domain were all at ceiling at pretest—if not for every condition, then for at least one condition in each of the two comparisons. Scores by condition were stable between pretest and posttest. Thus, pretest ceilings probably indicate true scores, not an upward social desirability bias.

**Definition of Self as a Member of a Daycare and Human Services Community.** The second domain included these variables: occupational definition of self to outsiders, connections with caregivers in other centers, connections with parents in dealing with the children, and knowledge and use of community social services. The analysis of covariance results of treatment/control and one-way/two-way two-tailed comparisons for the domain are presented in Table 13 for all staff, directors only, and caregivers only. Although effects occur for individual items, there are no consistent effects across items for the treatment group or the one-way or two-way groups. There are no statistically significant posttest differences between conditions on the extent to which respondents elaborate their role descriptions to a hypothetical neighbor. Staff in all three conditions showed a slight decline for the question that asked whether they now meet with caregivers from other centers. The one-way group met with other caregivers more frequently than the two-way group both at pretest and posttest, and there was no differential pretest-posttest decline attributable to a decrease in social desirability pressure or to a true

<table>
<thead>
<tr>
<th>Variables</th>
<th>Treatment vs Control</th>
<th>One-way vs Two-way</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elaboration of role description to neighbor</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Now meet with caregivers from other centers</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Problem-solving contact with children's parents</td>
<td>( p = 0.08 ) treatment &gt; control</td>
<td>NS</td>
</tr>
<tr>
<td>Referral to community social agency</td>
<td>NS</td>
<td>( p = 0.08 ) one-way &gt; two-way</td>
</tr>
</tbody>
</table>

* Items on health and safety plans came from the physical environment questionnaire.

* As noted in Sec. III, an analysis of covariance technique controls on initial differences between conditions in a comparison.
decline in meeting. As we have noted earlier, daycare centers follow a school year pattern. To the extent that contact is primarily renewal of contact, it is more apt to occur in the fall than in the spring.

Relative to the control group, the treatment group shows a statistically significant (p = 0.08) difference on the extent to which they hold conferences with parents of daycare children, the difference being primarily attributable to caregiver, not director, changes. There is no difference between the one-way and two-way conditions on this variable.

This observed treatment/control difference may be a function of causes unrelated to the workshops. As the daycare year proceeds, caregivers know children better, and there are more opportunities for children to reveal problems that indicate caregiver/parent conferences. Thus, the treatment/control posttest difference might be attributable to a natural increase in caregiver/parent conferences and an underlying difference between control and treatment caregivers in how they respond to children's problems. At pretest, relative to treatment staffs control staffs seemed less disposed to extend beyond the center—i.e., they showed less connection to parents and community services and expressed less desire to meet with other caregivers.

Relative to the two-way condition, the one-way condition shows a statistically significant increase in referrals of parents to community social agencies, the increase being primarily attributable to increases for one-way directors, not one-way caregivers, and to pretest-posttest increases for one-way directors and pretest-posttest decreases for two-way directors.

In this and other domains the control staff show some interesting changes. The number of caregivers who do not now but would like to meet with caregivers at other centers increases from 43 percent to 88 percent, an increase that is not statistically significant because of the small n (n = 6). They also give a more elaborate description of their occupation to a hypothetical outsider, the proportion giving three or more descriptors increasing from 0 to 42 percent (n = 12). We interpret these and changes in other domains at the end of the section on professional definition.

Standards for the Daycare Program. The third domain involves two item sets: one for all staff and one for directors only. Both caregivers and directors were asked their child care philosophy,* which activities were most dispensable and which most indispensable, and whether they planned to take future training in child care. If we assume that the number of child care goals mentioned is an interval scale, child care philosophy is less elaborated at posttest than at pretest for the control, treatment, and one-way conditions. It is unchanged for the two-way condition. The workshops should have enlarged participants' concepts of child care, but the treatment condition did not move up and the one-way condition moved down. These unexpected results require explanation. The item appears to be fundamentally valid. It elicited patterned responses in the Prescott et al. study (1967). It also differentiated conditions at pretest in ways that we would have expected on the basis of other staff characteristics. However, as indicated before, there was probably more social desirability pressure at pretest than posttest. Because the "demand characteristics" of this item were an extensive reply, we would expect any

* Caregivers' philosophy was elicited by a question on what they hoped children would get from their experiences at the center.
social desirability bias to manifest itself in greater pretest than posttest elaboration. In this context the lack of change in the two-way condition may indicate a positive effect of treatment. Certainly, the one-way/two-way posttest difference in mean elaboration is significant at \( p = 0.01 \).

This possibility should be assessed in terms of other characteristics of the data. Although the two-way condition showed no pretest-posttest change in mean elaboration, they did show a redistribution of focus on alternative child care objectives (socialization, emotional development, school preparation, and custodial care). The objective of emotional development gained four choices, two from caregivers and two from directors. All other objectives lost at least one choice. Although the two-way pretest-posttest difference on emotional development was statistically non-significant (\( p = 0.16 \)), of the four child care objectives, the curriculum stressed emotional development. Thus, in the two-way condition we predicted and found an upward shift for the emotional development objective. In sum, the workshops may have affected child care orientations in the two-way condition, in terms of both the amount and the nature of elaboration.

The items on activities—the activities that the respondent was most and least willing to drop—were intended to register expected changes in daycare curriculum priorities. At pretest, choices to drop were scattered across activity categories. All activities were "at floor" either for every condition or for one condition in each comparison. In other words, the pretest choice distribution did not allow statistically detectable shifts downward. In retrospect, we realized that the workshops should have been expected to affect inclusion, but not exclusion, of certain activities. Although the workshops singled out certain activities as particularly valuable, they did not present any as not valuable. Therefore, at the conclusion of the workshops we revised our hypotheses to predict increasing preference for certain activities.

At pretest, activity preferences were similarly scattered among activity categories. However, in this case the scatter meant that all activities could register workshop effects—i.e., preferences could aggregate around activities stressed by the workshops. The workshops stressed group time, stories, music/art, and active motor and manipulative activities. In the treatment/control comparison there were either downward shifts or no change in the group time, stories, active motor, and manipulative activities. Both conditions shifted upward on music/art, the treatment condition by more than the control condition when pretest differences were controlled. However, the posttest difference between the treatment and control conditions was not statistically significant (\( p = 0.23 \)). There are no one-way/two-way effects on the activity preference dimension.

The final item in this domain, plans to take more training in the care of children, is at ceiling at pretest for both comparisons and is consequently not tested for effects. However, this item may form a pattern with similar items for the control group and is discussed below in that connection.

Questions about daycare program standards that were asked of directors involved only questions about the directors' plans for their staffs to get more training in child care. Relative to pretest scores, the control, treatment, one-way, and two-way conditions all show increases in the proportion of directors who plan for their staffs to get more training. When initial differences are controlled for, there are no statistically significant posttest differences between the treatment and control.
groups or between the one-way and two-way groups. There are statistically significant pretest-posttest differences for the treatment condition ($p = 0.08$) but not for the control, one-way, or two-way conditions.

All conditions also show increases in the proportion of directors willing to give staff time off with pay to obtain such training. Again, however, there are no statistically significant posttest differences between the treatment and control groups and between the one-way and two-way groups, once initial differences are controlled for. There are also no statistically significant pretest-posttest differences for the treatment, control, one-way, or two-way conditions. Directors were also asked whether they could spare a staff member who wanted to take time off during the day to obtain more training. For the three response options, "could spare," "could not spare," and "would depend on circumstances," all conditions showed no pretest-posttest change on "could not spare." All conditions, but particularly the treatment conditions, showed a shift from "could spare" to "would depend on the circumstances." There are two plausible explanations of this shift. First, centers tend to follow a school year cycle, so basic staff needs are probably assessed and filled in late summer and early fall. Staff attrition occurs from this point. Because posttest is further into the attrition cycle than pretest, the posttest responses on sparing staff may reflect reduced staff. Second, the workshops interrupted the center day for training purposes. This experience probably gave directors in the treatment condition a more realistic basis for answering the question.

In sum, there are differences from pretest to posttest for all daycare standards questions asked of directors. All three conditions showed changes, and there were consequently no statistically significant posttest differences between the treatment and control or one-way and two-way conditions. Only one condition (treatment) showed a statistically significant pretest-posttest change on one item (plans for staff training). Two items showed changes in the expected directions (directors' plans for staff training and willingness to pay for staff time off to obtain training). One item (ability to spare staff for training) did not change in the expected direction, but the observed change seems plausibly interpreted as greater scarcity of staff at posttest than at pretest or as greater appreciation of the interruptive effects of training.

**Personal Commitment to Daycare.** The fourth domain was assessed for staff only. It consisted of two items: desire to remain in the daycare field and desire to start their own daycare center. Desire to remain in daycare was at ceiling at pretest for all conditions and thus not subject to tests of effects. The control condition shows no pretest-posttest change on this item, and both the one-way and two-way conditions show a pretest-posttest decline in desire to remain in daycare. Because the control condition staffs were older and employed longer in daycare than the treatment staffs, we would expect control participants to show more stable attachment to daycare across the pretest-posttest period than participants in the treatment conditions. However, we do not know the natural mover/stayer propensities for the one-way and two-way participants, so we cannot estimate whether the workshops reduced the amount of expected exit that would have occurred for these conditions without the workshops. The final item, desire to start own daycare center, showed no pretest-posttest change for any of the conditions.

**Summary and Interpretation.** Of the four domains of professional identification, all indicators of one domain, definition of self as center administrator, were at ceiling. The pattern for this domain was similar to the pretest pattern for the
physical environment items. Because health and safety characteristics of a center are primarily attributable to the center director, we can conclude that directors in the sample observed basic administrative and safety standards before the workshops.

There are no consistent effects across items in the domain for definition of self as a member of the daycare and human services community. The treatment group shows a statistically significant posttest difference relative to the control group on holding conferences with parents about their children. Most of the difference is attributable to changes in caregiver behaviors and might be attributable to underlying differences between treatment and control staffs rather than to the workshops. The one-way group shows a statistically significant difference relative to the two-way group on referral of daycare families to community services. Most of the change is attributable to gains for one-way directors and declines for two-way directors.

If we make certain assumptions, the data may indicate treatment effects for the daycare standards of directors and caregivers. Relative to the one-way staffs, staffs in the two-way condition may evidence more complex posttest definitions of the daycare role. They may also show an increased preference for the emotional development objective of daycare. Relative to the control condition, the treatment conditions may evidence greater preference for art/music activities for children. However, the effects in this domain are few and equivocal.

The workshops had effects on directors' standards, specifically their plans to have staff obtain more training and their willingness to pay them for training-related absences from the center. There were no differences in these effects between the one-way and two-way groups or between the treatment and control groups. In other words, both the treatment group and the control groups showed effects on these items.

Our discussion of the professional identification items noted several apparent effects for the control group. Together these fragments seem to form a pattern. Although none achieve statistical significance, the control condition shows these pretest-posttest increases: (1) proportion of control staff who do not now but would like to meet with caregivers in other centers, (2) proportion of control directors who plan to obtain more training in child care, (3) proportion of control directors who plan to have staffs get more training in child care, and (4) proportion of control directors who are willing to pay staff for training-related absences from the center. These data fragments suggest that simply participating in a study with daycare workshops had effects independent of the workshops themselves. The effects were of two kinds: consciousness of a caregiver community and increased value placed on child care training.

The final domain, personal commitment to daycare by caregivers, was at ceiling on one of the two items at pretest and showed no posttest differences or pretest-posttest change for any of the conditions on the second item.

In sum, there were few effects on the professional self-definition items. In part, this was because all or almost all items on two of the four domains were at ceiling at pretest. In part, some items may be confounded with a greater social desirability bias at pretest than at posttest, thus masking effects that in fact occurred. For example, two-way participants may have elaborated their concepts of child care, especially the dimension of emotional development, as a result of the workshops.
However, this item may have elicited a socially desirable response at pretest, and we cannot draw any strong conclusions one way or the other. There do seem to be effects on contacts with parents for caregivers that are attributable to the workshops and effects on the use of community resources for the one-way group. However, the clear effects for directors on desire to have staff obtain more training occurred for directors in all three conditions. Thus, these effects seem attributable to participating in the study itself, not the workshops.

Center Activities and Caregiver/Child Interactions

The substantive nature of the activity, grouping of children for the activity (individual, subgroup, total group), and the proportion of the children involved in the activity who were actually participating were recorded once every five minutes for one hour on one day and a second hour on another day, giving 24 observations on activity characteristics for every study participant at pretest and at posttest. Interactions of the caregiver with daycare children were recorded continuously between activity records and in terms of the caregiver’s actions. There was an average of 25 events per five minute period in each condition at pretest and at posttest, providing an average of 600 interactions recorded for each caregiver in each condition at pretest and at posttest.

As Sec. IV indicated, each interaction was coded for several characteristics. The first was the caregiver’s focus of attention. If the caregiver was interacting with a daycare child, these aspects of the interaction were coded: target of the interaction (individual child, subgroup, total group); emotional tone of the interaction (positive, negative, neutral); the presence or absence of physical contact with the child; and the nature of the communication (nurture, structuring, evaluation, and exchange). Further distinctions were made on three of the four communications types. Structuring involved four classes: accepts child’s request, reject child’s request, provides alternatives, and gives an imperative. Evaluation involved three distinctions: positive, negative, and mixed; exchange, two: recitation and information. Whenever a structuring communication occurred, the reason given the child was also recorded: none, power-based, and situational based. All communication types could be extended or not extended.

Properties of Pretest and Posttest Data. The pretest and posttest data had the following characteristics.

1. At pretest, the mean proportions of a characteristic were generally similar across all three conditions.

2. The pretest data were orderly—i.e., consistent with what we knew about group care institutions, adult/child interaction patterns, and sample characteristics. For example, we expected that if rejecting children’s requests occurred frequently, we would find a high incidence of accepting children’s requests. The former requires instances of child-initiated requests, and these behaviors will tend to extinguish if requests are routinely rejected. We found a strong positive correlation (p = 0.001) between the two variables.

3. The pretest and posttest data show a fair number of statistically significant time effects in both the treatment/control and one-way/two-way comparisons. In other words, they show change from pretest to posttest, and the changes occur in the same direction for both conditions in the comparison.

4. The time effects are orderly—i.e., consistent with the maturation of the
children, aging of the caregiving group, and pretest-posttest differences in season. For example, the proportion of caregiver actions involving interactions with day-care children increased for all three conditions. This time effect is consistent with increasing child-initiated interactions with the caregiver, which should occur as children age (increased social behavior) and as children spend more time in the caregiving group (increased trust of the caregiver and increased psychological centrality of the caregiver for the child). We also found that the proportion of imperatives declined for all three conditions, a decrease consistent with the fact that children are more independent (require less structuring of their behavior), more social (require less externally imposed constraint), and more familiar with the rules and routines of the caregiving group (require less reminding).

5. After corrections for initial differences, there are few statistically significant posttest differences between conditions.

**Treatment Versus Control Comparisons.** There are ten statistically significant \( p < 0.10 \) posttest differences between the treatment and control groups. In eight of the ten, the difference is attributable to change in the control condition only, and the change is in the desired direction.

Relative to the control condition, the treatment condition changed differentially on two variables: proportions of negative affect and of accepting child’s request without a reason. Both conditions declined on these variables—i.e., they showed statistically significant time effects \( p < 0.05 \) and \( p < 0.01 \), respectively. There were also statistically significant differences in amount of decline between the two conditions, the control condition declining more than the treatment condition on proportion of negative emotion \( p < 0.10 \) and vice-versa on proportion of accepting child’s request without a reason \( p < 0.05 \). These differences could be artifactual. There were a large number of planned, orthogonal comparisons between the treatment and control groups, and type I errors can be expected for some proportion of the comparisons. However, let us assume true differences.

The difference between conditions on accepting a child’s request without a reason is consistent with the workshop suggestions that caregivers give reasons for their actions. However, it would have made more sense to find an increase in reasons for caregiver denials of a child’s request or caregiver requests of a child. A child is more apt to require reasons when something he wants is denied or something is asked of him than when something he wants is granted. Thus, the differential increase in reasons for the treatment condition is either a type I error or a theoretically uninteresting effect.

The results for negative emotion are much more interesting because the workshops emphasized the undesirable consequences of this kind of emotion. Thus, if the workshops had effects, this variable is one of the key variables for detecting them. In fact, we found strong time effects for all three types of emotion, both

\[ \text{Several of these changes are interpretable. For example, at pretest the control condition had a higher proportion of free play and slightly lower proportion of active motor activities than the treatment group. At posttest the control condition had a statistically significant lower proportion of free play and higher proportion of active motor activities than the treatment group. Both free play and active motor activities represent "open" or unstructured activities. Free play tends to occur inside; active motor, outside. The pretest occurred during cold weather, the posttest during warm weather. It seems plausible to assume that between pretest and posttest the control centers substituted outdoor for indoor unstructured play, resulting in differential changes between the treatment and control conditions on two variables. Exactly why the treatment condition did not show the same substitution is not clear, although it may be because there was a greater total amount of unstructured activity in the control classrooms at pretest.} \]
conditions decreasing in the proportion of positive (p < 0.01) and negative (p < 0.05) emotion and increasing in the proportion of neutral emotion (p < 0.01). These effects are consistent with the fact that emotion in interaction groups tends to "flatten out" as the group ages—i.e., through time a group tends to show less positive or negative feeling. However, as noted, we also found that the treatment group declined less on the proportion of negative emotion than the control group.

Thus, we know the following: (1) the activity and interaction data are orderly at pretest and evidence a substantial number of orderly time effects at posttest; (2) there are few differential changes between the treatment and control conditions; (3) 80 percent of the differential changes are attributable to change in the control condition only; (4) in most cases the control condition changed in a desired, not a decay, direction, excluding the possibility that the workshops prevented decay in the treatment condition; (5) time effects occur for all types of emotion; (6) the workshops stressed one variable, proportion of negative emotion, for which both conditions changed in the desired direction by statistically significant differential amounts; and (7) the control condition changed more than the treatment group on this variable.

These statements have the following implications for estimating the effects of the workshops on activity and interaction behaviors: (1) caregiver activity and interaction patterns are "permeable"—i.e., change under certain conditions; (2) the workshops as constituted and delivered do not represent such a condition; and (3) the lack of effects is not plausibly attributed to problems in the measurement of the selected indicators of activity and behavior patterns.

One-Way Versus Two-Way Comparisons. There are six statistically significant (p < 0.10) differential changes on the activity and interaction variables between the one-way and two-way conditions. In four cases, the differential is created by increases in the desired direction by the one-way condition and decreases by the two-way condition; in one case, the reverse occurred; in the sixth case, the one-way condition increased and the two-way remained constant.

There is no theoretical pattern among the variables for which differential changes occurred. None measures substantive areas strongly emphasized by the workshops. Thus, the changes that occurred seem more plausibly attributed to idiosyncratic effects of the workshops or to measured or unmeasured initial differences between one-way and two-way staffs. If we include variables for which the conditions changed by differential amounts but not by statistically significant amounts, our conclusions about one-way versus two-way workshop effects are not altered.

Summary. The data indicate that the workshops did not affect activity and interaction behaviors in either of the treatment groups or differentially by mode of cable delivery. The orderly nature of the pretest data and pretest-posttest time effects means that the lack of observed effects are not plausibly attributed to invalid or unreliable measurement. It is always possible that there were unmeasured effects in these domains. However, the observation instrument was fairly comprehensive and registered interpretable and substantial numbers of time effects.

CONCLUSIONS

This section summarizes the interpretive problems associated with the daycare
workshop study. In light of these problems, we then assess the implications of the data for the original questions: whether television-delivered daycare training affects daycare facilities and staff and whether alternative delivery modes (one-way versus two-way) have differential effects.

**Interpretive Problems**

The daycare experiment was run under conditions that reduced the credibility of both positive and null results. The problems arose primarily from: (1) the sample size and its consequences for comparability of conditions and usable cell sizes, and (2) first round experiences with the workshops, television delivery system, target group (daycare staff), and measurement battery. We had expected to run a second and "debugged" round of workshops and outcome measures that would have represented a more valid test of television-delivered workshops and alternative delivery modes. However, the inability to sample from the larger population of daycare homes and the very limited population of daycare centers in Spartanburg precluded a second round.

The following factors should be kept in mind in assessing the possibilities of television-delivered daycare training workshops and one-way versus two-way delivery modes.

**Small Cell Sizes.** The small cell sizes of the study limit the trust that can be placed in the study results. As discussed in Sec. III, the smaller the sample size, the harder it is to detect effects statistically. Small sample sizes also increase the chances that the distribution of traits within randomly assigned groups will differ in some important ways. For example, although the one-way and two-way groups were basically comparable in education, there are indications that the one-way staffs were more verbal than the two-way group. In open-ended interview questions, the one-way respondents tended to produce more elaborate responses. This difference made it difficult to interpret data that represented counts of response elaboration.

**Joint Effects of Small Cell Size and Role.** Aside from differences in formal responsibilities, directors and caregivers also differed in background characteristics and workshop attendance rates. The two groups can be expected to differ in response to workshop content as a function of differences in educational needs, orientations toward daycare, constraints on change, and exposure to the workshops. On the basis of attendance rates, it would have been appropriate to estimate workshop effects from caregiver data alone. However, eliminating directors would have dramatically reduced cell sizes and the chances of detecting caregiver effects statistically or qualitatively.

**Non-comparability of Conditions.** The non-comparability of the treatment and control groups affected estimates in two ways. First, we had to rely on control data to distinguish the effects of history from those of treatment. However, qualities of control centers and staff suggests that they would be less responsive to intervening events—e.g., the pretest—than treatment centers or staff. Thus, posttest differences between treatment and control groups may represent the differential effects of historical events other than the treatment.

Second, initial differences can signal different paths through time—i.e., increasing or decreasing differences—but paths cannot be estimated from the one-time measurement of the pretest. Statistical "corrections" of the posttest data that are
based on pretest differences may therefore overcorrect or undercorrect differences between conditions. For example, we suspect that the treatment and control groups have different probabilities of leaving daycare, and we consequently cannot estimate workshop effects on exit with any confidence.

**Missed Educational Opportunities.** The initial round almost certainly did not exploit important learning opportunities present in the target population.

- As Sec. II indicates, there was little previous knowledge about the characteristics of daycare staffs in general or in Spartanburg. The workshops had to be produced simultaneously with knowledge about the characteristics of local facilities and the capabilities, needs, and motivations of local staffs. Inevitably workshop content was not targeted as relevantly as it could have been in a second round.

- Workshops also had to be produced simultaneously with knowledge about the possibilities of the television medium, particularly the audio and video return mode. These possibilities were consequently not fully exploited in the first round. For example, the potential of using two-way video to establish professional networks among participating institutions was not fully developed; the modeling possibilities inherent in the two-way delivery option were not fully exploited.

- Problems with the two-way cable technology interrupted the workshops for both the one-way and the two-way participants and almost certainly reduced what viewers learned from the programs. The viewers' attention and program continuity were disrupted. Only about 20 percent of the technical problems could have been corrected in a second round. About 60 percent were attributable to hardware choices specific to Spartanburg; 20 percent were inherent limits of cable television.\(^8\)

**Attendance Rates.** The average participant attended only approximately 50 percent of the workshops, caregivers missing about 30 percent and directors two-thirds of the workshops. The net effect of the initial round on attendance rates and consequently on effects is unknown. Content/audience mismatches and technological interruptions may have reduced attendance below what would have occurred in a second round. Hawthorne effects from a first round of workshops may have increased attendance over rates in more routine rounds. In other words, we do not know what attendance rates, and consequently what effects, would occur under smooth and routine workshop conditions.

**Missed Measurement Opportunities.** Measures were piloted before the pretest, but a pilot cannot reveal certain difficulties. First, outcome measures have to fit the treatment as it is actually delivered. Because the first round was a pilot of the treatment and pretest measures had to be piloted prior to the first round, measures had to be based on substantive domains expected to be covered in the workshops. Stimulus items and observer categories consequently were not as isomorphic with workshop content as would have been possible with detailed prior knowledge of content.

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\(^8\) Hardware problems were a function of the Spartanburg cable system (absence of an overlashed cable) and of the equipment purchased specifically for the daycare experiment (problems with the switching mechanisms). These difficulties could be eliminated at sites with overlashed cable systems and with different equipment choices. The inherent limit on cable television is in the quality of the voice, not the image.
Second, the lack of knowledge about facility and staff characteristics meant that the battery included items for which facilities and staff were at ceiling—e.g., the physical environment and center management variables. Such items are "throwaways" and simply divert measurement resources (e.g., alternative items, observer/interviewer attention) from dimensions on which change was possible.

Third, a quality daycare training curriculum addresses many variables with which we have little measurement experience. Developing valid and reliable measures requires knowing the statistical properties of scales and the sources of disturbances (systematic or random) in the measurement of the particular concepts. If there is little measurement experience with a concept or domain, these sources of disturbance have to be learned through experience. Pilot tests reveal certain problems, but other disturbances—e.g., social desirability biases—show up only under other conditions—e.g., pretest-posttest patterns produced by a full round of the experiment.

Overall Results

In general, for these workshops assessed by this measurement battery, it cannot be statistically concluded that television-delivered daycare training produced any effects or that either mode of delivery produced different effects than the other. However, there are indications that participating in the study per se has effects, that televised workshops may have cognitive and attitudinal effects, that the one-way mode is preferable to the two-way mode for producing cognitive effects, and that the two-way mode is preferable to the one-way mode for producing attitudinal and value effects.

In the physical environment domain the workshops may have slowed the physical decline that tends to occur in centers as the daycare year progresses. However, the important result was the substantial number of ceiling effects, which seem to reflect true characteristics of the centers more than measurement artifacts. It is not known whether these characteristics are a function of government regulations or other center properties—e.g., community visibility—or whether they generalize beyond Spartanburg. However, if they are generalizable and center staffs are the target audience, workshops should not concentrate on the health, safety, and management characteristics of facilities.

All conditions showed increases in cognitive knowledge about daycare, the one-way and control groups by statistically significant amounts relative to pretest scores. The two-way group, which had the highest pretest scores of the three groups, showed no statistically significant pretest-posttest gain. The important question is why the one-way (but not the two-way) groups and the control group showed statistically significant pretest-posttest gains. The insignificant change in the two-way group may be attributable to its being closer to ceiling at pretest; the significant change in the control group may be due to pretest learning. In either case the answer is not particularly interesting. Of greater import for conclusions about one-way versus two-way delivery modes is the possibility that the presence of cameras in the two-way mode interfered with cognitive learning.

Cameras could have reduced cognitive learning in two major ways, both by affecting participant attention to workshop content. One involved the mechanical requirements of the two-way system. Because there was no central computer to handle the switching back and forth between the workshop studio and centers in
the two-way net, switching had to be done mechanically at individual centers. A two-way viewer had to get up to turn on the camera for that center to appear on the screen and then get up again to switch off the camera at the end of that round of interactions. Obviously, the switching routine was awkward and might be expected to divert participants' attention.

The second effect of the camera is to create visibility for the participant. The workshops are a course conducted by an authority figure, and the situation is an evaluative one for participants or "students." Individuals tend to feel more evaluative anxiety in this situation when the "class" focuses on them. The camera selects out a small group or single individual for visual and auditory "display." Evaluative anxiety reduces cognitive learning by focusing attention from workshop content to assessing how the self is being judged.

The evidence is consistent with both possible camera effects. First, the average two-way participant was in the presence of a camera for 8-1/3 weeks, or 64 percent of the 13 weeks of new programs in which cameras were present in centers. In other words, the average two-way participant had substantial exposure to the camera. Second, media questionnaire data, discussed in the previous section, show that for two-way participants (1) 57 percent felt that a microphone for asking questions would have been enough (only 43 percent also wanted a camera); and (2) in responding to a question about why a microphone would be enough, two mentioned that the camera was "distracting" and seven that they did not like or need to be "seen."

Of import for conclusions about the use of televised workshops for daycare training is the possibility that non-workshop aspects of the study produced almost as much learning in a particular domain as the workshops themselves. Much of the control pretest-posttest change is attributable to increased knowledge about community resources. Before the workshops, a directory of community resources was distributed to all conditions. Professional identification data suggest that the control group considered themselves connected into the study, a feeling that might be expected to translate into motivation to read a directory. Thus, non-workshop aspects of the study can plausibly account for the control group gain, although distribution of information alone may not have the same effect as information plus inclusion in a network.

There were a few professional identification effects of interest. Although a one-way delivery mode may be preferable to the two-way mode for conveying cognitive information, fragments of professional identification data suggest that two-way video may be more effective than one-way in creating, reinforcing, or changing values and attitudes. The evidence for this proposition is very thin, but it is important enough to state tentatively.

As noted earlier in this section, the control and one-way conditions gave a less elaborated philosophy of child care at posttest than at pretest; the two-way condition showed no pretest-posttest change. Because the demand characteristics of the item were an extensive reply, we conjectured that differences in social desirability bias at pretest and posttest might account for the control and one-way decline at posttest. In this context, lack of change in the two-way condition may indicate that the two-way mode reinforced attention to child care values.

* In response to a media questionnaire question on reactions to video and audio return, a one-way participant stated this anxiety well. "If someone is on camera or mike or both, she would be thinking about how she looked and what she'd say and not really concentrate as well on the workshop."
Although the mean elaboration of values did not change for the two-way group, four two-way participants (27 percent) shifted priorities from custodial, school preparation, and socialization objectives to an emotional development objective. Although the pretest-posttest difference on the emotional development variable was not statistically significant (p = 0.16), it was consistent with the fact that the curriculum stressed the emotional development objective.

If two-way video affects norms, the mechanism by which this occurs may be the same as the one hypothesized to account for the cognitive data. The workshops represent influence attempts. One-way participants are primarily passive observers. In the two-way case the participant is engaged by an authority figure on a substantive topic; there is interaction between them; the participant can see and knows that she can be seen by the authority figure; and the interaction occurs "in front of" center colleagues and two-way and one-way participants at other centers. Theory and data on social influence and conformity processes that this context is more conducive to attitude or value formation, reinforcement, and change than that of the one-way condition (Asch, 1956; Cartwright and Zander, 1960; Collins, 1969; Deutsch and Gerard, 1955; Schacter, 1951; Secord and Backman, 1974).

Data suggest that participating in the study itself, independent of the workshops, produces effects in professional networks and in the value placed on training. As noted earlier, the control group shows pretest-posttest gains in proportion of (1) control staff who do not now but would like to meet with caregivers in other centers, (2) control directors who plan to obtain more training in child care, (3) control directors who plan to have staffers get more training in child care, and (4) control directors who are willing to pay staff for training-related absences from the center. None of these gains is statistically significant, but they approach significance and are effects that might be expected from being part of an educational experiment with daycare centers in the community. In this light the increases in the proportion of the treatment group directors who plan to give their staffs more training and are willing to give them time off with pay for training are interpretable as study, but not workshop, effects.

The evidence for workshop effects on daycare networks (networks of caregivers, parents and caregivers, and caregivers and community services) is cloudy. The pretest-posttest decline for all conditions in actual meetings with other caregivers is not readily interpretable from available data. Relative to the control group, the treatment group showed statistically significantly more parent conferences at posttest, an increase primarily attributable to caregiver, not director, changes.

This treatment-control difference can be interpreted as a workshop effect. However, it may be attributable to different "outreach" propensities of the treatment and control group. By virtue of role, directors tend to have—and at pretest did have—more parent connections early in the daycare year than caregivers. We might expect a natural increase in caregiver connections as the daycare year proceeds. In this case the posttest difference between treatment and control categories might be the result not of the workshops but of differences between the two groups in their responses to conference opportunities. The one-way group showed a significant increase and the two-way group a decrease in referral of daycare families to community services. This difference is not explicable in terms of the plausible explanations of other anomalous data (e.g., social desirability bias, difference in delivery mode).
The networking effects of the workshops were disappointing. We had thought that (1) creating networks might be a particularly powerful way to increase caregiver professionalism, and (2) television programs linking several center staffs in a common training exercise was conducive to creating networks. In retrospect, we realized that the workshops had not exploited the networking possibilities of the interactive format well. Measures of network effects had not been well-matched to the community-specific "traces" that network effects would have left.

The center activity and caregiver/child interaction data show that: (1) caregiver activity and interaction patterns are permeable (change under certain conditions), (2) the workshops as constituted and delivered do not represent such a condition, and (3) the lack of effects is not plausibly attributed to problems in the measurement of the selected indicators of activity and behavior patterns.

The implications of these data are that: (a) the one-way delivery mode may produce cognitive gains and the two-way mode inhibit such gains, (b) the two-way delivery mode may produce change in values and attitudes, (c) participation in a study devoted to training and involving multiple centers may produce increased networking and value accorded training, and (d) neither the study per se, televised workshops, nor alternative delivery modes seem to produce changes in participant behaviors.
V. COSTS AND BENEFITS OF CABLE-DELIVERED DAYCARE WORKSHOPS

This section summarizes the benefits of cable-delivered daycare workshops relative to the estimated cost of an hour's programming. Because the experiment did not compare the effects and costs of alternative means of upgrading care, we cannot draw conclusions about the advantages and disadvantages of cable-delivered training relative to other ways of improving the quality of care.

BENEFITS

Section II identified four criteria for evaluating workshop benefits: (1) Are care facilities and caregivers receptive to cable-delivered training programs? (2) Can the workshops reach types of facilities that care for large proportions of preschool children? (3) Do the caregivers and care facilities reached by the workshops have low exit rates? and (4) Does caregiver education delivered by cable produce desired changes in caregiver and facility characteristics? We briefly summarize data from Secs. II and IV and add data from the media questionnaire to assess the overall benefits of cable-delivered daycare training.

With regard to receptivity, we concluded from the Spartanburg experience that the workshop market will probably be restricted initially to daycare centers, although the quality of care in daycare homes is more in need of improvement than center care. A daycare home market might emerge if workshops are offered repeatedly in a community and participants are not asked to be return video sites. Under these conditions daycare home caregivers are more apt to hear about the workshops and less apt to see them as threatening. They may then eliminate the problem of locating them by initiating contact with the workshop organizers.

For the market that the workshops reached, a variety of evidence suggests that participants found interactive workshops of non-commercial quality acceptable. First, of the full-day daycare centers in the cable area, 63 percent enrolled in the study and 88 percent stayed in the workshops for the duration of 14 weeks. Second, of the directors and caregivers who initially enrolled, 84 percent stayed in the workshops for the duration. The majority of those who dropped out of the workshops did so because they left participating centers. Third, of those who stayed in the workshops for the full duration, the mean attendance rate for both treatment conditions was 0.53, the rates being considerably higher for caregivers than for directors. Fourth, in response to a media questionnaire item, 79 percent of the participants said that they would recommend the workshops to any caregiver, and 21 percent said that they would recommend them to inexperienced caregivers. None said that they would not recommend them at all.1 Finally, 65 percent of the

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1 We can expect an indeterminate amount of positive bias in responses to a question of this kind. However, only about a fifth of the respondents chose what might be considered a compromise response—i.e., the inexperienced caregiver response—suggesting that on the whole the audience was satisfied with the programs.
one-way participants found the workshops with interaction more interesting than those same workshops would have been without interaction. Although they were assessing a hypothetical alternative, they used words that imply audience appeal to describe the interactive workshops—more "realistic," "personal," and "involving." Their appraisals suggest the possibility of substituting low budget, technically less sophisticated interactive programs such as the workshops for expensive studio productions.

Data from the media questionnaire indicate that audio return, untested in this experiment, would have had more audience appeal than either of the tested options (no return, and video and audio return). The questionnaire asked two-way participants to compare their return condition (video and audio return) with audio return only; it asked one-way participants to compare no return, audio return, and video return. The "comparisons" among options were hypothetical for both groups, although each had had experience with one of the return options. More one-way and two-way participants (69 percent) preferred audio to video and audio return. More one-way respondents (70 percent) preferred audio to either no return (18 percent) or video and audio return (12 percent).

Both one-way and two-way respondents seem to have preferred audio return over video and no return because it combines invisibility and interaction. Both groups expressed the desire for undelayed audio access to workshop staff so that they could ask questions during the workshops. Although one-way participants had had telephone return that they used occasionally later in the day after the workshop, this option was perceived as less satisfactory than being able to ask questions during the workshop presentations. At the same time, both participant groups expressed discomfort about being on camera and about being seen by other caregivers and the workshop staff. In describing their reactions to video return, they used words and phrases like "camera-shy," "they [audience] do not need to see what we are doing," "being on camera was a distraction," "people are self-conscious about being seen." The proportion of children reached by workshops depends on assumptions about the market for cable workshops and cable coverage of communities. If cable-delivered training is restricted to centers, in 1975 a maximum of 5.5 percent of the

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*a For example, caregivers made these comments: "The interaction adds realism, experience, practicality"; "The caregivers (in the two-way condition) aren't acting; they are bringing up their everyday problem"; "I could get ideas from other caregivers—realized they also had some problems—they seemed to express themselves similar to the way I felt"; "Seeing other caregivers made the lessons practical and on our level."

*b Two-way respondents were asked to make the same comparisons as the one-way group—among no return, audio return, and video return. However, de-briefing indicated that they did not understand the no return versus audio return distinction and were in fact comparing the audio and video returns only.

+c For example, "So long as you could ask questions, it was all right"; "Without a microphone [audio return], many questions go unanswered"; "I would have liked to have asked questions or related in some way, yet would have only needed a microphone."

+d For example: "Several times when Miss ______ was teaching, a question would come to mind that I would have liked to ask right then"; "There were things I needed to ask, and I had to wait and ask by phone."

+e For example: "I would have felt restricted with a camera. I would have liked to have asked questions or related in some way, yet would have needed only a microphone"; "A mike (was) enough. You could talk, but not worry about being seen—some caregivers get camera shy"; "I would rather have asked a question knowing I was not on camera"; "Seeing a person is not as important as what they have to say. Being on camera was a distraction."
preschoolers enrolled in daycare (734,000 children) and 11 percent of the total hours spent by 2 to 5 year olds in daycare could have been potentially affected by training.

Approximately 30 percent of the nation's residences currently have access to cable. If centers with and without cable access are comparable in enrollment size and mean hours enrolled, and if centers with access are distributed randomly among residences, cable-delivered training to centers can potentially benefit 1.7 percent of the children and 3.3 percent of the hours in daycare nationally. To the extent that centers serving poor children are located in the poorer parts of the community, cable-delivered training will tend to benefit non-poor children disproportionately. Most cities have at least fragmentary cable systems, and we can expect coverage of individual cities to increase.\(^7\) If cable access doubles to 60 percent, 3.3 percent of the children and 6.6 percent of the hours in daycare nationally can be affected. Even at cable saturation, if the market for cable workshops is primarily a center market, cable-delivered daycare training is potentially a partial (but hardly a general) solution to the national problem of upgrading the quality of daycare.

With regard to exit rates, we concluded that at least subgroups of facilities and caregivers nationally show reasonable adherence to the daycare system. The centers and caregivers participating in the Spartanburg experiment showed similar rates: 46 percent of the centers had been in operation for five or more years, 23 percent of the sample for ten or more years. Almost two-thirds of the caregivers had been in daycare for two or more years, a third of the total sample for five or more years. We can conclude that at least facilities and caregivers attracted to cable-delivered training stay in the daycare system long enough to warrant the investment associated with training.

With regard to workshop effects, in general they are few, regardless of the return format. In drawing conclusions about this overall result, we note, first, that effects were evaluated under "initial round" conditions. Second, most one-time social interventions, regardless of content or target, are limited and have small effects (Gilbert, Light, and Mosteller, 1975). They are simply one experience in a person's day or in the life of a social group. Whether they are regarded as useful depends on assumptions about their symbolic or cumulative effects.

Specifically, (1) the one-way delivery mode may produce cognitive gains and the two-way mode inhibit them (greater evaluative anxiety in the video condition and its interference with cognitive learning); (2) the two-way delivery mode may produce changes in values and attitudes (greater conformity pressures on participants who are visible to others); (3) participation in a study devoted to training and involving multiple centers may produce increased networking and values accorded training that are independent of the workshops themselves; (4) the networking effects of the workshops are unclear; (5) effects of training on caregivers' expected exit from daycare cannot be estimated from the data (suspected differences in mover/stayer propensities of control and treatment groups); and (6) neither the study per se, the workshops, nor alternative delivery modes produced changes in participant behaviors.

\(^7\) Although coverage should increase, extensive cabling of the large metropolitan areas is not apt to occur unless a commercial or publicly financed market for local services develops.
COSTS

The cost of the system is quite modest relative to most other uses of television. The workshops relied heavily on the interactive technology and did not use expensive production techniques. There was no special effects equipment. Because black and white cameras were used, available room lighting was sufficient, and the project did not need the technicians essential to proper use of color equipment. No production personnel were needed in the project. The fundamental concept was that professionals in daycare training would go before the cameras without script or rehearsal, much as they would for a live workshop where the group would be physically present.

A cost breakdown for the 65 hours of programming in the experiment is shown in Table 14. The dominant elements of cost within the total of $21,960 consisted of the salaries and fees for those who designed the programs and put them on the cable. Included are the costs for supporting 12 outside specialists who taught a total of 24 program hours. Consultant fees were paid to 11 of them, including a pediatrician, consulting psychologist, and emergency medical technician. (Each was paid for seven hours of preparation time for each hour on the cable.) The curriculum coordinator and administrative assistant directed the overall program activity and offered the remaining 41 program hours. In contrast, costs associated with televising the programs, such as studio lease fees, prorated equipment costs, and cameramen and other technical personnel, ran to a much smaller proportion of the total.

In computing these costs, we assume that such equipment as cameras, recorders, and converters have a five-year life, as shown in the detail of prorated equipment costs in Table 14, and that therefore the cost of this equipment should be spread out not only over the daycare experiment but over other uses to which the equipment might be put in a five-year period. To prorate these costs, we note that during 1976 and 1977, 173 hours of two-way video programming were produced (65 daycare, eight first-aid training, and 100 for senior citizens). The level of use for 1978 is planned to grow to three hours per week for the senior citizen programs. Hypothetically, we assume continued growth to four hours per week in 1979, and five hours per week in 1980. We further assume that four centers would continue to be used to produce interactive programs and would remain within a mile or two of the central cable hub. For an estimated 773 hours of programming over the five-year period, we arrive at an hourly figure of $42.96 based on a total equipment cost (plus capitalized labor) of $33,223.

Equipment at the central studio included two cameras, monitors, simple switching slide carousel, screen for viewing supplementary slides and films, and a videotape recorder/player for repeat programs. At the leadend, or hub, of the cable system, switching and transmission equipment was required to transmit programs over the cable and to receive the return audio and video from the four sites and mix and switch these signals. The site equipment included a camera and modulator to transmit its own signal, and a separate audio terminal so participants could speak and ask questions even if they were not on camera. Capitalized labor included requirements for initial installation of the studio and switching equipment for balancing and maintaining the return video channel.

* This constraint on distance limits the amount of return cable plant requiring maintenance for routine interactive use. By accepting this limitation, the maintenance requirement for Spartanburg two-way video programs together has been held to about 1/2 manhour per week.
Table 14
SPARTANBURG TWO-WAY VIDEO DAY CARE TRAINING PROGRAM COSTS

<table>
<thead>
<tr>
<th>65-hour Program Series</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum coordinator (2/3 time for 6 months), administrative/teaching assistant</td>
<td>$10,260</td>
</tr>
<tr>
<td>(full time for 4 months)</td>
<td></td>
</tr>
<tr>
<td>Employee benefits (17 percent of salaries)</td>
<td>1,744</td>
</tr>
<tr>
<td>Indirect cost (22 percent of salaries)</td>
<td>2,257</td>
</tr>
<tr>
<td>Consultants (11 consultants for 22 program hours, including preparation time)</td>
<td>2,395</td>
</tr>
<tr>
<td>Studio lease, office, (542 sq. ft.) and utilities at $242.00 per month for 4 months</td>
<td>968</td>
</tr>
<tr>
<td>Teaching materials for participating centers and programs</td>
<td>1,000</td>
</tr>
<tr>
<td>Cameraman ($3.50 per hour)</td>
<td>228</td>
</tr>
<tr>
<td>Technician/Switcher ($4.87 per hour)</td>
<td>316</td>
</tr>
<tr>
<td>Prorated equipment cost ($42.96 per hour from below)</td>
<td>2,792</td>
</tr>
<tr>
<td><strong>Total (65 hours)</strong></td>
<td><strong>$21,960</strong></td>
</tr>
<tr>
<td><strong>Total per hour</strong></td>
<td><strong>$ 336</strong></td>
</tr>
</tbody>
</table>

Detail of Prorated Equipment Cost

| Central studio (camera, recorder, monitor, etc.)                                      | $ 5,713 |
| Switching and transmission                                                            | 11,418  |
| Site equipment (cameras, modulators, converters, etc. at four sites)                 | 10,928  |
| Labor for channel balance maintenance                                                | 1,556   |
| Equipment for system installation and maintenancea                                    | 2,220   |
| Labor for installation                                                                | 1,388   |
| **Total (5-year life)**                                                               | **$33,223** |
| Cost per interactive hour (773 hours estimated)                                       | $42.96  |

*aIncludes spare parts, maintenance equipment and a 5 percent replacement allowance.

The cable costs in Spartanburg were higher, perhaps substantially higher, than those for a multiple-use system that we would design with our present knowledge. Thus, the total cost for the Spartanburg daycare program shown in Table 14 is a reasonable upper bound. In some situations, the marginal cost of the training is much lower. If, for example, an agency is already paying a training staff, no substantial additional salary costs would be required for cable programming. Furthermore, the estimate of $42.96 per hour for programming drops substantially if a daycare training program shares equipment and studio facilities.

The experiment did not include a study of a major alternative for delivering daycare training, face-to-face workshops. However, we can draw on other information to make some comparative cost judgments. On one hand, it could be argued that face-to-face workshops are not a reasonable alternative because daycare staff tend not to enroll in available community classes on child care. Those who do attend are often those who need the training least. But for the moment, let us set aside that consideration and explore the comparative costs of face-to-face and cable workshops. For comparison, we used cost data on a training program offered by the University of South Carolina. Because we do not have comparable outcome data, we cannot directly examine the cost-effectiveness tradeoffs of the alternatives.
The University operated an intensive week of courses for the staff of daycare centers around the state. The average quality and salary levels of the University teaching staff were in many ways comparable to those in the Spartanburg cable program. The University program brought 600 daycare personnel to Columbia, the state capital, for the week. As an inducement, travel and lodging were paid for by the University. This large-scale training effort enabled the collection of many different specialists who offered 40 hours of workshop and instruction. The numerous classes that ran concurrently required considerable planning and a large training staff. In the basic grant, total personnel and consultant costs, including employee benefits, were $197,970. This amount included space rental and other indirect costs of the program; $41,300 for materials and supplies; and $101,299 for travel involving the organizing staff, consultants, and the participants.

It could be argued that a statewide program cost should not be compared to a local training effort. In particular, the costs of travel and accommodations for the participants were $68,345, or $114 per person. If we arbitrarily assume that one had to pay only a dollar each for cross-town travel, then travel would reduce to $6,000, or $10 per person per week. With this adjustment, the total University training cost would have been $286,224. Dividing by 600 participants, we obtain $477 per participant, or $11.92 per training hour.

By comparison, the cable program was offered to 41 participants who watched with some regularity. The project cost was $21,960, or $536 per participant. The project provided 65 hours of interactive programming plus 5 hours of review, for an estimate of $7.65 per person training hour. Because the attendance rate on the cable was 53 percent in the Spartanburg project, the cost per hour per participant of programming actually watched rose to $14.44. We do not have attendance data in the University program, but at an attendance rate of 85 percent for the University program, the University and cable approaches cost the same.

In short, 40 to 50 participants in a cable training program may be close to the breakeven point in choosing between a local cable or face-to-face training program. Below that number, two-way cable is not attractive. In that range, one might argue that cable is preferable for caregivers who will not or cannot travel to face-to-face workshops.

The cable approach becomes increasingly attractive as the number of participants rises. If, for example, 100 caregivers in Spartanburg had watched half the program hours, the costs would not have increased more than a few hundred dollars. Then the training hour cost would drop to $6.38, or half the cost of a face-to-face workshop. Thus, the electronic approach merits careful consideration, relative to face-to-face workshops, when substantial numbers of participants are to be trained.

COST AND BENEFIT CONCLUSIONS

The cost of interactive cable daycare workshops such as those produced and delivered in Spartanburg seems competitive with the cost of a major delivery alternative, face-to-face workshops, at 40 to 50 participants with 50 percent attendance rates. It is less costly than the face-to-face option as the number of participants on the cable increases. Because the program or software costs dominate the
costs of the workshops, spreading indirect costs, such as the rental of a studio, across different kinds of programs can make the workshops cost-competitive at enrollment rates lower than 40 to 50.

Whether the workshop benefits are sufficient to justify any specific cost is a matter of judgment. From the Spartanburg experience, we can conclude that daycare centers are a market for cable-delivered training and that center participants find interactive workshops of non-commercial quality fairly attractive. The effects are limited, although consistent in number and intensity with most short-term interventions. If the market is limited to daycare centers, the fact that centers care for only a small proportion of children in daycare means that interactive cable is not a general solution to upgrading the quality of care. However, it enlarges the training options and may be appropriate when travel is a problem.

The one market that the cable televised workshops might reach at costs possibly lower than other outreach delivery options is the daycare home caregiver. These caregivers are unlikely to leave their homes for training; training will probably have to be taken to them. Under certain conditions, an alternative way to upgrade the quality of care in daycare homes is to target televised workshops on daycare consumers (parents), not providers. Parents are in a position to monitor the quality of care offered by a market that is large and fairly inaccessible to outside regulation and training. If the lower quality of care now offered in the daycare home market is partly attributable to parents' lack of knowledge about what to demand in services, increasing their knowledge should increase the quality of the supply of daycare in a community.

* Parent education workshops were conducted as part of the Spartanburg study, the results of this experiment being reported in Lucas et al. (forthcoming). These workshops were not designed to educate parents as consumers of daycare, but they do show the feasibility of delivering workshops to parents.
Appendix A

INSTRUMENTS

SDP # ____________________________

I.D. # ____________________________

RA ____________________________

FACE SHEET

COVARIATE FORM #1: FACILITY AND CHILDREN

NOTE: This form is to be used with the director of the day care facility only.

Interviewer's Name ____________________________

DATE: _______ _______ _______ MO DAY YR

TIME: _______ _______

A. AM .............. 1
B. PM .............. 2

TEAR LINE

Facility Name ____________________________

Director's Name ____________________________

69
BACKGROUND FORM: DAYCARE FACILITY AND CHILDREN

This form asks a few background questions about the daycare facility with which you are associated and about the children enrolled at the facility. It should take only a few minutes to fill out. Remember that all information you give will be kept absolutely confidential. No one will be able to connect your name or the name of the facility with the information you give.

FACILITY INFORMATION

1. In total, how many children are enrolled in the center? □□
   How many are enrolled in the morning session? □□
   How many are enrolled in the afternoon session? □□

2. How long has the center been operating? Check one.
   Less than 1 year .............................................. 1
   1 year or more, but less than 2 years .......................... 2
   2 years or more, but less than 3 years ........................ 3
   3 years or more, but less than 4 years ........................ 4
   5 years or more, but less than 10 years ........................ 5
   10 years or more .................................................. 6

3. During which hours is the center open each day for the children?
   □□ □□ a.m. to □□ □□ p.m.

4. Is the center privately owned, a franchise, government-sponsored, or sponsored by another organization, such as a church, YWCA, or a private school? Check one.
   Privately owned ............................................. 1
   A franchise ......................................................... 2
   Government-sponsored ......................................... 3
   Sponsored by another organization .......................... 4

4A. If your center is sponsored by another organization, what organization is that? (Office Use) □□
5. As head of the center, are you responsible for making the major policy decisions for the center—for example, changing the hours or fee schedule, or do you recommend policy to a separate board?

Director responsible ................... 1
Board responsible ........................ 2

5A. If you recommend policy to a separate board, who makes up your Board, for example, do parents of children enrolled in the facility sit on the Board?

(Office Use)

6. How many full-time and part-time staff members work at your daycare facility?

Number .......................  

7. Listed below are different functions that members of your staff can serve. Can you please tell us how many of your staff members serve in each function? If no one serves a particular function, put a zero (0) next to that function.

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>NUMBER OF STAFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration, e.g., Director, accountant, bookkeeper</td>
<td></td>
</tr>
<tr>
<td>Caregiving, e.g., teacher, aides</td>
<td></td>
</tr>
<tr>
<td>Support, e.g., cook, custodian, secretary</td>
<td></td>
</tr>
<tr>
<td>Outside speciality, such as music or dance instructor, nurse, speech therapist</td>
<td></td>
</tr>
<tr>
<td>Other (Please specify)</td>
<td></td>
</tr>
</tbody>
</table>
8. What is the age distribution of the children enrolled in the morning session of the center? Please put down the number of children who fall within each age category. If you do not care for any children in a particular age category, please put a zero (0) beside that category.

<table>
<thead>
<tr>
<th>AGES</th>
<th>NUMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18 months</td>
<td></td>
</tr>
<tr>
<td>18 months or more, but less than 3 years</td>
<td></td>
</tr>
<tr>
<td>3 years or more, but less than 4 years</td>
<td></td>
</tr>
<tr>
<td>4 years or more, but less than 5 years</td>
<td></td>
</tr>
<tr>
<td>5 years or more, but less than 6 years</td>
<td></td>
</tr>
<tr>
<td>6 years or more</td>
<td></td>
</tr>
</tbody>
</table>

9. About what number of the children enrolled in the morning session are Black, White, or another race?

<table>
<thead>
<tr>
<th>Race</th>
<th>NUMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td></td>
</tr>
<tr>
<td>Of another race</td>
<td></td>
</tr>
</tbody>
</table>

The next page contains a list of occupational categories. Beside each please record how many of the children in the morning session come from households where the head of the house falls into that category. For example, let's say three children in the center's morning session come from families which have service worker heads. Two of these three children may even come from the same family. Next to "Service Workers" enter 3, the number of children from families with heads in that category. Usually the head of a child's household is the father. However, if the child lives only with the mother, the mother is the head of that child's household.

If you have no children from homes with heads who fall in a particular category, put a zero (0) next to that category.

You will notice that the last two categories are "unemployed" and "Housewife". Please use the "Unemployed" category only when you know that the household head is out of work, and you do not know what he or she ordinarily does. If you know the usual occupation of an unemployed head, use the occupational category into which the head falls when working. Please use the "Housewife" category only if the child's mother is the head of the household and does not work outside the home.
**OCCUPATION CARD**

<table>
<thead>
<tr>
<th>Occupational Categories</th>
<th>Number of Children whose household heads fall in the occupational category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Workers: e.g., physicians, architects, dentists, veterinarians, college teachers, chemists, engineers, lawyers, judges, clergymen</td>
<td>□□□□</td>
</tr>
<tr>
<td>Administrative, managerial, supervisory Workers: e.g., bank officer, textile mill unit supervisor, proprietor of a store, farm owner or manager</td>
<td>□□□□</td>
</tr>
<tr>
<td>Technical Workers: e.g., nurses; social workers; librarians; nursery school, elementary school, high school and trade school teachers; accountants; laboratory technicians; draughtsmen; caregivers</td>
<td>□□□□</td>
</tr>
<tr>
<td>Clerical and Sales Workers: e.g., bookkeepers, stenographers, typists, cashiers, shop assistants, insurance salesmen, commercial travelers</td>
<td>□□□□</td>
</tr>
<tr>
<td>Craftsmen and Production-Process Workers: e.g., dyers, mill workers, tailors, cutters, toolmakers, machinists, plumbers, welders, electricians, carpenters, bricklayers, potters, bookbinders, bakers, tobacco-preparers</td>
<td>□□□□</td>
</tr>
<tr>
<td>Service Workers: e.g., firefighters, beauticians, policemen, enlisted military, guards, postmen, enlisted aides, nurse's aides</td>
<td>□□□□</td>
</tr>
<tr>
<td>Semi-skilled and Unskilled Workers: e.g., custodians, launderers, domestic workers, waiters.</td>
<td>□□□□</td>
</tr>
<tr>
<td>Unemployed</td>
<td>□□□□</td>
</tr>
<tr>
<td>Housewife</td>
<td>□□□□</td>
</tr>
</tbody>
</table>
COVARIATE FORM #2: DIRECTOR AND CAREGIVER

NOTE: Each participant, i.e., each center director and each participating caregiver, will be interviewed with this form.

DATE: [Date]
   MON  DAY  YR

TIME: [Time]

A. AM ............. 1
B. PM ............. 2

Respondent's Sex (CIRCLE ONE):
Male ............. 1
Female ........... 2

Respondent's Race (CIRCLE ONE):
Black ............ 1
White ............ 2
Other ............ 3
(Specify) (Office Use)

Facility Name

Director's Name
BACKGROUND FORM

This form asks a few background questions about your work in daycare. It should take only a few minutes to fill out. Remember that all information you give will be kept absolutely confidential. No one will be able to connect your name or the name of your daycare facility with the information you give.

1. How long have you been in the field of child care? Circle one number.
   - Less than one year ........................................ 1
   - 1 year or more, but less than 2 years ...................... 2
   - 2 years or more, but less than 3 years ..................... 3
   - 3 years or more, but less than 5 years ..................... 4
   - 5 years or more, but less than 10 years ................... 5
   - 10 years or more ........................................... 6

2. At your center what age children do you normally care for during the morning session? If you work with more than one age group, but not with all ages, please circle all that describe the age groups for which you are usually responsible.
   a. All ages ............................................. 1
   b. 18 months or less ..................................... 2
   c. Over 18 months to 3 years ............................. 3
   d. 3 year olds .......................................... 4
   e. 4 year olds .......................................... 5
   f. 5 year olds .......................................... 6
   g. 6 year olds and over .................................. 7
9. What is your age?

Age in years ..................... [ ]

10. Do you belong to or engage in any of the group activities here in town? For example, a book club? A garden club? The League of Women Voters? PTA? A church group? Eastern Star? If so, please list the ones in which you occasionally or regularly participate in the space below. If you do not engage in any group activities, please circle one number from the items below.

[ ] [ ] [ ]

No group activities ................. 1
New in town and haven't had time to join ...................... 2

11. Does your center have daily devotional services for the children?

Yes ........................................... 1
No ...(GO TO Q.11C) ...................... 2

11A. Do you think this is an important activity in the day?

Yes ........................................... 1
No ............................................. ?

11B. Why is that? ________________________________ (Office Use)

[ ] [ ]

11C. Although your center does not now have daily devotional activities, do you think devotional services should be included in the daily activities?

Yes ........................................... 1
No ............................................. 2

11D. Why do you think that? ________________________________ (Office Use)

[ ] [ ]
12. What was the last grade in school you completed?

- 5 years or less ................. 1
- 6 to 8 years .................... 2
- 9 to 11 years .................. 3
- 12 years ....................... 4
- '13 to 15 years ................. 5
- 16 years ....................... 6
- 17 or more years .............. 7


(Office Use)

14. Besides the cable TV workshops, have you had any special training for your job at the center? Specifically, have you:

- YES  NO
  a. A degree in early childhood education or child development? ......................... 1  2
  b. A certificate in child care? ......................... 1  2
  c. Some coursework in early childhood education, not degree-related? .................. 1  2
  d. Attended workshops in specific child care skills?  1  2
  e. How long ago was the last training you received?

  YEARS AGO
FACE SHEET
PHYSICAL ENVIRONMENT QUESTIONNAIRE

NOTE: This form is to be used with the facility director only, i.e., that individual with responsibility for the center.

Interviewer's Name: ________________________________

DATE: ____________

TIME: ________

A. AM ............ 1

B. PM ............ 2

Tear Line

Facility Name

Director's Name
This form is concerned with the physical setting of the center. First, I have some questions about fire and medical procedures.

1. Does the center have a fire alarm signal?

   YES ........................................ 1
   NO ........................................ 2

2. Does the center have the fire escape route posted?

   YES ........................................ 1
   NO (Go to Q.3) ............................. 2

2a. Is it posted in each classroom in the office, or somewhere else?

   EACH CLASSROOM .......................... 1
   OFFICE ..................................... 2
   SOMEWHERE ELSE .......................... 3

3. Is there a fire extinguisher in the center?

   YES ........................................ 1
   NO ........................................ 2

4. Do you ever conduct fire drills?

   YES ........................................ 1
   NO (Go to Q.5) ............................. 2

4a. How often?

   Monthly .................................... 1
   Several Times a Year .................... 2
   Once a Year ............................... 3
5. Does the center have a list of emergency fire, medical, and police telephone numbers available to the staff?

<table>
<thead>
<tr>
<th>YES</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO (Go to Q. 6)</td>
<td>2</td>
</tr>
</tbody>
</table>

5a. Are they posted near the phone or are they somewhere else?

<table>
<thead>
<tr>
<th>NEAR THE PHONE</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOMewhere ELSE</td>
<td>2</td>
</tr>
</tbody>
</table>

6. Does the center have a list of medical emergency procedures available to the staff?

<table>
<thead>
<tr>
<th>YES</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO (Go to Q. 7)</td>
<td>2</td>
</tr>
</tbody>
</table>

6a. Are they posted in each classroom, in the office, or somewhere else?

<table>
<thead>
<tr>
<th>EACH CLASSROOM</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFFICE</td>
<td>2</td>
</tr>
<tr>
<td>SOMewhere ELSE</td>
<td>3</td>
</tr>
</tbody>
</table>

7. Do you have any of the following first aid materials:

(Indicate yes or no for each item, a-h.)

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Bandages?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b. Gauze?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c. Sterilizing solution?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d. Tourniquet?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e. Tweezers?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>f. Scissors?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>g. Burn medication?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>h. Thermometer?</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
8. Has anyone on your staff had first aid training?

<table>
<thead>
<tr>
<th>Response</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
</tr>
<tr>
<td>NO (Go to Q.8b)</td>
<td>2</td>
</tr>
<tr>
<td>DON'T KNOW</td>
<td>3</td>
</tr>
</tbody>
</table>

8a. Is anyone on your staff planning to take first aid training?

<table>
<thead>
<tr>
<th>Response</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
</tr>
<tr>
<td>NO</td>
<td>2</td>
</tr>
</tbody>
</table>

9. In cases of medical emergencies, do you have an automatic procedure that you follow?

<table>
<thead>
<tr>
<th>Response</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
</tr>
<tr>
<td>NO (Go to Q. 10)</td>
<td>2</td>
</tr>
</tbody>
</table>

9a. What procedure do you follow?

(Circle the "I" next to any procedures that are mentioned.)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gives immediate, temporary first aid</td>
<td>1</td>
</tr>
<tr>
<td>Calls or takes the child to the local emergency room or hospital</td>
<td>1</td>
</tr>
<tr>
<td>Calls the child's parents</td>
<td>1</td>
</tr>
<tr>
<td>Calls the child's doctor</td>
<td>1</td>
</tr>
<tr>
<td>Calls the doctor, nurse, clinic, or hospital that the center has a service contract with</td>
<td>1</td>
</tr>
<tr>
<td>Other (specify: _________________________________________________________)</td>
<td>1</td>
</tr>
</tbody>
</table>

10. When are children with a fever allowed to stay at the center:
always, sometimes when absolutely necessary, or never?

<table>
<thead>
<tr>
<th>Response</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALWAYS</td>
<td>1</td>
</tr>
<tr>
<td>SOMETIMES, WHEN ABSolutely NECESSARY</td>
<td>2</td>
</tr>
<tr>
<td>NEVER</td>
<td>3</td>
</tr>
</tbody>
</table>
11. Where are the children kept who become sick?

   With the other children .......... 1
   In a separate corner of the
   playroom .......................... 2
   In a separate room ............... 3
   Somewhere else ................... 4

Finally, I have a few questions about some general center policies.

12. Are any of the following meals served regularly:

   YES   NO
   a. Breakfast? ..................... 1 2
   b. Lunch? ......................... 1 2
   c. Dinner? ......................... 1 2
   d. Morning Snack? ................ 1 2
   e. Afternoon Snack? .............. 1 2

13. Does the center provide the children with anything for naptime,
    like cots, blankets, or pallets?

    YES ......................... 1
    NO ......................... 2

14. Has anybody on the staff had a TB test within the last year?

    YES ......................... 1
    NO (Go to Q.16) .............. 2

14a. Would you describe the number as a few, about half, almost
     all, or all?

    A FEW ....................... 1
    ABOUT HALF .................. 2
    ALMOST ALL ................. 3
    ALL ......................... 4
15. Has anybody on the staff had a blood test within the last year?

YES .................. 1
NO (Go to Q.16) ........ 2

15a. Would you describe the number as a few, about half, almost all, or all?

A FEW .................. 1
ABOUT HALF .............. 2
ALMOST ALL ............. 3
ALL ....................... 4

16. When a staff member is sick or otherwise absent, what do you do?

Consult list of regular substitute(s) ...................... 1
Call around for substitute ............ 2
Staff member(s) fills in ............... 3
Other (specify_____________________) 4
PHYSICAL ENVIRONMENT OBSERVATION CHECKLIST

Check (V) the appropriate answer for each item.

1. Cleanliness of bathrooms (code each item):
   a. Proportion of bathrooms observed
      □ All  □ Most  □ Some  □ None  30/
   b. Proportion very clean
      □ All  □ Most  □ Some  □ None  31/
   c. Proportion reasonably clean
      □ All  □ Most  □ Some  □ None  32/
   d. Proportion not clean
      □ All  □ Most  □ Some  □ None  33/

2. Thermostat or thermometer
   □ Yes  □ No  34/

3. Comfortable temperature
   □ Yes  □ No  35/

4. Cleanliness of food preparation area
   □ Very clean  □ Reasonably clean  □ Not clean  □ Not observed  36/

5. Observer present during lunch
   [If yes, answer 46 and 47; otherwise, skip to 48]
   □ Yes  □ No  37/

6. Hand washing before lunch
   □ All or most  □ Some  □ None or hardly any  38/

7. Luncheon menu includes (code each item):
   a. Meat or fish
      □ Yes  □ No  39/
   b. Bread, starch
      □ Yes  □ No  40/
   c. Green or yellow vegetable
      □ Yes  □ No  41/
   d. Dairy products
      □ Yes  □ No  42/
   e. Fruit
      □ Yes  □ No  43/
   f. Dried beans or peas
      □ Yes  □ No  44/

8. Unrefrigerated perishables
   □ Yes  □ No  45/

9. Uncovered garbage
   □ Yes  □ No  46/

10. Covered glass doors or low windows
    □ Yes  □ No  47/

11. Broken windows
    □ Yes  □ No  48/

12. Railings on stairways
    □ Yes  □ No  49/

13. Railings securely anchored
    □ Yes  □ No  50/

14. Safety gates for toddlers
    □ Yes  □ No  51/

15. Dangerously damaged toys, equipment
    □ Yes  □ No  52/

16. Broken glass in play area
    □ Yes  □ No  53/

17. Knives, scissors, matches
    □ Yes  □ No  54/

18. Uncovered accessible electrical outlets
    □ All  □ Some  □ None  55/

19. Harmful ingestible materials
    □ Yes  □ No  56/

20. Outdoor play area
    □ Enclosed  □ Not enclosed  □ None  57/

21. Securely anchored outdoor equipment
    □ Yes  □ No  58/

22. Sand, grass, straw beneath equipment
    □ Yes  □ No  59/

23. Overall rating of physical state
    □ Very good  □ Good  □ Adequate  □ Poor  60/

24. Children left without adult supervision
    □ Often  □ Occasionally  □ Never  61/
SDP# 

I.D.# 

RA 

FACE SHEET

FACILITY DIRECTOR INFORMATION FORM

NOTE: This form is to be used with the facility director only.

INTERVIEWER'S NAME ____________________________

DATE: _______ MO DAY YR

TIME: A. _____ _____

     B. A.M. .............. 1
     P.M. .............. 2

tear line

Facility Name ____________________________

Director's Name ____________________________
1. Do you keep a daily record of each child's attendance at the center?
   Yes ........................................ 1
   No ........................................ 2

2. Is a fee charged for child care at the center?
   Yes ........................................ 1
   Yes, except under special circumstances .......... 2
   No ...(GO TO Q.3) .......................... 3

   a. When parents pay you for caring for their children, do you record their payments?
      Yes ........................................ 1
      No ........................................ 2

   b. When parents pay you, do you give them a receipt for their records?
      Yes, always .............................. 1
      Yes, if they request it .................. 2
      No ........................................ 3

3. Do you have any plans for taking future training in the care of children?
   Yes ........................................ 1
   No ...(GO TO Q. 4) .......................... 2

   a. What kind of training do you have in mind?
      (Indicate yes-no for each item, (1) - (5).)

      | Item                                                                 | YES | NO |
      |-----------------------------------------------------------------------|-----|----|
      | 1) Degree-related coursework (including workshops) in early childhood | 1   | 2  |
      |   education? .................. ........................................... |     |    |
      | 2) General coursework in early childhood education, not degree-specific? | 1   | 2  |
      | 3) Coursework or workshops for specific child care skills? ............. | 1   | 2  |
      | 4) Center-based training (e.g., in-service)? ............................ | 1   | 2  |
      | 5) Other (specify: ____________________________________________)? .... | 1   | 2  |
3b. Will any of this kind of training be available:
(Indicate yes-no-don't know for each item, (1) - (2).)

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>DK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) At this center?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2) Elsewhere in the area? (specify:_______)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

4. Do you have plans for your staff to get more training in the care of children?

Yes ........................................... 1
No ...(GO TO Q.4e).............................. 2

a. What kind of training do you have in mind for them?
(Indicate yes-no for each item, (1) - (5).)

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Degree-related coursework (including workshops) in early childhood education?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2) General coursework in early childhood education, not degree-specific?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3) Coursework or workshops for specific child care skills?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4) Center-based training (e.g., in-service)?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5) Other (specify:________________________)</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

b. Will any of this training be available:
(Indicate yes-no-don't know for each item, (1) - (2).)

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>DK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) At this center?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2) Elsewhere in the area (specify:_______)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

c. (If answered YES to 4b(2) specifying training outside the facility:
If your staff member has to be absent from work to take the training, would you give time off with pay or without pay?

Time off with pay ......................... 1
Time off without pay ..................... 2
d. Do you plan to encourage your staff to take more training or would you require them to take more?

Encourage .................................. 1
Require ..................................... 2
Depends on staff member ................. 3
e. If a caregiver wanted to take time off during the work day to get more training, would you be able, or unable, to spare her?

   Able to ........................................ 1
   Unable to ...................................... 2
   Depends on circumstances .................. 3

5. Are you planning to add any new kinds of toys or equipment to the center? By "add" we do not mean replacing toys and equipment already owned by the center.

   Yes ............................................ 1
   No ...(GO TO Q.6) ............................ 2

a. What kinds of things would you like to add?

   ________________________________________
   ________________________________________
   ________________________________________
   ________________________________________
   ________________________________________
   ________________________________________
   ________________________________________

b. Which of these things do you consider the most important?

   ________________________________________
   ________________________________________
   ________________________________________
   ________________________________________
   ________________________________________
   ________________________________________

   c. Why do you feel this thing is the most important?

   ________________________________________
   ________________________________________
   ________________________________________
   ________________________________________

   d. Are you and your staff planning to make any of these things yourselves?

   Yes ............................................ 1
   No ...(GO TO Q.6) ............................ 2
e. What kinds of things are you and your staff planning to make?

6. Besides meetings that the cable TV workshop project has arranged, do you ever get together with caregivers from other centers and homes here in the district?

   Yes ........................................... 1
   No ...(GO TO Q.6b) ............................ 2

a. Do you have:
   (Indicate yes-no for each item, (1) - (3).)  

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Formal daycare meetings? ......................... 1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2) Informal meetings where you talk about daycare? ... 1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3) Social occasions for getting together? ............ 1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

   GO TO Q.7

b. Even though you do not now get together with other caregivers, would you like to, or doesn't it make much difference to you?

   Yes ........................................... 1
   Doesn't make much difference ...(GO TO Q.7) ....................... 2

c. Would you like to see them at:
   (Indicate yes-no for each item, (1) - (3).)  

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Formal daycare meetings? ......................... 1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2) Informal meetings where you talk about daycare? ... 1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3) Social occasions for getting together? ............ 1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
7. Let's assume that you were talking with someone who had just moved into your neighborhood, who asks you, "What do you do?" What would you say? Probe. What else? (If caregiver gives multiple answers, resort them in the order given.)

8. Can you tell me in your own words what you hope children will get from their experience here at the center?

9. If you had to drop one activity from the morning session, which activity would you drop first?
a. Why would you drop that activity?

b. Which activity would you most want to keep?

c. Why would you want to keep that activity?

10. Do you plan to change the number of children now enrolled at the center, or keep enrollment at the number it is now?

   Change ........................................ 1
   No change ...(GO TO Q.11) ................. 2

a. Do you plan to decrease or increase the number enrolled?

   Decrease ....................................... 1
   Increase ........................................ 2

b. Why do you plan to make this change?

   ................................................................
11. Do you have any plans to change the days or hours that the center is open, or will you keep to the present schedule?

Change ........................................ 1
No change ...(GO TO Q.12) .................. 2

a. What change do you plan to make? (Answer both (1) and (2).)

1) Change hours?
   Increase hours ............... 1
   Decrease hours ............... 2
   No change in hours ........... 3

2) Change days open?
   Add another open day(s) ....... 1
   Drop an open day(s) .......... 2
   No change in days open ...... 3

b. Why do you plan to make this change?

Convenience of clients ............ 1
Other .......................... 2

12. If money were not a problem, do you think your center should have more, fewer, or the same number of staff members?

More ............................. 1
Same ...(GO TO Q.13) ............... 2
Fewer .......................... 3

a. Why would you have (more/fewer) staff?


13. Do you think your center should have staff with different specialties or different kinds of training than it now has, or do you think the staff has the right combination of specialties and training now?

Should be different ...................... 1
Right now ...(GO TO Q.14) ............... 2

a. What other kinds of specialties or training does the center need?

General early childhood training ....... 1
Special skills, e.g., music, arts ....... 2
Combination of 1 and 2 ............... 3
Other .......................... 4
14. At the beginning of each day at the center, is there a plan for the day's activities or do you find that you don't need one?

Have a plan ......................... 1
Don't need one ... (GO TO Q.15) ....... 2

A. How does your staff know about the plan for the day?
(Indicate yes-no for each item, (1) - (5).)

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Director writes it down? ......................... 1</td>
<td>2</td>
</tr>
<tr>
<td>2) Director verbally informs staff at beginning of day? ........................................... 1</td>
<td>2</td>
</tr>
<tr>
<td>3) Director tells staff as they progress through the day? ........................................... 1</td>
<td>2</td>
</tr>
<tr>
<td>4) Staff and director make decision on plan*? ............ 1</td>
<td>2</td>
</tr>
<tr>
<td>5) Staff make the plan? ............................. 1</td>
<td>2</td>
</tr>
</tbody>
</table>

15. Do you have any plans to change the fee schedule or do you plan to keep it as it is?

Change ..................................... 1
No change ... (GO TO Q.16) ............... 2

a. What changes do you plan to make?

_____________________________________________________________________________________

_____________________________________________________________________________________

16. In the last 3 or 4 months, have you ever encouraged parents of a child in your care to go to a social agency in the area for help with something?

Yes ............................................ 1
No ... (GO TO Q.17) ........................... 2

a. Without mentioning names of the parents, can you give me an example of such a suggestion?

_____________________________________________________________________________________

_____________________________________________________________________________________

_____________________________________________________________________________________

_____________________________________________________________________________________

*If director and staff member are same person, indicate YES here.
17. In the last 3 or 4 months, have you held any conferences with parents of a child in your care?

Yes ........................................ 1  
No ...(GO TO 0.18) ....................... 2

a. Without mentioning the parents' names, can you give me an example of such a conference?


18. Do you keep any records on each child other than attendance or payment records?

Yes ........................................ 1  
No ...(GO TO END OF INTERVIEW FORM) .... 2

a. Do you keep records on any of the following? 
(Indicate yes-no for each item, (1) - (5)).

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Name of each child's doctor? ......................</td>
<td>1</td>
</tr>
<tr>
<td>2) How to reach each child's parents or guardians?</td>
<td>1</td>
</tr>
<tr>
<td>3) Each child's food likes and dislikes? ............</td>
<td>1</td>
</tr>
<tr>
<td>4) Each child's special medical problems, food allergies, visual problems, medicines to be administered?</td>
<td>1</td>
</tr>
<tr>
<td>5) A child's emotional problems? .....................</td>
<td>1</td>
</tr>
</tbody>
</table>

19. How many years have you been employed in day care?

YEARS 

MONTHS (If given)
20. At your center, what age children do you normally care for during the morning session? Please indicate all the age groups for which you are usually responsible.

(Indicate yes-no for each age category, a-f.)

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 18 months or less? .................. 1</td>
<td>2</td>
</tr>
<tr>
<td>b. Over 18 months to 3 years? ........ 1</td>
<td>2</td>
</tr>
<tr>
<td>c. 3 year olds? .......................... 1</td>
<td>2</td>
</tr>
<tr>
<td>d. 4 year olds? .......................... 1</td>
<td>2</td>
</tr>
<tr>
<td>e. 5 year olds? .......................... 1</td>
<td>2</td>
</tr>
<tr>
<td>f. 6 year olds and over? ............... 1</td>
<td>2</td>
</tr>
</tbody>
</table>

21. Besides the cable TV workshops that have just ended, have you participated in any workshops, coursework, or in-service training in the care of children?

(Indicate yes-no for each item, a-c.)

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Workshops? ............................ 1</td>
<td>2</td>
</tr>
<tr>
<td>b. Courses? ............................... 1</td>
<td>2</td>
</tr>
<tr>
<td>c. In-service training? .................. 1</td>
<td>2</td>
</tr>
</tbody>
</table>

(If a-c answered NO, GO TO Q.22)

a. How long ago was the last workshop, course, or in-service training you participated in (not counting the recent TV workshop)?

YEARS

b. Was any of the work part of a program leading to a degree or certificate?

Yes ............................................ 1
No ...(GO TO Q.22) ............................ 2

c. Did you eventually obtain that degree or certificate?

Yes ............................................ 1
No ............................................. 2
22. Are any of the following devotional activities part of your center's daily activities?
(Indicate yes-no for each item, a-e.)

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Morning prayer?</td>
<td>1</td>
<td>2</td>
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<td>2</td>
</tr>
<tr>
<td>e. Grace before meals?</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

23. What sources of ideas do you find you use for working here with children? E.g., do you use the library, encyclopedia, special magazines about children? Please note all the different sources you use.

☐

☐

☐

☐

☐

☐

24. Has there been any change in the number of fulltime and parttime staff members working at your day care facility since last December?

Yes ........................................ 1

No ...(GO TO Q.25)............................ 2

a. How many fulltime and parttime staff members do you have now?

NUMBER ☐

25. Have there been any changes in the number of staff members sharing different functions (e.g., an aide became a caregiver)?

Yes ........................................ 1

No ...(GO TO END OF INTERVIEW FORM).... 2
a. What were the changes?
FACE SHEET

STAFF MEMBER INFORMATION FORM

NOTE: This form is only to be used with a member of a center staff, not with the director of the staff.

INTERVIEWER'S NAME: ________________________________

DATE: _______ _______ _______

TIME: A. __________ __________

  B. A.M. ________ 1

  P.M. ________ 2

Facility Name

Director's Name

Staff Member's Name
1. Do you have any plans for taking future training in the care of children?

   YES ........................................ 1
   NO...(GO TO Q.2).................... 2

   a. What kind of training do you have in mind? *Indicate yes-no for each item, (1) - (5).*

   1) Degree-related coursework in early childhood education?........................................ 1  2
   2) General coursework in early childhood education, not degree-specific?.......................... 1  2
   3) Coursework or workshops in specific childcare skills?............................................. 1  2
   4) Center-based training (e.g., in-service)?.............. 1  2
   5) Other.................................................. 1  2
      *(Specify)_........................................................................

   b. Will any of this kind of training be available: *Indicate yes-no-don't know for each item, (1) - (2).*

   YES NO DN'T KNOW
   1) At this center?................................. 1  2  3
   2) Elsewhere in the area?............................ 1  2  3
      *(Specify)_........................................................................

2. Besides meetings that the cable TV workshop project has arranged, do you ever get together with caregivers from other centers and homes here in the district?

   YES................................................. 1
   NO...(GO TO Q.2B)............... 2

   a. Do you have:
      *Indicate yes-no for each item, (1) - (3).*

      YES NO
      1) Formal daycare meetings?.............................. 1  2
      2) Informal meetings where you talk about daycare?... 1  2
      3) Social occasions for getting together?............... 1  2

      [GO TO Q.3]
b. Even though you do not now get together with other caregivers, would you like to, or doesn’t it make much difference to you?

YES........................................ 1
DOESN’T MAKE MUCH DIFFERENCE...
(GO TO Q.3)........................... 2

c. Would you like to see them at: Indicate yes-no for each item, (1) - (3).

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Formal daycare meetings?......................... 1  2</td>
<td></td>
</tr>
<tr>
<td>2) Informal meetings where you talk about daycare?.. 1  2</td>
<td></td>
</tr>
<tr>
<td>3) Social occasions for getting together?........... 1  2</td>
<td></td>
</tr>
</tbody>
</table>

3. Can you tell me in your own words what you hope children will get from their experience here at the center?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

4. If you had to drop one activity from the morning session, which activity would you drop first?

________________________________________________________________________

a. Why would you drop that activity?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

b. Which activity would you most want to keep?

________________________________________________________________________
c. Why would you want to keep that activity?

5. Let's assume that you were talking with someone who had just moved into your neighborhood, who asks you, "What do you do?" What would you say? PROBE. What else? IF CAREGIVER GIVES MULTIPLE ANSWERS, RECORD THEM IN THE ORDER GIVEN.

6. If your center received an unexpected grant of money of $500.00, how would you choose to spend it? Would you buy any new toys or equipment or would you spend it some other way?

BUY NEW TOYS OR EQUIPMENT............ 1
SOME OTHER WAY...(GO TO Q.6F)........ 2

a. What kinds of things would you like to add? RECORD ITEMS IN THE ORDER GIVEN. PROBE. What else?
b. Which of these things do you consider the most important?

________________________________________________________________________


c. Why do you feel this thing is the most important?

________________________________________________________________________


d. Would you like to make some of these things yourself or with the help of other staff members or would you buy all of them?

MAKE........................................ 1
BUY...(GO TO Q.7)................. 2

e. What kinds of things would you like to make? GO TO Q.7

________________________________________________________________________


f. How would you choose to spend it?

________________________________________________________________________


7. If money were not a problem, do you think your center should have more, fewer, or the same number of staff members?

MORE........................................ 1
SAME...(GO TO Q.8).................. 2
FEWER.................................... 3

a. Why would you have (more/fewer) staff?

________________________________________________________________________


________________________________________________________________________
8. Do you think your center should have staff with different specialties or different kinds of training than it now has, or do you think the staff has the right combination of specialties and training now?

SHOULD BE DIFFERENT.............. 1
RIGHT NOW...(GO TO Q.9)............ 2

a. What kind of specialties or training does the center need?

General early childhood training......................... 1
Special skills (e.g., music, arts).......................... 2
Combination of 1 and 2..................................... 3
Other.................................................................... 4

9. In the last three or four months, have you encouraged or asked someone else, such as your director, to encourage parents of a child enrolled here to seek help from a community agency?

YES............................................. 1
NO...(GO TO Q.10).............................. 2

a. Without mentioning names of the parents, can you give me an example of such a suggestion?

.........................................................................................

10. In the last three or four months, have you held or asked someone else, such as your director, to hold any conferences with parents of a child enrolled here?

YES............................................. 1
NO...(GO TO Q.11).............................. 2

a. Without mentioning the names of the parents, can you give me an example of a conference you held or you asked the director to hold?

.........................................................................................

11. Would you like to remain in the day care field, or would you like to get into some other field?

YES............................................. 1
OTHER.......................................... 2
12. Would you ever like to start your own day care center, or is that something you're not interested in doing?

YES............................................. 1
NOT INTERESTED......................... 2

13. How many years have you been employed in day care?

YEARS □□
(MONTHS, IF GIVEN) □□

14. At your center, what age children do you normally care for during the morning session? Please indicate all the age groups for which you are usually responsible. Indicate yes-no for each age category, a-f.

<table>
<thead>
<tr>
<th>YES</th>
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<tbody>
<tr>
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</table>

15. Besides the cable TV workshops that have just ended, have you participated in any workshops, coursework, or in-service training in the care of children? Indicate yes-no for each item, a-c.

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td>a. Workshops?.......................... 1</td>
<td>2</td>
</tr>
<tr>
<td>b. Courses?............................ 1</td>
<td>2</td>
</tr>
<tr>
<td>c. In-service training?.............. 1</td>
<td>2</td>
</tr>
</tbody>
</table>

IF a-c ANSWERED NO, GO TO Q.16

a. How long ago was the last workshop, course, or in-service training you participated in?

YEARS □□

b. Was any of the work part of a program leading to a degree or certificate?

YES............................................. 1
NO...(GO TO Q.16)......................... 2
c. Did you eventually obtain that degree or certificate?

YES..................................... 1
NO....................................... 2

16. Are any of the following devotional activities part of your class's daily activities? Indicate yes-no for each item, a-e.

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
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<td>e. Grace before meals?</td>
<td>1</td>
<td>2</td>
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17. What sources of ideas do you find you use for working here with children? E.g., do you use the library, encyclopedia, special magazines about children? Please note all the different sources you use.

<p>| |</p>
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</tbody>
</table>
INSTRUCTIONS FOR FILLING OUT THE CARTOON FORM

You should have two forms: a booklet of cartoons and a sheet of paper with numbered spaces. The booklet of cartoons has several sets of cartoons. Each cartoon set has six pictures. The top three pictures of each set show a situation which you might encounter in your day care day. In the example on the opposite page, the top row describes a common situation for a center director: the process of locating a new staff member. Beneath the top three pictures of each set are three more pictures, labelled A, B, and C respectively.

What we would like you to do for each set of cartoons is to look at the top three pictures in the set. After you see the situation described in the top three pictures, please choose ONE picture from the bottom three pictures which you think best describes what you would do in that situation. In other words, you are choosing the picture in the bottom row which you think best "completes" the situation described in the top three pictures on that page. In the example on the opposite page, the bottom row of three pictures shows three different ways a center director might choose to conclude an interview with a potential staff member. Your job is to pick which one of the three ways you would be most likely to choose.

After choosing one of the three alternatives, we would like you to record your choice on the sheet with the numbered spaces. If you thumb through the booklet of cartoons, you'll notice that each set of six pictures has a number in the top right-hand corner. You should record your choice for a particular set--A, B, or C--on the line with the same number as that set. For example, after reading the first set of cartoons, if you choose alternative "A," you would put "A" on the line next to "1." If you choose "B," you would put a "B" on that line; if "C," a "C" on that line. We would like you to record your choices for all of the cartoon sets.

If you have any questions, the research assistant will be happy to answer them.
**EXAMPLE**

DIRECTOR - I NEED A NEW STAFF MEMBER.

SHE ADVERTISES IN THE NEWSPAPER.

SOMEONE COMES IN.

DIRECTOR

WANT ABS ONE CARE GIVER

DIRECTOR

I’LL NEED TO CHECK YOUR REFERENCES THEN GIVE YOU A CALL.

DIRECTOR

THIS LOOKS GOOD! WE’LL START YOU TODAY.

DIRECTOR

SINCE YOU’RE SUE’S BROTHER — YOU MUST BE OKAY FOR THE JOB.

DIRECTOR

APPLICANT

DIRECTOR

DIRECTOR
"Can my class do some art work?"

"We can't afford smocks and painting can get pretty messy."

"If you can think of a way, go ahead."

"I'll stick to crayons."

"I'll tell them how to do some at home."

"I'll have the children bring an old shirt from home."

A   B   C
"We're looking forward to your working with us."

"You will have to direct play, work, and rest periods."

"I'm not very good at directing play activities."

"You'll get experience just watching those kids."

"Here are some good books for planning play."

"Mrs. Smith is good. Work with her for a few days for experience."
Director on telephone.

"Chris's father died Friday."

"Chris will be back today."

I'll keep a special eye on him.

"It's okay to cry. Do you want to talk about your dad?"

"He's only gone away for a while, you needn't cry."

"Let's don't think about it. Come on, I have some new toys for you."
A. Child bites another child.

B. I'm going to tell your mother when she comes for you.

C. Mother comes!

A. Care giver decides not to tell. I'll let it go by this time.

B. You have to make Tim stop biting other children.

C. I need to talk to you and Tim about his biting other children.
TEACHER HOLDING UP CIRCLE.

"FIND SOMETHING ROUND LIKE THIS CIRCLE."

JOHNNY PICKS UP A BLOCK.

CIRCLE

CIRCLE

CIRCLE

"NO, JOHNNY, THE BLOCK IS SQUARE."

NO, JOHNNY, LET'S SEE IF MARY CAN FIND ONE.

"THIS IS A CIRCLE — AND THIS IS A SQUARE."

SQUARE

CIRCLE
Care Giver in kitchen

Leaves pot holder on stove

Smoke comes under the door... Flames begin

Hurry up and get out of the room!!!

Line up while I close this door. Then we will go outside.

Go next door and tell Mrs. Smith to call the fire department. The rest of you come with me!
"Mary needs a record of her shots."

She hasn't had any shots yet.

Dad is out of work and I don't know when we can afford them.

"Dr. Richards is the cheapest, go to him."

It's up to you, but I must have a shot record.

"Go down to the health department. Their services are free."
CARE GIVER IS FIXING CHILD'S CLOTHES. SHE NOTICES BRUISES.

"HOW DID YOU HURT YOURSELF?"

"I DON'T KNOW."

SEVERAL STAFF MEMBERS DISCUSS THE MATTER...

"THE NEXT TIME YOU GET A HARD SPANKING COME TELL ME."

"CAN YOU MAKE A CASUAL HOME VISIT TO SUE'S HOUSE?"

A

B

C

DEPT. OF FAMILY & CHILD
I am going to give each of you $5.00 to spend on arithmetic materials.

You may choose anything you think the children will need.

Let's talk about what you might get for four and five year olds.

A: I want some colored beads and counting blocks.

B: I want some illustrated books.

C: I'd like a chart of place values.
Dr. Lott: A bee stung one of my children.

Mrs. Jones: Tom got stung by a bee. Is he allergic to bee stings?

Care Giver: That little bee sting won't hurt you! Run on and play!
Today we are going to hear a story about dogs.

I want to hear a story about bears.

We don't have a story about bears?

Caregiver making out order for books.

When can I come down to see some children's books?

How about a story about horses?
MY KIDS REALLY GET WILD WHEN WE PLAY RECORDS.

SOME JUMP AROUND AND SOME TRY TO DANCE.

WE DON'T WANT TO STOP THE MUSIC ENTIRELY, SO WHAT CAN WE DO?

DIRECTOR

HAVE THEM SIT QUIETLY AND LISTEN SO THEY CAN APPRECIATE THE MUSIC.

WHY NOT LET THEM DO EXERCISES TO CERTAIN RECORDS?

ONLY PLAY THE RECORDS ONCE OR TWICE A WEEK.
"We need to clean house."

"Let's put our things away so we can go out and play."

"Everything has a place — books here and blocks here."

"Hurry, you can go when you finish."

"Put your things in this box."
A.

Child, pulling on care giver's skirt.

Teacher!

Teacher!

What do you want?

Child pointing.

Cookies here.

B.

"Tell me what you want."

"Do you want a cookie?"

"Oh, you want a cookie!"

C.

(cookies here)
I am going to give everyone a chance to tell a story about animals.

"Do you have a story about your pet?"

"I got a dog that wets the floor and Daddy kicks him a lot."

"That's terrible!"

"That's not a nice story."

"What do you do with the dog?"
Since this is a holiday, we'll put all the 3, 4, and 5 year olds in one room.

Our materials are all over here.

Why don't you keep them busy inside until 10 o'clock?

Let's see how quickly you can put the yarn in the holes.

Come sit down and I'll read you a story.

Here are some blocks. Here is some yarn, and here are some puzzles.
WE NEED TO WORK ON OUR TEACHING.

LETS TALK ABOUT WAYS TO TEACH THE LETTER NAMES.

WHAT IS THE BEST WAY?

SHOW THE CHILDREN THE LETTERS ONE BY ONE.

SHOW THE CHILDREN THE LETTERS AND SAY THE NAME.

HAVE THE CHILDREN MAKE THE LETTERS IN THEIR EXERCISE BOOKS.
Some of the four and five year olds are ready to learn some reading skills.

Mine don't know their ABC's yet.

What is the first thing you should teach them to do?

I think they should learn some short words.

I'd rather teach them their letters.

Why not teach the difference in shapes and sounds?
LET'S LISTEN TO THIS STORY.

THIS IS WHAT WE'LL DO. I'LL READ IT TO YOU. THEN WE'LL TALK ABOUT IT.

"THE LITTLE GIRL LAUGHED AND RAN TO HER MOTHER..."

"WHY WAS THE LITTLE GIRL LAUGHING?"

"THE LITTLE GIRL WAS HAPPY, WASN'T SHE?"

"WAS THE LITTLE GIRL LAUGHING?"
"My Mommie and Daddy are getting a divorce, Don."

"That means your Daddy's going to leave you."

Does divorce mean Daddy is going to leave me, Miss Jean?

It means that your Dad will be living somewhere else.

"Don just said that because his Father left him when he got divorced."

Let your mother and Daddy take care of that, okay?
Two boys playing on the playground.

One boy picks up a rock and hits the other boy.

You know better than to throw rocks on the playground.

Hold this ice on your head to keep the swelling down.

I want you to lie down and take a nap.
Teacher telling story of "The Three Little Pigs."

Let's see what we remember about the story.

Child repeats the last line.

He huffed an he puffed an he blewed the house down, right?

That's good, but let's start at the beginning.

Yes, he did blow the house down.

Ignoring the child's question.

Let's see what Jane remembers.
CHILD IS UPSET AND CRYING.

"WHY ARE YOU CRYING?"

"JIMMY SAID I WAS ADOPTED."

"WHY DON'T YOU ASK YOUR PARENTS IF YOU ARE?"

"LOT'S OF PEOPLE ARE ADOPTED."

"DON'T CRY—BEING ADOPTED MAKES YOU KIND OF SPECIAL."
Director talking to photographer. Decides to have school pictures made.

Director tells staff about pictures and the date.

Each care giver is responsible for getting the message to the parents.

"Children we'll have our school pictures made Wednesday."

Care giver puts notice on door.

School entrance.

Care giver gives paper notice to parent — and tells them about pictures.
A: What is this story about?
B: What do you think it is about?
C: We can't read the words.

A: Let's look at the pictures and see if you can tell.
B: Just a minute and I'll read it to you.
C: This is about three bears and a girl named Goldie.
Mother leaves two daughters with caregiver.

Several children playing except one.

Mother picks up girls and asks caregiver:

How did they do today?

Jean is much nicer than Pam.
Pam was a little quiet today.

But I think she'll be fine.

It's easy to see which daughter is the friendliest.
Bring your five year olds over to play with my class.

Do all of yours know how to play follow the leader?

Which one should be the leader?

Let Eddie do it. He's already five and a good leader.

I don't think some of my three year olds can keep up. Let's have two groups.

Let Susan be it. She never plays with the others.
Care giver reading to children about frogs.

Children playing, notice tadpoles in the ditch.

Children show the teacher tadpoles.

A

Don't touch those dirty things.

B

Bill, get a jar and we'll catch some.

C

Watch out — you'll fall in the ditch!
Children lining up to go to the bathroom.

Little girl goes in.

She leaves the door open—she's sitting on the john.

Don't watch. Jane didn't shut the door.

Close the door! People aren't supposed to see you naked.

Close the door. Then you can take as long as you need.
Some of the children need to learn the names for foods.

How do you suggest we teach them?

What would be our most practical approach?

Let the kids bring magazine pictures from home.

We can buy some play food for the kitchen area.

Why not talk about the foods we have each day at lunch?
**A**

TEACHERS TALKING WITH DIRECTOR.

**B**

WE WANT TO STUDY PLANTS WITHOUT USING JUST BOOKS.

**C**

WE CAN MAKE A TERRARIUM AND DO SOME OTHER ACTIVITY.

**A**

LET'S STUDY SCIENCE.

**B**

WE CAN SEE A SCIENCE FILM FOR A SMALL FEE.

**C**

LET'S TAKE A FIELD TRIP TO THE PARK.

THE CHILDREN CAN DRAW PICTURES OF PLANTS.
A

WHAT KIND OF NUMBER TEACHING DO YOU DO WITH THE CHILDREN?

B

GEORGE ALREADY KNOWS HIS NUMBERS FROM ONE TO TEN.

C

GEORGE, COUNT FOR THE LADY.

ONE, TWO, THREE...

JUST BECAUSE HE CAN SAY HIS NUMBERS, DOESN'T MEAN HE UNDERSTANDS THEIR VALUE.

WE'LL LET GEORGE LEARN LARGER NUMBERS SINCE HE CAN COUNT ALREADY.

GEORGE IS SMART, HE WON'T NEED TO PRACTICE COUNTING OBJECTS.
This is the number three. It stands for this many balloons.

It stands for this many apples.

Let's see if you know how many "3" stands for.

What is this number?

Bring me three pencils.

Write the number three.
## CAREGIVER OBSERVATION SHEET

### ACTIVITIES

1. Eating  
2. Resting  
3. Transitional  
4. Learning  
5. Group time  
6. Stories  
7. Music  
8. Active motor  
9. Manipulative  
10. Art activities  
11. Dramatic play  
12. Many concurrent  
13. Special events  
14. Not ascertainable

### PLA-Check

<table>
<thead>
<tr>
<th>ID NO.</th>
<th>AGE OF CHILDREN</th>
<th>PARTICIPATING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-33/CHILDREN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>34-49/</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50-66/</td>
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</tr>
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### ORIENTATION

**FOCUS**

1. Interaction with individual other than daycare child.  
2. Individual noninteractive behavior.  
3. Behavior relevant to program activities.  
4. Silent supervision of children.  
5. Social interaction with daycare children.  

**TARGET**

1. Individual child.  
2. Subgroup.  
3. Total group.  

**MODALITY**

1. Affect of caregiver
   - Neutral  
   - Positive  
   - Negative  
   - Physical contact  
   - No.  
   - Yes  

**COMMUNICATION**

1. Nurture  
2. Structure  
3. Evaluation  
4. Exchange  
5. Not ascertainable

### Event Record

<table>
<thead>
<tr>
<th>Card</th>
<th>Focus</th>
<th>Target</th>
<th>After Comment</th>
<th>Neutral Structure Reason Evaluation Exchange</th>
<th>Extended Event</th>
<th>Not Ascertained</th>
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</thead>
<tbody>
<tr>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
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</table>
MEDIA QUESTIONNAIRE

(NOTE: Either Qs. 1-6 or Qs. 7-12 will be asked in each interview, not both sets of Qs. The instruction on page 1 will indicate which set of Qs. to use on this form.)

INTERVIEWER'S NAME: ________________________________

DATE: _______ _______ _______ 30-35/
        MO    DAY    YR

TIME: A. _______ _______ 36-39/
       B. A.M. _______ 1
           P.M. _______ 2

Facility Name

Director's Name

Staff Member's Name (if applicable)
1. At the beginning of the day care program, the centers with cameras had them about half the time. Some people said that it was too often and some said not enough. Later some of the centers had cameras all the time. If we were to do this again, how often would you want the camera to be available? All the time, half the time, or less often?

   ALL THE TIME...(GO TO Q.2).......... 1
   HALF THE TIME...(GO TO Q.2)........ 2
   LESS OFTEN.......................... 3
   DON'T KNOW, DOESN'T MATTER...(GO TO Q.2)........... 4

1A. Would you want a camera in your center occasionally, only once to try it out, or would you prefer to not have a camera at all?

   OCCASIONALLY....................... 1
   ONLY ONCE............................ 2
   NOT AT ALL........................... 3

2. When the cameras were being moved from center to center, how badly did it interrupt your activities? Was it a serious interruption, an inconvenience, or did you find it was not a problem?

   IT WAS NOT A PROBLEM.............. 1
   IT WAS AN INCONVENIENCE............ 2
   IT WAS A SERIOUS INTERRUPTION..... 3

3. As you know, the project could not give everyone microphones and cameras. We are interested in knowing whether those who participated in the program felt that having a camera and microphone made a difference. Suppose you had had only a microphone for all the workshops, so that you could have spoken up and asked questions at any time. Would a microphone have been enough, or would you still have needed or wanted a camera?

   NOTHING NEEDED, ONE-WAY ENOUGH.... 1
   MICROPHONE ENOUGH.................. 2
   WANTED CAMERA...................... 3
   DON'T KNOW, DOESN'T MATTER......... 4
4. Why do you feel that way?  
(Write verbatim answer and also circle if one or more of the items below was mentioned.)

__________________________
__________________________
__________________________

☐ 45/
☐ 46/
☐ 47/

__________________________

FELT MORE A PART OF GROUP OR WORKSHOP (SENSE OF INVOLVEMENT)........ 1 48/
MEDIA EXCITEMENT. "IT WAS FUN!"... 1 49/
COULD SHOW MY CENTER. EXAMPLES OF VALUE OF VIDEO FOR DEMONSTRATING, ASKING THINGS......................... 1 50/
OTHER........................................ 1 51/
NEGATIVE REASONS................. 1 52/

5. Now imagine that your facility had never received a camera or microphone, and you were only able to watch other caregivers. Would the workshops have been more interesting, less interesting, or about the same if you had not been able to talk back and forth during the workshops?

MORE INTERESTING..................... 1 53/
ABOUT THE SAME...................... 2
LESS INTERESTING..................... 3

6. Would you have learned more, less, or about the same from the workshops if you had not ever been given a chance to talk back and forth?

LEARNED MORE....................... 1 54/
ABOUT THE SAME...................... 2
LEARNED LESS......................... 3

(SKIP TO QUESTION 13)
7. As you know, the project could not give everyone microphones and cameras. We are interested in knowing whether those who participated in the program felt that having a camera and microphone made a difference. Suppose your facility had had a camera and a microphone so you could be seen and could ask questions like some of the other centers had. Would the workshops have been more interesting, less interesting, or about the same if you had been able to talk back and forth during the workshops?

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
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<td>MORE INTERESTING</td>
<td>55</td>
</tr>
<tr>
<td>ABOUT THE SAME</td>
<td>2</td>
</tr>
<tr>
<td>LESS INTERESTING</td>
<td>3</td>
</tr>
</tbody>
</table>

8. Would you have learned more, less, or about the same from the workshops if you had been given a chance to talk back and forth?

<table>
<thead>
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<th>Response</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td>LEARNED MORE</td>
<td>56</td>
</tr>
<tr>
<td>ABOUT THE SAME</td>
<td>2</td>
</tr>
<tr>
<td>LEARNED LESS</td>
<td>3</td>
</tr>
</tbody>
</table>

9. Suppose your facility had had only a microphone for all the workshops so that you could have spoken up and asked questions at any time. Would a microphone alone have been enough, or would you still have needed or wanted a camera?

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>NOTHING NEEDED, ONE-WAY ENOUGH</td>
<td>67</td>
</tr>
<tr>
<td>MICROPHONE ENOUGH</td>
<td>2</td>
</tr>
<tr>
<td>WANTED CAMERA</td>
<td>3</td>
</tr>
<tr>
<td>DON'T KNOW, DOESN'T MATTER</td>
<td>4</td>
</tr>
</tbody>
</table>

10. Why is that?

(Write verbatim answer and also circle if one or more of the items below was mentioned.)

- FELT MORE A PART OF GROUP OR WORKSHOP (SENSE OF INVOLVEMENT) 1
- MEDIA EXCITEMENT. "IT WAS FUN!" 1
- COULD SHOW MY CENTER. EXAMPLES OF VALUE OF VIDEO FOR DEMONSTRATING, ASKING THINGS 1
- OTHER 1
- NEGATIVE REASONS 1
11. As it was, of course, you were only able to watch other caregivers ask and answer questions. What if those conversations had not been part of the program, and Judy Bazenmore and others had just talked to you like regular television? Would the workshops have been more interesting, less interesting, or about the same if there had been no talking back and forth between centers during the workshops?

MORE INTERESTING.................. 1
ABOUT THE SAME.................. 2
LESS INTERESTING................. 3

12. Why do you feel that there is (a difference/no difference) between watching other caregivers in the workshops and watching regular television workshops?

13. When the workshops are given next year, would you advise caregivers who did not participate this spring to watch? Would you recommend the workshops to any caregiver, only to caregivers without much experience, or would you not recommend them at all?

YES. ANY CAREGIVER.............. 1
YES. INEXPERIENCED CAREGIVERS.. 2
NO. NOT RECOMMEND IT........... 3

14. If a day care facility was going to participate, in your opinion, should they request a camera and microphone, only a microphone, or is it enough to just watch without either a camera or microphone?

CAMERA AND MICROPHONE........... 1
MICROPHONE ONLY.................. 2
WITHOUT EITHER................... 3
DOESN'T MATTER.................... 4
15. When the workshops are offered again, at what time or times of day should they be given? (Circle any items that the respondent mentions.)

<table>
<thead>
<tr>
<th>Option</th>
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<tbody>
<tr>
<td>In the morning</td>
<td>1</td>
</tr>
<tr>
<td>At naptime</td>
<td>72/</td>
</tr>
<tr>
<td>In the afternoon</td>
<td>1</td>
</tr>
<tr>
<td>In the evenings</td>
<td>74/</td>
</tr>
<tr>
<td>On the weekend</td>
<td>75/</td>
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</table>

16. When the workshops are offered again, how many days a week should they be offered? (Probe if necessary to specify one of the responses below.)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>One</td>
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<td>Two</td>
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<td>Three</td>
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</tr>
<tr>
<td>Four</td>
<td>4</td>
</tr>
<tr>
<td>Five</td>
<td>5</td>
</tr>
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</table>

17. The workshops this spring ran for a period of 13 weeks. When they are offered again, should the period be longer, about the same, shorter, or doesn't it matter?

<table>
<thead>
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<th>Code</th>
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<tbody>
<tr>
<td>LONGER</td>
<td>78/</td>
</tr>
<tr>
<td>ABOUT THE SAME</td>
<td>2</td>
</tr>
<tr>
<td>SHORTER</td>
<td>3</td>
</tr>
<tr>
<td>DOESN'T MATTER</td>
<td>4</td>
</tr>
</tbody>
</table>

18. Do you feel that the workshops should involve children more, or should it continue to concentrate on discussions with caregivers?

<table>
<thead>
<tr>
<th>Option</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>MORE WITH CHILDREN..(GO TO Q.18A).</td>
<td>79/</td>
</tr>
<tr>
<td>CONTINUE WITH CAREGIVER..(GO TO END OF FORM)</td>
<td>2</td>
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</tbody>
</table>

18A. How often should children be involved—in all the programs, some of the programs, or just an occasional program?

<table>
<thead>
<tr>
<th>Option</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL OR MOST OF WORKSHOPS....</td>
<td>1</td>
</tr>
<tr>
<td>SOME OF THE WORKSHOPS.......</td>
<td>2</td>
</tr>
<tr>
<td>OCCASIONAL WORKSHOPS........</td>
<td>3</td>
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</table>
Appendix B

IMPLEMENTATION SUGGESTIONS

We learned some things from the Spartanburg experience that might prove useful to others carrying out a cable-delivered workshop series. These involve curriculum content, media format, and maintaining attendance.

CURRICULUM CONTENT

We have suggestions, not for specific content, but for processes by which to select, schedule, and present content.

- The topics selected for the workshops should be based on an assessment of the needs of centers in the local community, done enough in advance of the workshops to allow the results to be used, and based on the caregivers' as well as workshop organizers' perceptions. Although physical qualities of centers are the most frequently assessed, they represent only one dimension of potential need. The outcomes assessed in the Spartanburg experiment include other examples of daycare facility and staff needs that might exist in particular communities.

- There should probably be separate workshops for center directors and caregivers. In small centers, directors are also usually caregivers. However, even in this case, the director has administrative, budgetary, and policy responsibilities particular to the role. In large centers, the director deals almost entirely with these responsibilities, doing little day-to-day caregiving.

- If a workshop objective is to encourage a daycare and human services infrastructure in the community, the workshops might be extended beyond their electronic boundaries to include regular face-to-face meetings of workshop participants. Past workshop "graduates," other caregivers, and members of the human services community might also be included in these meetings. The meetings should be organized around a professional topic—possibly with an outside speaker—to emphasize the professional nature of the infrastructure. They might also include opportunities for socializing (e.g., over food) to establish the interpersonal channels for professional interactions.

- The meaning to caregivers of different styles of presenting the workshops should be assessed prior to the workshops and the style selected that is most consistent with the workshop objective. For example, interactive programming lends itself to a conversational style. However, in the South and possibly in other parts of the country, "conversations" are for socializing; "lectures" are for learning.

- Workshop topics should be scheduled to accord with the natural life cycle of a daycare year to maximize workshop effects. For example, the daycare year tends to follow a school year, even all-year centers tending to "begin"
in September. At this time staff are least sure of themselves and may be most amenable to information. Topics that most need to be addressed might be presented at this time. Inventive uses of local materials might be presented during the Thanksgiving–Christmas period. Physical environment considerations might be presented in the spring, as outdoor equipment is repaired and replaced and repairs on the center in general begin.

- In general, the workshop series should be regarded as a series of “frames” which can be filled with material appropriate to the needs of local centers, the needs of directors versus caregivers and time in the centers’ annual cycle.

MEDIA FORMAT

- Of three programming alternatives—canned; locally produced, non-interactive; and locally produced, interactive—we suggest locally produced, interactive programming. As we noted in Sec. V, participants evaluated the interactive aspect of the workshops positively. It was experienced as concrete, realistic, and involving—i.e., as psychologically “accessible” to the viewer. We suggest locally originated productions because daycare involves children’s socialization, a process usually regarded as being in the province of local communities. We found that canned programs could have appropriately addressed some daycare topics—e.g., Piagetian stages in the cognitive development of a child—and could be used for single workshops. However, we also found that some topics greatly benefit from local production—e.g., discussing children’s socio-emotional development in ways sensitive to local religious values; translating nutritional information into local food preferences; describing social services available in the community.

- With regard to four cable return alternatives—no return, audio return, data return, and video return—the preferred return depends on the major intent of the workshops. If the major intent is cognitive learning, we would not recommend the use of video return. We would suggest considering audio return. If the major intent is changing attitudes (e.g., about child care, about daycare as a profession) or creating a daycare/human services infrastructure, we recommend video return.

ATTENDANCE

Once caregivers are enrolled in the workshops, maintaining attendance becomes the problem. Participants in the Spartanburg experiment missed about half of the workshops, although caregivers and directors differed substantially in attendance. Of factors that should affect attendance, three obvious ones are under the control of the workshop staff: interesting and useful workshops, workshop scheduling, and social rewards and pressures to attend. We discuss the last two factors here.
• Workshop enrollee scheduling preferences should be surveyed prior to the beginning of the series. The experimental workshops were delivered at naptime, five days a week, for 14 weeks (the last week being reruns). On the basis of participants' evaluation of this schedule, we suggest that workshops be given at naptime or afternoon, three days a week, for a period of a semester (e.g., 12 to 14 weeks). Eighteen percent of the respondents made scheduling choices completely consistent with actual scheduling; 40 percent made at least two choices consistent with actual scheduling. Although the modal response (55 percent) on time of day was naptime, the time at which workshops were actually delivered, a third of the respondents preferred afternoon. The greatest discrepancy between the actual and preferred schedule was on number of days per week for workshops: 71 percent chose less than five days per week, 66 percent chose two or three days per week. The responses for the total length of the course were bimodal, equal numbers of respondents choosing "same" and "shorter."

• There are a variety of simple devices for rewarding and pressuring enrollees to "stay in the group." The regular face-to-face meetings suggested for networking reasons give participants a social incentive to adhere to the workshops. The attendance checks that we used for data purposes are common pressures exerted on students to attend classes.
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