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University of Alberta

Program Evaluation of a Short-Term Early Intervention Program for Preschool Children with Behavior Problems

by

Sandra Elizabeth Mackenzie-Keating 

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Special Education

Department of Educational Psychology

Edmonton, Alberta

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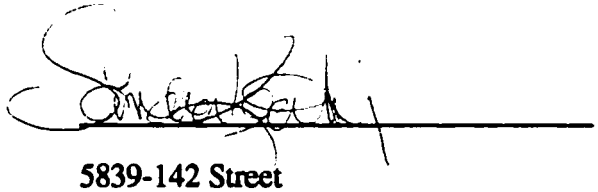

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I shall be telling this with a sigh
Somewhere ages and ages hence;
Two roads diverged in a wood, and I--
I took the one less travelled by,
And that has made all the difference.

Robert Frost (1847-1963)
The Road Not Taken (1916)

University of Alberta

Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Program Evaluation of a Short-Term Early Intervention Program for Preschool Children with Behavior Problems submitted by Sandra Elizabeth MacKenzie-Keating in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Special Education.

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Date

To George and Margaret MacKenzie

who laid the foundation that

enabled me to choose this road

and

to

Tom, Amy, and Nicolas

for travelling along it with me.

Abstract

When firms enter international markets, they face a critical strategic decision about the means or the mode of entry. Past research primarily grounded in manufacturing firms identifies a variety of modes of entry including licensing arrangements, wholly owned ventures, acquisitions, and joint ventures. This dissertation provides an understanding of overseas entry mode decisions of professional service firms, focussing specifically on engineering consulting firms. It examines entry mode choices of North American engineering consulting firms entering a variety of countries.

The dissertation contributes to our understanding of entry mode choices of engineering consulting firms in two significant ways. First, it arrives at a new theoretical conceptualization of the entry mode construct as a multidimensional process. This was driven by the project based nature of engineering consulting and consequently, its project by project entry into an overseas market. The entry mode decision in the context of engineering consulting is more than just a choice of governance form. It involves decisions about following a project versus a market, following a client into the host country, setting up a physical presence in the host country, establishing a continuing legal form in the host country, and the degree of presence in the host country. Second, it identifies professional service firm characteristics, knowledge held in individuals, teams and the organization, relationship building with clients and business partners, and firm size as key predictors of different aspects of the entry mode process. The study highlights the professional service character of these firms and the project based nature of activity as central to their entry

mode decisions. The dissertation reaffirms more systematically that professional service firms are indeed different from manufacturing firms. Both in terms of the nature of their product and the core assets these firms are built on a different foundation and leverage different competencies.

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Most of all, I would like to thank my husband, and biggest supporter, Tom who always had faith and encouragement, and who always made time, sometimes at the expense of his own work. Thanks to his endless positive support which allowed me to accomplish this work.

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Introduction

Behavior Problems in Young Children

Behavior problems in young children place them at significant risk for academic, behavior, and socialization problems. For instance, oppositional and aggressive behavior in early childhood are associated with antisocial problems later in life including, underachievement in school, poor peer relations, increased risk for later life violence, and delinquency. Young children with behavior problems are at increased risk for serious adulthood problems of alcoholism, drug abuse, marital disruption, chronic unemployment, and persistent social and psychiatric problems (e.g., Alexander & Pugh, 1996; Kazdin, 1985, 1987,1993; Loeber, 1990,1991; Patterson, Capaldi, & Bank, 1991; Patterson, DeBaryshe, & Ramsey, 1989). There is also some evidence to suggest that aggressive and disruptive behaviors also place children at a greater risk of being abused by their parents (Alexander & Pugh, 1996; Herbert, 1995).

Noncompliant, disruptive, and acting-out behavior problems represent the most frequent reasons that young children are referred to mental health professionals and clinics (Alexander & Pugh, 1996; Forehand & McMahon, 1981; Kazdin, 1987; 1991). Between one-half and two-thirds of children referred to mental health services are assessed as having disruptive behavioral difficulties (Herbert, 1995). Approximately 30% of physician consultations involve children with behavior problems and 45% of community child health referrals involve children with behavior problems (Herbert, 1995). Herbert also suggests that the prevalence of disruptive behavior problems is increasing.

Frick, Strauss, Lahey, and Christ (1993) estimated that 7 to 11% of preschool children exhibit severe behavior problems, whereas 15 to 24% exhibit more mild behavior problems. As well, there is recognition that behavior problems in preschool children are not transitory (Campbell, 1995; Jenkins, Owen, Bax, & Hart, 1984; Richman, Stevenson, & Graham, 1975), i.e., they do not go away without treatment. Estimates of clinically significant psychopathology in school-aged children drawn from community-based samples of children from the United States, New Zealand, Ontario, and Puerto Rico range from between 12 and 22% of the population (Frick et al., 1993). Thus, behavior problems in young children pose a significant and prevalent problem facing parents, schools, mental health professionals, early interventionists, and communities.

The Effectiveness of Early Intervention

Research on the efficacy of early intervention with young children with diagnosed developmental and behavioral disabilities, as well as those at risk for developmental and behavioral disabilities, has demonstrated that early intervention is effective in improving the developmental outcomes of these children and in preventing or reducing further complications of the disability (e.g., Castro & White, 1985; Castro & Mastropieri, 1986; Guralnick, 1991, 1997; Guralnick & Bennet, 1987; Meisels & Shonkoff, 1992; Shonkoff & Hauser-Cram, 1987; Simeonsson, Cooper, & Schiener, 1982).

Other studies have also demonstrated that early intervention works. Harris (1991), for example, reviewed three group comparisons studies, one single-subject research design study, and one study that used meta-analysis. She found that the results of the group comparison studies produced mixed results. However, both the single-subject and the meta-analysis studies provided empirical evidence for the effectiveness of early intervention with children with biological handicaps. Zahr (1994)

reviewed 13 studies of premature infants from disadvantaged backgrounds. In this review, 12 of the 13 studies produced significant effects in the areas of mental and motor development in the infants in these studies. In a review of 19 studies employing random assignment to treatment or control groups, Ramey, Bryant, and Suarez (1990) presented the following conclusions regarding efficacy:

1. early intervention can reduce grade retention and special class placement during public school;

2. more educationally intense programs produce larger and longer lasting developmental changes than less-intense programs;

3. structured intervention programs lead to better cognitive outcomes than unstructured programs.

Connolly, Morgan, Russell, and Fulliton (1993) compared a group of adolescents with Down Syndrome who had experienced an early intervention program with a group of similar adolescents who had not experienced an early intervention program and found that the early intervention group had significantly higher scores on measures of intellectual and adaptive functioning than the comparison group. Dihoff et al. (1994) followed three groups of children matched on a variety of dimensions such as race, gender, severity of impairment, etc. These authors found support for the effectiveness of early intervention over the control group. They also found that children made the most progress when receiving full-time intervention. The benefits of full-time or intensive intervention are supported by other studies as well (e.g., Lovaas, 1993; Ramey et al., 1990; Yoshikawa, 1994).

The past 30 years of first generation research in early intervention with young children with diagnosed disabilities or those at risk for developing handicapping conditions has produced modest, but beneficial and remarkably consistent scientific evidence in support of the global effectiveness of early intervention. (Guralnick, 1997)

The next period of early intervention research, termed second generation research by Guralnick (1993, 1997), should "address issues that can guide specific program directions at a level that is of value in the daily activities of clinicians, educators, interventionists in general, and families" (Guralnick, 1997, p.12). As opposed to first generation research which focused on global issues of efficacy, second generation researchers are encouraged to consider three primary elements: "1) the influence of program features, 2) the influence of child and family characteristics, and 3) the specific outcomes or goals of early intervention" (Guralnick, 1997, p. 15).

The Effectiveness of Early Intervention with Children with Behavior Problems

Because of the significant risk that young children with disruptive behavior problems face, it is vital that we intervene early with these children in order to enhance their resiliency and to eliminate, or lessen, their risk for later life problems. There is a significant and growing body of literature and research documenting the importance of early intervention with children with behavioral problems. For example, we know that intervening early with the goal of improving parent-child interactions in early childhood, is effective in reducing aggressive and disruptive behavior problems thereby altering the long term outcomes for these children and their families (Anastopoulos, Barkley, & Shelton, 1996; Barkley, 1987; Barnard, 1997; Forehand & McMahon, 1981; Hester & Kaiser, 1998; Patterson, Reid, Jones, & Conger, 1975, 1989). Webster-Stratton (1997) provides an excellent review of the effectiveness of early intervention for children with emotional and/or behavioral difficulties.

Yoshikawa (1994), in a comprehensive review of 23 studies, examined the effects of early family support and education on chronic delinquency and its risks. He postulated that chronic delinquency exhibits certain characteristics that make it particularly amenable to early intervention. These characteristics include: early age of onset, high stability, and a lack of specialization in the type of antisocial behavior

exhibited. From his review, Yoshikawa also identified the common elements that make early intervention programs effective. Interventions that achieved long-term effects targeted multiple as opposed to single-risk factors (e.g., cognitive ability and early social-emotional competence). Programs that achieved long-term effects were ecological in design and effect, i.e., they used a combination of family support and early educational models. They focused on disadvantaged or low income families. The most successful intervention programs ranged from 2 to 5 years in duration. The most successful programs were all implemented within the first years of the child's life. Two programs began at, or before, birth. Other authors (Bruder, 1993; Ramey & Landesman-Ramey, 1992; Ramey et al., 1990) have identified similar characteristics regarding efficacy. Even without this significant empirical evidence however, there are considerable nonempirical grounds upon which we can justify providing early intervention services to young children and their families (e.g., Caldwell, 1970; MacKenzie-Keating & Kysela, 1998).

An integral component of any early intervention or early childhood special educational program should be comprehensive program evaluation.

Program Evaluation in Early Intervention

Program evaluation in early intervention and early childhood special education (EI/ECSE) settings consists of systematically collecting, synthesizing, and interpreting information about programs for the purpose of assisting with decision making. Within the parameters of this definition lies substantial diversity in the possible (a) program evaluation questions and decisions; (b) sources of evaluation questions; (c) aspects of the programs to be evaluated; (d) evaluation methodologies (e.g., procedures for gathering, organizing, analyzing, and interpreting information); (e) sources of evaluation information; (f) groups who will receive, act upon, or be affected by the results of the

evaluations; and (g) resources available for conducting the evaluations. (Snyder & Sheehan, 1996, p. 359)

Program evaluation has been identified as one of the most rapidly expanding fields of psychology (Hawkins, Fremouw, & Reitz, 1981; Murray, 1992). The need to systematically evaluate the effectiveness of our early intervention efforts and programs is important for ethical, administrative, bureaucratic, political, financial, and social reasons (Bruder, 1993; McConnell, 1994; Snyder & Sheehan, 1993). The debate, however, becomes one of how to evaluate in a meaningful way.

Several program evaluation models have been proposed in the field of education (e.g., Parlett, 1974; Provus, 1971; Scriven, 1972; Stake, 1983; Stufflebeam, 1983; Tharp & Gallimore 1979). The majority of these program evaluation models, however, address evaluation in such a general sense that they provide little guidance or meaningful information to program evaluators, program staff, or program administrators in deciding what to evaluate and how to evaluate it (Hawkins et al., 1981). Hawkins et al. have proposed a model of program evaluation that seems to offer a useful and practical method for evaluating mental health or educational intervention programs.

Currently, there does not appear to be one single, commonly used or agreed upon model identified in the early intervention literature for conducting program evaluations. Additionally, selecting a model of evaluation does not appear as critical as the adherence to particular standards (Joint Committee on Standards for Educational Evaluation, 1994) or best practice guidelines (Snyder, 1993; Snyder & Sheehan, 1996). Neither the Joint Committee nor Snyder and Sheehan in their chapter on recommended practices for program evaluation in early intervention endorse any particular model. Rather, both suggest that the model chosen by any specific evaluator is most likely to reflect the philosophical and educational orientation of that evaluator.

The practices of both the Joint Committee and Snyder and Sheehan are considered to be applicable to any chosen evaluation model.

Snyder and Sheehan's (1996) practices follow the same outline as the program evaluation standards prepared by the Joint Committee on Standards for Educational Evaluation (1994). Snyder and Sheehan's (1996) practices for program evaluation in early intervention have been approved by the membership of the Division for Early Childhood of the Council of Exceptional Children (1993) (Odom & McLean, 1996).

The practices are divided into four attributes: utility, feasibility, propriety, and technical adequacy. These attributes parallel the approach used by that of the Joint Committee (1994). Briefly, utility refers to those practices that are intended to ensure that an evaluation will serve the information needs of the users of the evaluation. Feasibility refers to those practices that are intended to ensure that an evaluation will be realistic, prudent, diplomatic, and frugal. Propriety practices are intended to ensure that an evaluation will be conducted legally, ethically, and with respect for the welfare and rights of all those involved in the evaluation as well as those affected by its results. Finally, technical adequacy practices are those that support the gathering, analysis, and interpretation of information in ways that are valid, reliable, accurate, fair, and replicable.

Hawkins, Fremouw, and Reitz's (1981) Model of Program Evaluation

Hawkins et al.'s (1981) model of program evaluation includes a set of strategies, methods, procedures, and materials for planning and conducting on-line evaluations of short-term educational or time-limited treatment programs. This model is intended for ongoing or continuous evaluation, as opposed to evaluation after the program has ended. Hawkins et al.' s model is based on the equation:

CLIENT X TREATMENT X NATURAL ENVIRONMENT = OUTCOME

This equation takes into account that any treatment's effects on its clients

depends upon an interaction of the characteristics of the program, the client, and the natural environment of which the client is a part. Specific outcomes are of little value unless specific aspects of the program (e.g., conceptual foundation, methodology, treatment procedures) can be identified and replicated. Likewise, specific direct information (e.g., behavioral, demographic, physical characteristics) needs to be identified and assessed so that we will know for which type of client the program is most and least beneficial.

> If one can predict outcomes from direct characteristics at entry, three courses of action are available: (1) accept only those clients for whom success is probable; (2) devise special, intensified subprograms for those predicted to fail; or (3) when there are alternative subprograms having different prediction equations...place those clients in the subprograms for which the prediction is most favorable given his/her characteristics. (Hawkins et al., 1981, p. 309)

Finally, the events, people and other characteristics of the client's environment can also affect outcome. The client's natural environment is considered to be an essential part of the equation in short-term or time-limited programs, as eventually the client will return to, and be in contact only with, the natural environment.

> Thus long term outcomes will be affected profoundly by the natural environment, and knowledge of it should help the evaluator predict which clients will succeed. Assessment of the natural environment appears to be a seriously neglected aspect of program evaluation. (Hawkins et al., 1981, p. 310)

In summary, Hawkins et al.'s (1981) model includes "evaluation of client characteristics upon entering the program, of the program and its conception, of the natural environment, and of various short and long term outcomes (p.310)." Hawkins et al.'s model is designed to address four major questions:

1. Who are the clients?

2. What is their natural environment?

3. How does the program serve them?

4. How well does the program serve them?

Hawkins et al.'s (1981) model is depicted graphically in Figure 1.1. According to Hawkins et al., this model represents most of the subject matter of treatment and program evaluation.

The rows in the figure display the major components of the program (program conception, operating program, client behaviors or characteristics, and the natural environment). Time is represented from left to right, with three major blocks of time, represented from the client's point of view (i.e., before entering the program, during the program, and following discharge from the program). The program is presented in the middle column with the more conceptual variables at the top of the figure. The rows represent the effects that are expected from the program. The arrows represent the "size of the effects" that each variable has on the other, with the large black arrows indicating significant effects and the small dotted arrows indicating that for some programs, the program does not allow for direct interaction with the client, but rather with the natural environment which in turn indirectly affects the client.

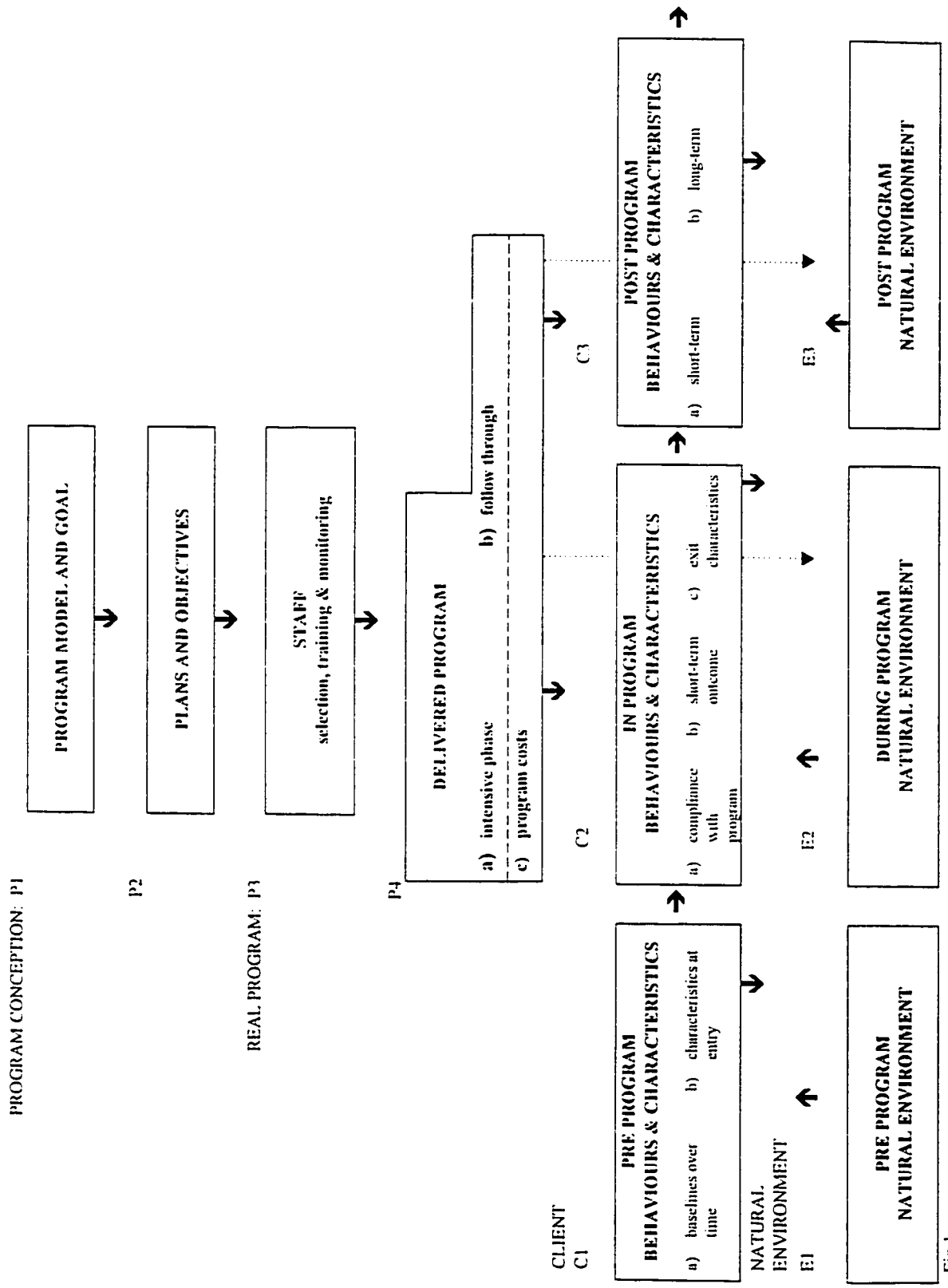

Figure 1.1
Hawkins, Fremouw, and Reitz's (1981) Model of Program Evaluation

> A comprehensive program evaluation system would be one that obtains data describing several of the cells--including program conception, real program, client, and environment cells--and investigates several relationships among cells, including program conception, real program, client and environment cells--and investigates several relationships among cells. (Hawkins et al., 1981, p. 310)

The authors further state that

> the model is method free; any appropriate methodology of evaluation can be used, for example, inspection of archives, standardized tests, simple correlations, analyzes of covariance, pre-post group experiments, and time-series experimental designs. (Hawkins et al., 1981, p. 311)

Purpose of the Thesis

The purpose of this thesis is to apply Hawkins et al.'s (1981) model of program evaluation to an early childhood intervention program for preschool children with behavior problems (Communication Behavior Preschool Program, Glenrose Rehabilitation Hospital, Edmonton, Alberta) by addressing the four questions posed by the model (please see Appendix 1.1 for a description of the program). As stated previously, the four major questions are:

1. Who are the clients?
2. What is their natural environment?
3. How does the program serve them?
4. How well does the program serve them?

This thesis is comprised of four papers, each of which will address one of the four questions posed by Hawkins et al.'s (1981) model. Each paper will also attempt to answer its own related, but expanded, research questions and, where applicable, will

contain its own methodology. Following is a list of the four questions and a brief synopsis of each of the four papers as they relate to Hawkins et al.'s model.

Paper 1: Who are the clients? This paper will provide a review of the literature on the prevalence and significance of behavior problems in young children, a review of some of the risk and protective factors associated with behavior problems in young children, and some of the problems with classification, and the most common interventions. These issues are considered fairly representative of the children who typically attend the Communication Behavior Preschool Program (C.B.), Glenrose Rehabilitation Hospital, Edmonton, Alberta. This paper provides a comprehensive description of Cell C1, Preprogram Behaviors and Characteristics at Entry (see Figure 1.1) and will be submitted for publication.

Paper 2: What is their natural environment? One of the characteristics that seems to distinguish young children with behavior problems from their typically developing peers is their level of noncompliant behavior. In fact, some authors suggest that all behavior problems can be conceptualized as noncompliance, if not to spoken, then to unspoken, requests (Forehand & McMahon, 1981). What is the natural rate of compliant behavior in typically developing children? Answers to this question may help guide parents and clinicians in making treatment decisions and setting expectations or exit criteria for clinic-referred children. This paper corresponds to Cell E3, Postprogram Natural Environment and to Cell C2 Exit Characteristics (see Figure 1.1). A version of this paper has been published in Early Child Development and Care (MacKenzie-Keating, McDonald, Tanchak, & Erickson, 1996).

Paper 3: How does the program serve them? Early intervention with young children with behavioral difficulties and their families is efficacious. This paper will describe some of the dimensions of early intervention that enhance the efficacy of early intervention programs and demonstrates support for the efficacy of early intervention

on several dimensions and corresponds to Cell P1, Program Model and Goal (see Figure 1.1). A version of this paper has been published in Exceptionality Education Canada (MacKenzie-Keating & Kysela, 1998).

Paper 4: How well does the program serve them? This paper examines the differences between pre- and post-program characteristics of children and their families who were randomly assigned to one of two types of treatment. One of the groups of children and their families received center-based treatment, the other received a combination of center-based and community-based treatment in order to determine if there were differences between the two approaches in terms of behavior change, family functioning, and consumer satisfaction. This paper investigates the relationship between Cells C1, Preprogram Behaviors and Characteristics and Cell C3, Postprogram Behaviors and Characteristics (see Figure 1.1). A version of this paper has been published in Exceptionality Education in Canada (MacKenzie-Keating & McDonald, 1998).

The four papers are followed by a conclusion in which it will be demonstrated that this evaluation adequately meets the program evaluation standards of utility, feasibility, propriety, and technical adequacy, as proposed by the Joint Committee on Standards for Educational Evaluation and by Snyder and Sheehan's (1996) best practice guidelines for program evaluation in early intervention.

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Appendix 1.1

Communication Behavior Preschool Program (CB) Description

The Communication Behavior Preschool Program (CB) is a short-term early intervention program for preschool children with behavior problems, located at the Glenrose Rehabilitation Hospital in Edmonton, Alberta.

The CB program is an interdisciplinary program that provides short-term diagnostic/treatment services to preschool children who have been identified as having significant behavior and/or communication problems. The CB Program serves children between 3 and 6 years of age, who are experiencing significant behavior problems that may also be associated with speech and language delays/disorders. The goal of the program is in assessing the child's strengths and needs, and developing treatment and educational strategies that can be used at home and in other community settings. One of the secondary goals is to enhance the development of both parents' and other professionals' understanding of the child's specific strengths and challenges in relation to his/her behavioral problems. This includes developing positive strategies to manage behavior, stimulate speech and language or communication development, facilitate new learning, and promote positive family functioning. The program works toward assisting in the successful integration of the child into the community.

The CB program provides a language enriched, behaviorally structured, and emotionally supportive environment in order to develop the strategies that will maximize the independence, social adjustment, and verbal,social, and cognitive competencies of the child. The strategies utilized are based on the principles derived from social learning theory (Bandura, 1973), language stimulation (Manolsen, 1992), incidental and natural teaching principles (Hart & Risely, 1975; McDonald et al., 1996), and family-focused theory (Dunst, Trivette, & Jodry, 1997).

Clinical Relevance of the Thesis

The impetus for each of the four papers in this thesis arose from my clinical experience in the CB Program. First, a frequent complaint of many of the parents of the children in the program was the low level of their child's compliant behavior. Thus, the goal of many treatment programs was to increase the rate of the child's compliant behavior. There was a wide degree of variability in parental tolerance and expectation and there were frequent questions regarding what levels of compliant behavior were age-appropriate. This was compounded by the fact that my own preschooler at home was not always completely compliant with my requests. After an initial search of the literature revealed little to no normative information on the rates of compliant or noncompliant behavior in young, preschool children, I decided to collect my own preliminary data.

Second, after a few years in the program, it was obvious that the significant behavior changes observed in the program did not automatically generalize to the child's home or community. This was combined with an impression that service delivery in the region was moving towards a more community-based focus. Again, a review of the literature revealed that there were very few experimental studies comparing a center-based treatment approach to a community-based treatment approach for young children with behavior problems.

Third, the Glenrose serves a wide variety of children with a wide variety of developmental, physical, and mental handicaps. These children routinely qualify for a wide variety of services, programs, and resources. Children who attend CB are considered ineligible for many services unless they have concomitant chronic and organic problems such as seizure disorders, speech-language delays, and other medical disorders. Yet, my experience and knowledge at the time, indicated that young children with behavior problems were at significant risk for a host of long-term negative

outcomes. Thus, I decided to do a review of the literature in the area and to disseminate the information as needed.

Finally, as a psychologist at the Glenrose, I was asked to sit on two early intervention committees, one a Glenrose committee, the other a Capital Health Committee. All of the members of each of the committees were connected to early intervention in some way. Yet there was a perception on the part of a few members that there was no evidence in support of the effectiveness of early intervention. Again, I had subjective experience from the children and families in CB and some knowledge of the literature in the area. Thus, I again, reviewed the literature and prepared a brief position paper. This paper was used in both Early Intervention Committee Reports and is used by the Edmonton Early Intervention Program.

Chapter 2

Behavior Problems in Preschool Children: A Review

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> Understanding the early manifestations as well as factors influencing the onset and developmental course of behavior problems in young children is among the major challenges in the growing field of developmental psychopathology (Campbell, Pierce, March, Ewing, & Szumowski, 1994, p. 836).

Behavior problems in preschool children can place them at significant risk for a variety of later life difficulties that can last into middle childhood, and sometimes long into adolescence, and even into adulthood. Yet, behavior problems in preschool children are very common and are often considered to be one of the hallmarks of the preschool developmental period. Because they are considered to be an aspect of typical early childhood development, it often makes it difficult, at this stage, to distinguish between problems that will improve with maturity and time, and without intervention, and problems that will persist, or worsen, over time. Thus, some of the problem behaviors in preschool children are transient in nature and develop as a result of the normal stresses and transitions that are typical of this particular period of rapid growth and development. These are the behaviors that typically improve with age and maturity. Other behaviors are more serious and can represent the early onset of a long-term pathway of maladjustment or maladaptation (e.g., Campbell, 1995; 1998). The difficulty at this particular stage of development is in distinguishing between transitory problem behaviors and more serious problem behaviors that are in need of intervention. Further research is needed that would provide more normative information or data on

normal developmental processes, more normative information on rates and types of behavior problems typically seen in normally developing preschool children, as well as a greater understanding and conceptualization of what constitutes more significant child, or developmental psychopathology (e.g., Mash & Barkley, 1996; Ollendick & Hersen, 1998), at these early ages. Additionally, a useful, reliable diagnostic, classification or descriptive system for identifying more serious problems early in their course, and in need of treatment or intervention, is needed that would capture the importance of the relational, contextual, and interactional variables (Mash & Dozois, 1996) in shaping the child's maladaptive and adaptive behavior at this early stage of development. Finally, because of the significant risk that preschool children with behavior problems face, very early identification techniques (Hester & Kaiser, 1997) become essential to the prevention and/or treatment of these problems early in their developmental course (Grizenko & Pawliuk, 1994), and/or for the prevention of secondary complications (Webster-Stratton, 1997).

This paper will provide a review of some of the issues surrounding behavior problems in preschool children. Sections I and II will discuss the prevalence and significance of behavior problems in preschool children. The next section will provide a review of the classification systems currently in use with children and an analysis of their relevance to very young children. Some recent methods, i.e., DC: 0-3, and more behaviorally oriented guidelines will be presented. It is important that behavior problems in young children be viewed from a developmental perspective. Thus, the next section will include a discussion of behavior problems from a developmental perspective. The next section will discuss risk and protective factors and the importance of prevention and early identification. Finally, a brief review of interventions for preschool children will follow the discussion of the need for early identification.

Prevalence of Behavior Problems in Preschool Children

The rate of emotional and behavioral problems among children is not only significant, but has grown steadily over the past 20 years (e.g., Feil & Becker, 1994; Rae Grant, 1994) and has been the subject of much research (e.g., Stallard, 1993). For example, disruptive behavior problems constitute the most common reason that parents, teachers, and courts refer children to mental health professionals (Alexander & Pugh, 1996). Furthermore, up to one-half of all clinical referrals of children are based upon reports of disruptive behavior problems (Alexander & Pugh, 1996). Additionally, Levy (1991) reported that learning and behavior problems in children are the most common complaints confronting physicians, with estimates ranging from between 5% and 30% of the pediatric population. National surveys in the United States reveal that over one-half of all assessment requests from teachers are for children with suspected emotional or behavior problems (Council for Children with Behavior Disorders, 1987).

Prevalence rates of behavior problems in children vary based upon a number of factors including, the age of the child or group being studied, the types of behavior problems being studied, and the method of assessment, classification, or definition system being used (Frick, 1993; Kauffman, 1997). For example, Sinclair, Del'Homme, and Gonzales (1993) estimated the prevalence of behavior problems in school-aged children to be between 2% and 10%. They further estimated that less than 1% of these children are identified for any type of special services or treatment. Some estimates of behavior problems in children are higher than those reported by Sinclair et al. Frick, (1993), for example, reported estimates from between 12% and 22% in school-aged children, but reported estimates on the rate of behavior problems in adolescents to be even higher, between 19% and 22%. In keeping with these reports, Mash and Dozois (1996) summarized prevalence estimates from a variety of studies of

the rate of developmental, emotional, and behavioral disorders in children. These estimates ranged from between 14% and 22% of all children, with more severe forms of disorder estimated to be between 8% and 10% of all children. Mash and Dozois also speculated that there are large numbers of children who exhibit undiagnosed problems that may place them at significant risk for the development of more severe problems, who are likely not included in these estimates. Furthermore, Sinclair et al., among others, believe that "the entire field is plagued with chronic problems of the underreferral of children at risk for behavioral disorders" (Sinclair et al., 1993, p. 177). Canadian estimates are also very much in keeping with the estimates reported here (see for example, Offord et al., 1987).

Most studies have concentrated on older samples of children or have, with a few exceptions, collapsed estimates across age levels. Research on rates of behavior problems in preschool children and toddlers is less prevalent. Frick (1993) summarized a variety of studies and reported that between 15% to 24% of preschool children are estimated to have mild problems, while 7% to 11% are estimated to have moderate to severe behavior problems. Campbell (1998) reviewed several studies of the prevalence of problem behaviors in preschool children. Based upon her review, she reported overall rates of about 10% to 20% in 2- to 4-year olds. Furthermore, she also concluded that there were no sex differences in rates of problems with very young children, which is counter to the sex differences usually found among older children.

Although prevalence rates vary somewhat from study to study, and can be confusing (Kauffman, 1997), there seems to be a general consensus among researchers in the field that the prevalence of behavior (and other) problems in young children is quite high, and that there are large numbers of children and their families who are in need of intervention or treatment who are not receiving it (Mash & Dozois, 1996).

Significance of Behavior Problems in Preschool Children

Mash and Dozois (1996) have summarized the research in the area on the significance of childhood behavior problems or childhood psychopathology. First, developmental, emotional, and behavioral problems in children are a relatively common occurrence. Thus, there are large numbers of children in need of help. Second, "there are continuities across ages for many forms of child psychopathology." That is, although the behavior may change in topography and severity as the child grows, behavior problems of another type persist. Furthermore, even when it is not possible to diagnose difficulties later on, the child's early difficulties may have a lasting effect on his/her overall adjustment. Third, changes in society such as poverty among women and children, number of single parents, divorce rate, etc., place children at significantly greater risk for the development of problems, as well as for the development of more severe problems at younger ages (see also Dunst & Trivette, 1997). Fourth, given the high occurrence of child maltreatment, and the close association between chronic abuse, neglect and child psychopathology, there are large numbers of children who are adversely affected. Fifth, there are enormous costs with respect to financial costs and emotional suffering due to the chronic and long-term nature of childhood behavior problems. Finally, Mash and Dozois estimated that as many as 70% of children who are in need of services, do not receive them, and some services, particularly empirically validated prevention and treatment services, are just not currently available.

Classification/Definition of Behavior Problems in Preschool Children

There are basically two primary methods of classifying behavior problems in young children: categorical classification such as the Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition (DSM-IV) (American Psychiatric Association, 1994) and the ICD-10 (World Health Organization, 1992), and dimensional classification such as the Child Behavior Checklist (Achenbach, 1991; 1992). In

categorical classification predetermined diagnostic criteria are used to define the presence of a given disorder. In dimensional classification, on the other hand, dimensions, syndromes, or symptom clusters are identified through the use of various statistical procedures. Recently, the ZERO TO THREE: National Center for Infants, Toddlers, and Families task force proposed a new categorical classification that is more applicable to very young children. Others (e.g., Campbell, 1995) are more in favour of descriptive guidelines for classifying very young children's behavior problems. Each of these systems and viewpoints will be discussed in the next section.

Categorical Classification

The most common categorical classification system currently used to diagnose behavior problems in children is the Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition (DSM-IV) (American Psychiatric Association, 1994). The DSM-IV specifies that a child be evaluated on the basis of five axes:

Axis I. Clinical Disorders and Other Conditions That May be the Focus of Clinical Attention. The major categories on Axis I that apply to children and adolescents are based under Disorders Usually First Evident in Infancy, Childhood, or Adolescence and include: Learning Disorders; Motor Skill Disorders; Communication Disorders; Pervasive Developmental Disorders; Feeding and Eating Disorders of Infancy or Early Childhood; Tic Disorders; Elimination Disorders; and Other Disorders of Infancy, Childhood, or Adolescence (e.g., Separation Anxiety, Selective Mutism, Reactive Attachment Disorder, Stereotypic Movement Disorder). It is noteworthy that there is only one category for acting out or disruptive behavior problems: Attention Deficit and Disruptive Behavior Disorders. Additionally, within the category there are only four clinical syndromes into which a child's diagnosis must fit: Attention Deficit/Hyperactivity Disorder (Inattentive Type, Hyperactive-Impulsive Type,

Combined Type, and Not Otherwise Specified); Conduct Disorder; Oppositional Defiant Disorder; and Disruptive Behavior Not Otherwise Specified.

Axis II. Personality Disorders and Mental Retardation. Axis II includes mental retardation and personality disorders (Paranoid, Schizoid, Schizotypal, Antisocial [adults only]), Borderline Histrionic, Narcissistic, Avoidant, Dependent, Obsessive-Compulsive, and Passive Aggressive). Again, it is worth noting that, most of these personality disorders rarely apply to children younger than 6 years of age.

Axis III. General Medical Conditions. Axis III is used to describe any physical problem that with the exception of mental retardation may be significant in the understanding or management of the child. (Some examples might be, endocrine, nutritional, and metabolic diseases).

Axis IV. Psychosocial and Environmental Problems. Axis IV indicates psychosocial and environmental influences that may be significant in the understanding or management of the child. The psychosocial and environmental problems that most likely apply to children are problems with primary support group, problems related to the social environment, educational problems, problems with access to health care, and economic problems.

Axis V. Global Assessment of Functioning (GAF). Axis V is for reporting the clinician's judgment of the child's overall level of functioning. It assesses psychological, social, and occupational functioning on a scale ranging from 0 to 100, representing a continuum from mental illness to health or wellness. For example, a score of 90 on the GAF would represent absent or minimal symptoms present, a score of 60 would represent moderate symptoms present, and a score of 10 would indicate persistent danger of one hurting oneself or others, and so on.

Although the DSM - IV is still the most commonly used tool for diagnosing clinical syndromes, including behavior disorders, there are criticisms against its use in

general (e.g., Alexander & Pugh, 1996; Frick, 1993; Kauffman, 1989; 1997) and for very young children in particular (e.g., Campbell, 1995; Erickson, 1998a). For example, psychiatric classifications of behavior disorders have typically been based on subjective criteria and unverifiable assumptions about "hypothetical parts of the psyche that are not open to direct measurement" (Kauffman, 1989, p. 122) and have therefore been considered unreliable (e.g., Erickson, 1998a; Kauffman, 1989). Clinical judgment is required to decide whether a child's behavior is deviant from his peers and to make a diagnosis. Additionally, psychiatric classification systems usually do not include implications for treatment (e.g., Erickson, 1998a; Kauffman, 1989; 1997). Classification systems do not provide information about exactly what kind of behavior to expect for a particular child, except that it will be disordered (e.g., Kauffman, 1989). Additionally, many of the diagnoses do not apply to very young children. Finally, current classification systems do not take into account the contextual and relational variables that are significant at very young ages. (e.g., Mash & Dozois, 1996). A review of DSM-IV and its forerunners can be found in Mash and Dozois (1996).

The International Classification of Diseases, Tenth Edition (ICD-10) (World Health Organization, 1992) is another example of a categorical classification system. The ICD-10 uses a numerical coding system to diagnosis medical conditions and is also used for billing, research, and statistical purposes. There are many similarities between the two systems. For instance, DSM-IV and the ICD-10 use more similar categories and descriptions than their forerunners (DSM-III and ICD-9) in an effort to improve international psychiatric communication (e.g., Rapoport & Ismond, 1996). The differences between the two systems are largely in the number of categories of mental disorders and philosophy (Rapoport & Ismond, 1996).

Kauffman (1989) has argued that "classification should be based on reliably observed phenomena. The classification of a given disorder should have a clear

relationship to its nature, origin, or course" (p. 122). He further argued that behavioral or classification systems have tended to be somewhat more reliable and valid because they are based, to a greater extent than psychiatric categories, on the direct observation of specific behaviors (Kauffman, 1989; 1997) (also see Webster-Stratton, 1997).

Dimensional Classification

While psychiatric classification is focused mainly on differentiating kinds of disorders, dimensional classification indicates how much individuals differ in the extent or degree to which they exhibit a type of behavior. The basic assumption underlying dimensional classification is that there are a number of dimensions of behavior and that all people possess all of these dimensions to varying degrees. That is, all individuals exhibit behavior that is classifiable to varying degrees (e.g., Kauffman, 1997). Behavioral dimensions are descriptions of behavioral clusters or syndromes that are derived from statistical procedures (such as factor analysis). Statistical analyses are used to reveal which behavior problems tend to occur, or cluster, together to form a dimension. These behavioral dimensions are derived from the behavior ratings on behavior rating scales. Two of the more commonly used rating scales upon which these behavioral dimensions are extracted are the Revised Behavior Problems Checklist (Quay & Peterson, 1987) and the Child Behavior Checklist (Achenbach, 1991; 1992). Two broad dimensions (internalizing and externalizing) and several subdimensions (e.g., aggressive behavior, social problems, withdrawal, thought problems, somatic complaints, anxious/depressed, delinquent behavior, and so on) have been fairly consistently identified.

Although some would argue that dimensional systems have the advantage of being somewhat more objective and empirically based than psychiatric systems (see for example, Kauffman 1989; 1997), there are also problems with dimensional classification. For example, how 'difficult" a child's behavior must be before it is

considered problematic or disordered, is still a matter of judgment. Also, dimensional classification still does not take into account the contextual, relational, and interactive variables that are so important in young children's lives (Mash & Dozois, 1996).

Proposed Categorical Classification for Very Young Children: Diagnostic Classification : 0-3 (DC: 0-3)

In response to some of the criticism surrounding current classification systems to apply to very young children, and as a result of increasing understanding and knowledge about early childhood mental health and development, in combination with the evidence for the importance of very early intervention, the ZERO TO THREE: National Centre for Infants, Toddlers, and Families established a task force "to collect information about infants and toddlers with clinical problems requiring diagnosis and intervention" (p. 4). The result has been a new categorical diagnostic system for very young children: The Diagnostic Classification: 0-3: Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood (DC: 0-3) (ZERO TO THREE: National Center for Infants, Toddlers and Families, 1997).

The purpose of DC: 0-3 is to address the need for a "systematic, developmentally based approach to the classification of mental health and developmental difficulties in the first four years of life" (p. 3). It is also a classification system meant to complement, not replace, existing classification systems. Existing classification systems have not focused in depth on the early stages of development and have not therefore, included comprehensive categories for classifying problems in this early age range. DC: 0-3, however, attempts to describe "1) the types of problems or behaviors not addressed in other classification approaches, and 2) the earliest manifestation of problems and behaviors that are described in other systems for somewhat older children and adults" (p. 15).

DC: 0-3 categorizes emotional and behavioral difficulties that represent significant deviation from normal development. Descriptive categories were created as a result of case discussions among leading clinicians and researchers in early childhood mental health and development. DC: 0-3, like DSM-IV, uses a multiaxial classification system. However, the axes in DC: 0-3 tend to focus more on developmental issues. "Dynamic processes, such as relationship and developmentally based conceptualizations of adaptive patterns (i.e., functional emotional developmental level) are therefore of central importance" (p. 15). The authors report that DC: 0-3 is currently considered a developing system that will be refined and updated based upon systematic collection of data and analysis and continuing discussion of cases.

Axis I. Primary Diagnosis. The primary diagnosis includes the most prominent features of the disorder and includes the following categories: Traumatic Stress Disorder, Disorders of Affect, Adjustment Disorder, Regulatory Disorders, Sleep Behavior Disorder, Eating Behavior Disorder, Disorders of Relating and Communicating.

Axis II. Relationship Disorder Classification. The relationship disorders on Axis II have been identified in order to characterize the nature of the disturbances that can occur in the relationship and interaction of young children and their parents in the presence of disability. The categories on this axis include: Overinvolved, Underinvolved, Anxious/Tense, Angry/Hostile, Mixed, Abusive (Verbally Abusive, Physically Abusive, Sexually Abusive).

Axis III. Medical and Developmental Disorders and Conditions. Axis III is used to denote any physical, mental health, and/or developmental diagnosis made using other systems (i.e., DSM-IV, ICD-10, or discipline specific designation).

Axis IV. Psychosocial Stressors. This axis has been included to take into account various forms and severity of psychosocial stressors that may be influencing

the child's development. Sources of stress that may be present in the life of young children include such things as hospitalization, adoption, abduction, loss of a parent, parental illness, poverty, natural disaster, and so on.

Axis V. Functional Emotional Developmental Level. The fifth axis of this multiaxial system addresses the manner in which the young child organizes experience and is reflected in level of functioning. "The developmental level at which the infant organizes affective, interactive, communicative, cognitive, motor, and sensory experience is designated on this Axis" (p. 61). The manual provides a detailed description of how to designate functional developmental level.

A Descriptive Approach

In a further attempt to distinguish, or classify, problematic behavior problems in preschool children from more transitory ones, Campbell (1995) who has researched and written extensively in the area of behavior problems in preschool children (see for example, Campbell, 1990; 1994; 1995; 1997; 1998; Campbell, Pierce, March, & Ewing, 1991; Campbell et al., 1994; Campbell, Pierce, Moore, Marakovitz, & Newby, 1996) has proposed the following guidelines. According to Campbell any definition of clinically significant behavior problems in preschool children should include five critical components:

(1) the presence of a pattern or constellation of symptoms;

(2) a pattern of symptoms with at least short-term stability that goes beyond a transient adjustment to stress or change, such as that subsequent to the birth of a sibling or entry into child care;

(3) a cluster of symptoms that is evident in several settings and with people other than parents;

(4) that is relatively severe; and

(5) that interferes with the child's ability to negotiate developmental challenges, thereby reflecting some impairment in functioning (Campbell, 1995, p. 117).

In summary, current classification and diagnostic systems may not be adequate in their conceptualization and coverage of the types of problems of infants, toddlers, and preschool children exhibit. Recent attempts such as DC: 0-3, and Campbell and colleagues' efforts at distinguishing between what constitutes transitory, and more serious behavior problems, are moving us closer to more accurately depicting early childhood behavior problems. In addition, to improving attempts at classifying and describing young children's behavior problems, there is also growing recognition of the need for a developmental perspective in describing children's behavior problems (Campbell, 1998; Mash & Dozois, 1996).

A Developmental Perspective in Relation to Behavior Problems in Preschool Children

The period of life from birth to approximately age 6 represents a period of very rapid growth, development, and change in a child's motor, cognitive, social, emotional, and language abilities. In a very short span of time, the child goes through a rapid transition from a period of complete dependency during infancy to a period of greater and greater independence and autonomy (Campbell, 1995). Thus, any discussion of behavior problems in young children should be discussed from a developmental perspective. Campbell (1998) described a developmental perspective as important changes in a child's behavior and cognitive capacity that occur naturally as a result of physical and psychological maturation. Thus, all behavior at these early ages, whether "normal" or "abnormal," must be viewed from within a developmental context (Campbell, 1998).

A developmental perspective not only recognizes the influence of developmental processes, but also recognizes the fact that the rapidly growing and developing child is part of a larger family and community system (e.g., Bronfenbrenner, 1977) who

engages in thousands of interactions or reciprocal transactions every day with a primary caregiver or parent (e.g., Sameroff & Chandler, 1975). Thus, a developmental perspective also incorporates both an ecological and transactional view of development. Campbell (1998) asserted that it is "virtually meaningless to consider child behavior in isolation from social context and developmental stage" (p. 3). Mash and Dozois (1996) referred to this as a "developmental-systems perspective" and described it as a perspective that "emphasizes the role of developmental processes, the importance of context, and the influence of multiple and interacting events and processes in shaping both adaptive and maladaptive behavior" (p. 3).

This developmental-systems perspective to studying childhood behavior problems is a relatively recent phenomenon. Until recently, much of the effort at understanding or conceptualizing childhood problems has come from attempts to extend adult models or theories of psychopathology downward (e.g., Campbell, 1998; Mash & Dozois, 1996). Unfortunately, adult models do not incorporate a developmental perspective to understanding behavior and behavior problems, and so have, for the most part, been inadequate to our understanding of young children and the development of their behavior problems.

From a developmental perspective, because of the rapid changes and transitions that occur during the preschool years, it can be a time for potential parent-child conflict. According to Campbell (1995) "the nature and extent of developmental changes occurring during toddlerhood and the preschool years underscores the potential for children to set out on either a positive or adaptive developmental course or to develop adjustment problems that may be transient or longstanding" (p. 114). Thus, there is a need to examine what factors within the child, the family, and the family's environment place the child at risk for the development of problems and what factors or

opportunities (e.g., Dunst & Trivette, 1997) help protect, or buffer, the child from developing problems.

Risk, Resilience, and Prevention

As more is learned about behavior problems in preschool children, there has also been an increased effort to learn more about the factors that place children at risk for developing behavior problems, as well as the factors that help to protect them from developing behavior problems, so that effective preventative programs can be designed (e.g., Dunst & Trivette, 1997; Grizenko & Pawliuk, 1994; Simeonsson, 1994). Risk factors have been defined as those variables that increase the likelihood of psychopathology (Masten & Garmezy, 1985) or any number of other problems (Dunst & Trivette, 1997). A variety of risk factors have been identified that place young children at increased risk for the development of behavior problems. These include biological risks, such as parental psychopathology and sociopathy, and psychological risks, such as poverty status, and having a single parent (Grizenko & Pawliuk, 1994; Rae-Grant, 1994).

Erickson (1998a; 1998b) has identified a number of etiological or risk factors that have been traditionally associated with children's behavior problems. Erickson, however, is careful to point out that etiology cannot be conceptualized or characterized in terms of a one-to-one relationship, i.e., specific single behavior problems having single causes. Rather, she states that a contemporary view recognizes the multifaceted nature of etiological factors and examines both the additive and interactive effects of multiple risk factors on behavior. This is a common view also shared by others (i.e., Dunst & Trivette, 1997; Mash & Dozois, 1996). With this multifaceted view in mind, Erickson groups etiological factors into five broad categories: genetic, prenatal, perinatal, demographic, and postnatal. Genetic risk factors include things such as chromosome abnormalities and metabolic disorders. A large number of prenatal factors

such as maternal nutrition, maternal age, oral and bacterial infections during pregnancy, maternal dysfunction, medication and addictive substances, and psychological factors have been implicated in the etiology of behavior problems or behavior disorders. Perinatal variables, i.e., variables that are relevant during labour and delivery, have been associated with a variety of behavior disorders, as well as with other negative outcomes. Examples of perinatal factors include anoxia, prematurity and postmaturity, and birth injury. Demographic risk factors of gender and age have also been associated with behavior problems or disorders. Finally, a large number of postnatal physical, social and psychological risk factors have been associated with behavior disorders. These risk factors include accidents, infant malnutrition, neglect, abuse, environmental hazards, disease and illness, social conditions, family conditions (adoption, family composition, separation and divorce, number of children, adolescent parenthood) family stressors, childcare, parent characteristics, child characteristics, and parent-child interaction.

Campbell (1990) has proposed a similar list of causal factors. Campbell groups the factors that have been associated with the development of behavior problems in preschool children into four broad categories. These include: "child characteristics (i.e., biological risk/vulnerability, age gender, irritability/difficultness, delayed or uneven development, and deficits in social skills development), parenting skills (i.e., prenatal insensitivity/unresponsiveness, unavailability, limited or negative affective involvement, inappropriate developmental expectations, overly harsh or overly lax control strategies), family composition and interaction factors (i.e., one- versus two-parent family, marital distress or violence, parental personality problems, physical or psychological well-being/disorder, parental disagreement over child-rearing issues, number of children), and family environmental/social context (i.e., lower educational level of parents, unemployment or underemployment, limited financial/material

resources, low social support, inadequate institutional support, inadequate child care facilities, family stresses outside the nuclear family)" (Campbell, 1990, p.22). Similar lists of causal or risk factors have been proposed by other authors (see for example, Kauffman, 1997; Mash & Dozois, 1996).

Not all children who are exposed to these risk factors develop behavior problems. Thus, there are presumed to be factors, or processes called "protective factors" (Rutter, 1985) or opportunities (Dunst & Trivette, 1997) that protect, or strengthen, a child's responses to negative outcomes. "Unlike risk factors which have a direct effect on the development of disorders, protective factors operate indirectly, their effects apparent only through interaction with risk factors" (Grizenko & Pawliuk, 1994, p. 535). Research has indicated that there are a core set of protective factors that include such things as the competence of the child, positive self-esteem, positive personality, positive relationship with family members and/or friends, and participation in activities outside the home (Brooks 1994; Grizenko & Pawliuk, 1994; Rae-Grant, 1994) that can buffer the effects of some of both the biological and psychosocial risks during childhood. The study of the protective factors that allow some at-risk children to develop well, despite adversity, has begun only recently and is less well developed than risk-factor research (Rae-Grant, 1994).

The goal of preventative intervention and, in some cases, early intervention is to reduce some of these known risk factors and to increase the number of protective factors, in the child, in the parent-child relationship, in the family, and in the community or environment with which the child comes into contact (Rae-Grant, 1994).

> Not all risk factors need to be reduced. Even reducing some and buffering others with protective factors in a multi-risk situation is likely to result in more advantageous outcomes for children. Such interventions appear to allow children and their environments to interact in a more positive way so that social, emotional, and intellectual development can move into a positive trajectory (Rae-Grant, 1994, p. 25).

The goal of primary prevention programs for children with behavior problems, therefore, is to lower the incidence of behavior problems, rather than to treat occurring cases. Primary prevention programs tend to focus on strategies to either increase the number of protective factors or decrease the number of risk factors. Thus, primary prevention programs tend to affect the correlates that predict behavior problems, as opposed to intervening directly with children who already exhibit problems (Short & Brokaw, 1994; Simeonsson, 1994).

Early Identification of Behavior Problems in Preschool Children

Early intervention in behavior problems is the most ideal strategy for interrupting a potentially escalating cycle of problems (e.g., Patterson, 1982). However, the effectiveness of intervention depends upon effective and successful early identification of children and families who are at risk for developing these patterns of behavior.

Identification of school-age children with, or at risk for developing, significant behavior problems, is largely the responsibility of the classroom teacher and when provided with structured screening guidelines, teachers can accurately identify children at risk for developing serious problems (Quinn, Mathur, & Rutherford, 1995). Presently, however, there are few methods for screening preschool children who are at risk for developing long-term behavior problems (Feil & Becker, 1993). Because of the transitory nature of preschool behavior problems, and the training of many

preschool teachers and preschool personnel, they may be unable to distinguish between these transitory behaviors and more problematic ones, particularly in the absence of structured screening guidelines.

Feil, Severson, and Walker (1994; 1995) have developed the Early Screening Project (ESP) which assesses both the frequency and intensity of adjustment problems in preschool children aged 3 to 5 years in preschool centers. The ESP is a three-stage multiple gating system. Stage I involves teacher rankings of students. In Stage I teachers are asked to list the five students who best fit a description of externalizing behavior problems and five who best fit a description of internalizing behavior problems. Stage II involves having teachers complete a variety of behavior checklists. Finally, Stage III involves direct observation and completion of a parent questionnaire. Once the child has passed through this process, (all three gates) more specific assessment is required.

Walker et al. (1994) and Feil and Becker (1993) reported that the ESP has good psychometric properties. Furthermore, they reported that the ESP has utility, and is cost-effective and efficient to implement as a screening instrument in the early identification of preschool children with behavior problems. The authors reported that they are planning further longitudinal study and future studies with greater and more diverse populations, as well as broadening the sample to other locations (Feil & Becker, 1993).

Unfortunately, although all school-aged children are mandated to attend school, not all preschool children attend preschool programs. Thus, even if the ESP proves to be a useful and valid screening tool for behavior problems in preschool-aged children, significant numbers of preschool children with potentially serious problems who do not attend preschool will continue to be missed. Currently, the most common sources of identification in this age group are parents who talk to their pediatricians or family

physicians (Campbell, 1998). Thus, most children who tend to receive services are in late elementary or early secondary school. Very few children are identified in early childhood (e.g., Forness, Kavale, MacMillan, Asarnow, & Duncan, 1996).

Interventions for Preschool Children with Behavior Problems

The most frequent and promising interventions for preschool children with behavior problems center around parent training programs (see for example, McMahon & Wells, 1998; Webster-Stratton, 1997; Webster-Stratton & Hancock, 1998, for excellent reviews). There are at least three important reasons for the proliferation and success of parent training with very young children. First, from a developmental-systems perspective, a young child's parents and the reciprocal transactions or interactions between parent and child are extremely influential in shaping the child's adaptive and maladaptive behavior. Thus, many parent training programs target enhancing the quality of the parent-child relationship by improving these interactions, thereby improving the quality of the parent-child relationship, and indirectly, affecting the child's behavior. From a behavioral-systems perspective (e.g., Mash, 1998), not only the child, but the child, family, and other significant people in the child's and family's life need to be actively involved in all aspects of treatment in order to affect enduring change. Second, various types of parenting and discipline styles, as well as parental characteristics, have been associated with, or implicated, as risk factors in the development of behavior problems. For example, parents who are erratic or inconsistent in their disciplinary practices, who do not adequately monitor or supervise their children, who are highly critical, or who exhibit fewer warm nurturing positive behaviors or who themselves exhibit psychopathology or marital discord, are more likely to have children with behavior difficulties (e.g., Patterson, 1982). Many parent training programs therefore, focus on teaching appropriate and effective discipline and monitoring practices. Third, although a number of other effective types of treatment

strategies (see Mash & Barkley, 1998 for a review) have been widely used with older school-aged children and adolescents, they typically involve a certain level of language skill. Very young preschool children typically do not have the cognitive-language-developmental level in order to benefit from these types of interventions. Thus, the primary method for altering the behavior of very young children is through teaching their parents how to encourage more adaptive behavior while discouraging their maladaptive behavior.

There are a number of examples of exemplary, widely acknowledged and reviewed parent training programs in the psychological literature (e.g., Barkley, 1981; 1997; Cunningham, Bremmer, & Boyle, 1995; Forehand & McMahon, 1981; Patterson, 1975; 1976; Webster-Stratton, 1982) that have been extensively described, reviewed, and evaluated elsewhere (e.g., McMahon & Wells, 1998; Webster-Stratton, 1997). In summary, the results of parent training as an intervention for young children with behavior problems are, so far, promising (Webster-Stratton, 1997) especially when used in combination with a multi-method intervention approach (i.e., McMahon & Wells, 1998). Thus,

> Parent training programs not only comprise the largest body of research in this area but also have presented the most effective and promising results, particularly if offered to young children with conduct problems (Webster-Stratton, 1997, p. 445).

Parent training alone, however, is not always effective in reducing a child's behavior problems. There have been recent attempts to broaden parent training interventions to include other treatment components for other family problems (e.g., Dadds, Schwartz, & Sanders, 1987; Hester & Kaiser, 1998; Kaiser & Hester, 1997). McMahon and Wells (1998) have described a need to provide multi-component interventions to address the multiple social systems affecting the child and family.

Although parent training has demonstrated effectiveness, there are limitations. Webster-Stratton (1997) has outlined some of the limitations of parent training. First, is the lack of generalization from home to school. Second, is the narrow focus of many parent training programs that focus on the problem behavior to the exclusion of enhancing positive behaviors such as the child's cognitive and social competencies. Third, many parents for whatever reason, simply do not, or will not, attend parent training programs. Thus, although they are promising and can be effective, there are limitations to parent training interventions.

Conclusion

Despite the plethora of research, studies, and interest in behavior problems or disorders among school-aged children and adolescents (e.g., Mash & Barkley, 1998) surprisingly little research has been conducted on behavior problems in preschool children (e.g., Campbell, 1998). This is even more surprising given the fact that:

1. many childhood problems have lifelong consequences for the child and for society,

2. some adult disorders are rooted in early childhood conditions and/or experiences, and

3. a better understanding of childhood disorders may provide the basis for designing more effective intervention and prevention programs. (Mash & Dozois, 1996, p. 3)

Behavior problems in preschool children are very common. Behavior problems in preschool children place them at significant risk for a variety of immediate and long-term difficulties. Yet, behavior problems in preschool children are also a normal part of this particular stage of development that will, in some cases, improve with time and maturity. The role of professionals and early childhood education specialists working with this age group is to distinguish between behavior problems that are temporary and

transitional and those that are more serious and problematic and will require intervention or treatment. One thing that would aid professionals and parents in making this determination is more normative data on the types and rates of behavior problems exhibited by young children and a greater understanding of a developmental perspective on preschool children's behavior problems.

Current definitions, classification, and diagnostic systems such as DSM-IV and ICD-10 are not necessarily, or always, applicable to this age group. Not only do they not provide a range of classifications that are applicable to this age, but they also do not capture the complexity and multisystem variables that are so important in these early stages. Recent attempts by the ZERO TO THREE: National Center for Infants, Toddlers, and Families task force have attempted to incorporate a developmental perspective towards diagnosing behavior problems in young children. However, DC: 0-3 still needs to be subjected to empirical validation and extensive clinical use. Further research, academic discussion, and dialogue regarding these issues will move us closer to clarifying these issues and developing and refining more age-appropriate methods for diagnosing and/or describing significant behavior problems in preschool children..

There is a significant and growing body of literature demonstrating that early intervention with preschool children with behavior problems and their families is effective in reducing their behavior problems (e.g., Guralnick, 1997; Webster-Stratton, 1997). Effective early intervention requires identification of children who are at risk as early as possible (Hester & Kaiser, 1997). Feil and colleagues (i.e., Feil & Becker, 1994; Feil, Severson, & Walker, 1994; 1995) have developed a multiple-gated screening system for preschool behavior for use by preschool program teachers. Further efforts and investigations are needed to systematically develop and refine effective methods for reliably identifying preschool children in need of intervention (e.g., Hester & Kaiser, 1997; Kaiser & Hester, 1998). "The preschool period appears

to be the optimal time to first intervene with programs that facilitate children's social competence and enhance parenting skills" (Webster-Stratton, 1997, p. 447). Prevention and early intervention programs that take into account not only child and parent characteristics, but also the child and family interaction and the social community of which the family is a part must be widely available and easily accessible. Parent training intervention appears very promising in the treatment of behavior problems in preschool children (e.g., Webster-Stratton, 1997). However, multi-component intervention that addresses the multiple social systems affecting the child and family should also be integral to early intervention for children with behavior problems (e.g., McMahon & Wells, 1998). Unfortunately there currently appears to be a shortage of accessible programs that meet these criteria. "Despite the evidence concerning the stability of conduct problems stemming from preschool and the effectiveness of family intervention programs, there is an appalling lack of comprehensive treatment programs for preschool children with behavior problems" (Webster-Stratton, 1997, p. 446). Although comprehensive intervention may be costly in the short term, if effective, they might reduce the costs associated with long term psychopathology.

Research in the area of risk and protective factors is in its infancy. More research is needed into what factors or processes and programs protect some children and families from developing problems in the face of adversity. Such research will potentially lead to more preventative efforts and efficacious interventions.

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Chapter 3

Natural Rates of Compliant Behavior in Preschool Children in Day Care Settings

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Chapter 3

Natural Rates of Compliant Behavior in Preschool Children in Day Care Settings

Noncompliance in preschool children is a major problem and is the most frequent complaint of parents of children referred to clinics for treatment of behavior problems (Barkley, 1987; Bernal, Klinnert, & Schultz, 1980; Forehand, King, Peed, & Yoder, 1975; Patterson, 1976, 1982; Patterson & Reid, 1973). Moreover, parents of children with mental disabilities perceive noncompliance to be the most significant behavior problem they experience with their children (Tavormina, Hengeler, & Gayton, 1976). Barkley (1987) suggested that the pervasiveness of noncompliance is greater than that of other behavior problems seen in children. That is, children who display noncompliance in one situation are highly likely to display noncompliance in other situations as well. It has also been suggested that noncompliance underlies the majority of negative interactions between family members (Barkley, 1987; Forehand & McMahon, 1981; Patterson, 1976, 1982) and is one of the main problems of children who are labelled hyperactive (Barkley, 1981, 1987) or have conduct problems (McMahon & Wells, 1998). High rates of noncompliant behavior may be a sign of serious disturbance in the parent-child relationship as well as in the strength of the attachment between the parent and child (Ainsworth, Bell, & Stayton, 1971; Stayton, Hogan, & Ainsworth, 1971).

Noncompliant behavior in early childhood also appears to be a significant predictor of maladjustment during adolescence and young adulthood particularly in the areas of academic performance, conduct problems, delinquency, and peer acceptance (Barkley, 1987; Wahler & Dumas, 1986; Wells & Forehand, 1985). Barkley (1987)

suggested that noncompliant behavior has an affect on family functioning and the level of stress experienced by a family. This stress works in a reciprocal fashion having further detrimental effects on the psychological adjustment of the child with a behavior disorder. The resulting negative coercive interactions between parent and child affects the parent's self-esteem, marital harmony, and the noncompliant child's self-esteem (Barkley, 1987; Patterson, 1982; Wahler & Dumas, 1986). Barkley (1987) indicated that unless noncompliance is addressed and treated, progress or success in other areas of a child's development will also be affected.

Since noncompliance is such a pervasive, frequent complaint that can potentially result in such negative consequences for the entire family, it is logical that the goal of many treatment programs for children with behavior problems is to increase their rate of compliant behavior (Barkley, 1981, 1987; Forehand & McMahon, 1981; Goetz, Holmberg, & LeBlanc, 1975; Russo, Cataldo, & Cushing, 1981). Unfortunately, there is a paucity of relevant norms, particularly by gender and age, that would enable clinicians, parents, or teachers to make judgments or set reasonable expectations regarding acceptable levels of compliant behavior at different ages. Thus, the decision to improve a child's rate of compliant behavior to some given level is to some extent an arbitrary one that may vary from family to family and from clinician to clinician.

Research on Normative Rates of Compliant Behavior

Few studies examining noncompliant and compliant behavior have focused on collecting normative rates of compliant behavior in preschool children as the major purpose of their study (Johnson, Wahl, Martin, & Johansson, 1973; Kuczynski & Kochansha, 1990; Sternberg, Lamb, Hwang, a& Broberg, 1991). Lytton & Zwirner (1975) for example, examined the compliant behavior of 18-month-old boys (n = 136) in their home environments and found these children to be 53% compliant to their mother's verbal commands and 61% compliant to their father's commands. Other

studies have found no difference in rates of compliant behavior in relation to which parent makes the request (Dumas & Lechowicz, 1989; Schneider-Rosen & Wenz-Gross, 1990).

Two studies compared the compliant behavior of clinic-referred to non-clinic referred children. Griest, Forehand, Wells, and McMahon (1980) studied two groups of 20 mother-child pairs. The mean ages of the clinic and non-clinic children were 5.3 and 5 years, respectively. As predicted, the non-clinic children complied to a significantly higher percentage of commands than did the clinic group. Compliance to alpha commands (a command to which the child has an opportunity to comply) equalled 80% and 86% for the clinic and non-clinic groups, respectively. In the second study, Forehand, et al. (1975) studied 40 mother-child pairs. Twenty of the children aged 4 through 6 had been referred because of behavior problems. The primary complaint for all of the referred children was noncompliance. Twenty non-clinic mother-child pairs were also selected. An analysis of percent compliant behavior revealed that non-clinic children complied to a greater percent of maternal commands (61.5%) than did clinic children (40.5%). The 40.5% compliance for the clinic children in this study is similar to baseline percentages of compliant behavior. Similarly, the 62% rate of compliant behavior found in the non-clinic children is similar to the percentage found by Johnson and Lobitz (1974) for non-clinic children in a home setting.

Atwater and Morris (1988) collected naturalistic data on the compliant behavior of 36 children in classrooms for preschool children ranging in age from 45 to 78 months with an average age of 61 months. The results of their observations revealed an average compliance rate of 77%.

In summary, there are few studies reporting data on noncompliant behavior in children that could be used as normative information for treatment purposes or by parents of young children. None of the studies reviewed had the collection of

normative data across different age levels or gender as their primary objective. In most of these studies, the data have been collapsed across gender or age level (Atwater & Morris, 1988; Johnson et al., 1973), are reported as collateral or secondary data (Lytton & Zwirner, 1975; Wittmer & Honig, 1991), as comparative data (Griest et al., 1980; Forehand et al., 1975), or have been collected in home environments (Johnson et al., 1973). Furthermore, there appear to be conflicting results regarding age (Johnson et al., 1973; & Kuczynski & Kochansha, 1990) and regarding rates of compliance for mothers versus fathers (Sternberg et al., 1991; Lytton & Zwirner, 1975; Schneider-Rosen & Wenz-Gross, 1990; Dumas & Lechowicz, 1989).

Purpose

The purpose of this study was to collect data on the natural rates of compliant behavior in preschool children in day care settings. Such information would be useful, in combination with a variety of other factors, in determining important treatment decisions. This information could serve as one guideline for parents, professionals and early childhood education specialists in deciding when to view noncompliance as a clinical problem.

Method

Participants

Day care directors in a Canadian urban center (pop. 600,000) were requested by letter to participate in a study investigating rates of compliant behavior in 2-, 3-, and 4-year-old children in day care settings. A total of 15 directors of day care centers volunteered to participate in the study. Approximately 5% of municipally funded nonprofit city day care centers were represented in the sample. The day cares participating in the study represented a variety of different communities including urban, suburban, and inner city and consequently served a wide range of family income levels but were predominantly middle socioeconomic class. The cultural mix of day

care centers represented the cultural mix of the predominantly Caucasian city in which the study was conducted.

The directors distributed letters to parents of children in the designated age range outlining the intent of the study and requesting their child's participation in the study. Parents were assured that participation was voluntary, individual child results would not be reported, and that they could withdraw their consent at any time. Data were collected on a total of 144 children (72 boys and 72 girls). The final sample included 44, 2-year-olds, 50, 3-year-olds, and 50, 4-year-olds.

Selection Criterion

Children were included in a particular age group if they were within 3 months of age of their birthday when data were collected. For example, children were included in the 3-year-old group if they turned 3 years of age in September or January and the data were collected in November. Data were collected in participating day cares on all children with signed consent forms. Children had not been identified as having any special needs such as physical disabilities, mental retardation, or developmental disabilities.

Setting

The study was conducted in 15 day care centers distributed throughout a mid-sized Canadian city and an adjoining community. The centers were typical day care centers with areas for play, learning centers, snacks, bathrooms, and outdoor play. Centers accommodated from 24 to 80 children each (mean = 50) and maintained an average staff:child ratio of 1:5 (range = 1:3 to 1:8) depending upon the ages of the children served. Most of the centers accepted children between the ages of 19 months and 5 or 6 years of age. Two centers accepted children under the age of 18 months into their program. Most of the day care staff had at least one year of related experience and held a two-year Early Childhood Education Diploma or equivalent.

Procedure

Observations

Observations were conducted during two, 30-minute periods on two separate occasions approximately one week apart, resulting in a total of 60 minutes of observation time per child. The child was observed continuously during each 30-minute period. The observations were collected during structured times within the centers such as group, circle, craft, and lunch, when the number of instructions was expected to be relatively high. Data were not collected in washrooms, kitchens, staff rooms, or outside.

Two trained observers collected the data and completed interobserver agreement data. The observers were graduate students in an Educational Psychology program and both were certified teachers. Prior to data collection, the observers practiced using the observational system with videotapes of group activities of preschool children in a clinical setting. These training sessions continued until mean interobserver agreement values exceeded 80%. Prior to formal data collection, the observers also collected practice data in two different day care centers with children who were not participating in the study.

For approximately the first half of the study, Observer A collected primary data and Observer B collected interobserver agreement data. During the second half of the study, roles were reversed and Observer B collected primary data, while Observer A collected agreement data.

Behavioral Coding System

The recording system used in this study was adapted from Barkley (1987). Both teacher and child behaviors were recorded. Teacher behaviors were coded according to the type of request given (direct, indirect, or group request). Child

behaviors were coded as either "compliance" or "noncompliance". A list of behavioral definitions for both teacher requests and child behavior is presented in Table 3.1.

The coding sheet accommodated 10 minutes of observational data; therefore, three sheets were used during each 30-minute observational period for each child. The observer wore earphones connected to a tape recording that signalled the beginning of each new minute of observation. If the teacher gave a request to the targeted child during an observation period, the observer indicated the type of request (direct, indirect, or group) and whether or not the child began to comply to the request within 10 seconds of the request. The observer continued to record teacher requests and child responses in this manner for 30 minutes. The recording sheet allowed for up to six requests in each one minute observation period.

If the targeted child moved out of view of the observer, the observer attempted to move so that the child could continue to be observed. If a move was too obtrusive, or if the child went into one of the areas previously designated as an area in which data would not be collected (e.g., bathroom), the observation was discontinued until the child returned. At the end of each 30-minute observational session, the data were summarized in terms of percentage of "complies" and "noncomplies" across all requests, as well as individual percentages of compliance and noncompliance for each type of request. Children's data were included in the final analysis only if observations had been conducted on two different days.

Table 3.1
Behavioral Definitions

Teacher Behavior	
Direct Request	The teacher makes a request that is directed towards a specific child and specifies the behavior that is to be initiated or inhibited.
	Examples: "Joey, come here." "That's right, build it higher." "Please don't hit Sara. You'll make her cry."
Indirect Request	The teacher makes a request that indirectly suggests that the child respond motorically or verbally. It does not explicitly specify the behavior to be initiated or inhibited.
	Examples: "See if you can be quiet." "What are you supposed to do now?"
Group Request	The teacher makes a request that is directed to more than one child at a time, or to a group of children. The teacher does not call the child's name.
	Examples: "Everyone put your coats on." "Children, please stop making so much noise." "I want all the boys on one side of the room and all the girls on another."
Child Behavior	
Comply	The child initiates the appropriate response within 10 seconds of a teacher's request.
Noncomply	The child fails to initiate the appropriate response within 10 seconds of a teacher's request.

Interobserver Agreement

Interobserver reliability checks were conducted on 22% of the observations. The primary observer wore earphones to signal the beginning and end of each minute during the 30 minute observation session. The primary observer raised a hand at the beginning of each new interval to signal the reliability observer that a new interval was beginning. Interobserver reliability data was computed as both an overall percentage and separately for each behavioral category over a 30 minute interval. Percentage agreement was calculated using the formula:

$$\text{Percent Agreement} = \frac{\text{Agreements}}{\text{Agreements} + \text{Disagreements}} \times 100$$

The overall reliability for both teacher and child behavior was 88%. Reliability calculated by behavioral category was as follows: direct requests 86%, group requests 84%, indirect requests 88%, compliance 88%, and noncompliance 90%.

Results

Compliance by Age

The overall mean percent compliant behavior is presented in Table 3.2. As can be seen in Table 3.2, overall 2-year-olds were, on the average, 79% compliant; 3-year-olds were 86% compliant; and 4-years-olds were 87% compliant. A one-way analysis of variance conducted on these data revealed a significant difference in compliant behavior ($F = 3.6$, $p \leq .03$) and post-hoc analyses (Tukey) indicated that 3- and 4-year-olds were overall significantly more compliant than 2 year olds.

Compliance by Gender

The overall mean percent compliant behavior of boys and girls is presented in Table 3.2. As can be seen in the table, girls were not significantly more compliant overall than boys (86% and 82%, respectively). A one way analyses of variance

Table 3.2

Summary of Compliant Behavior

	Mean Percent Compliant Behavior					
	Age			Gender		Means
	2	3	4	Female	Male	
Overall						
Compliance	79[a,b]	86[a]	87[b]	86	82	84
SD	16.7	16.5	14.0	14.4	16.9	
N	44	50	47	71	70	
Direct Requests						
Compliance	78[a,b]	86[a]	90[b]	87	83	85
SD	18.9	16.4	11.9	14.3	18.7	
N	44	47	40	65	66	
Indirect Requests						
Compliance	83	82	82	84	82	83
SD	19.4	22.3	21.6	19.5	21.4	
N	25	14	14	24	29	
Group Requests						
Compliance	75[a,b]	86[a]	83[b]	84	80	82
SD	27.5	22.7	19.6	20.6	25.6	
N	18	22	28	36	32	

Note. Means with the same superscripts differ significantly at $p < .01$.

conducted on these data reveals that there were no overall significant differences between boys and girls in the rate of their compliant behavior.

Compliance by Request

The mean percent compliant behavior based upon the type of request issued by the teacher (indirect, direct, group) is also presented in Table 3.2. Two-way analyses of variance were carried out for each type of request.

Direct requests. For direct requests, there was a significant main effect of age ($F = 6.5$, $p \leq .002$). Both 3- and 4-year-olds were significantly more compliant to direct requests than 2-year-olds (86% and 90%, vs. 78%) . There were no significant differences between males and females to direct requests and no interaction effects.

Indirect requests. For indirect requests, there were no differences in the rate of compliant behavior among the different age groups. There was, however, a significant interaction effect between gender and age ($F = 14.7$, $p \leq .0004$). Post-hoc analysis (Tukey) indicated that there was a significant difference between 3-year-old males and 3-year-old females, with 3-year-old females demonstrating significantly higher rates of compliant behavior to indirect requests than their 3-year-old male peers (89% vs. 77%).

Group requests. For group requests, there was also a main effect of age ($F = 5.9$, $p \leq .003$). Both 3- and 4-year-olds were significantly more compliant than 2-year-olds to group requests (86% and 83%, vs. 75%) . There was also a significant interaction effect between gender and age ($F = 4.7$, $p \leq .01$). Post-hoc analyses (Tukey) on these data revealed a significant difference between 2-year-old males and 4-year-old females, with females demonstrating a higher rate of compliant behavior to group requests (88% vs. 75%) ($F = 9.1$, $p \leq .003$). There was also a significant difference between 3-year-old males and 2-year-old females, with males demonstrating a significantly higher rate of compliant behavior to group requests (91% vs. 76%) ($F = 15.4$, $p \leq .0004$).

In summary, 3- and 4-year-olds were significantly more compliant overall and to both direct and group requests than 2-year-olds. There were also interaction effects. Three-year-old females demonstrated higher rates of compliant behavior to indirect requests than did 3-year-old males. Four-year-old females demonstrated higher rates of compliant behavior than did 2-year-old males while 3-year-old males were more compliant than 2-year-old females to group requests.

Percentage Requests Issued

The percentage of requests issued by teachers is presented in Table 3.3. Out of a recorded total of 2,424 requests, teachers delivered significantly more direct requests (63%) than either indirect (14%) or group (23%) requests .

Table 3.3

Mean Percent Requests Issued

		Age			Gender	
	All Ages	2	3	4	Female	Male
Total Requests	100	$42^{a,b}$	32^{a}	27^{b}	50	50
Direct Requests	63	$43^{a,b}$	$33^{a,c}$	$23^{b,c}$	47	53
Indirect Requests	14	$47^{a,b}$	27^{a}	26^{b}	45	55
Group Requests	23	34	30	36	61^{a}	39^{a}

Note. Means with the same superscripts differ significantly at $p<.01$.

Requests issued by age. Two-year-olds received significantly more requests overall than 3- or 4-year-olds for all three types of requests. There were significant

differences in the percentage of direct requests issued among 2- and 3-year-olds, 2- and 4-year-olds, and 3- and 4-year-olds ($F = 23.3$, $p \leq .001$).

There were also significant differences in the percentage of indirect requests issued between 2- and 3-year-olds and 2- and 4-year-olds ($F = 9.2$, $p \leq .002$).

There were no significant differences between any of the age groups with regard to the number of group requests issued.

Requests issued by gender. There were no significant differences between males and females overall or with regard to the number of direct or indirect requests issued, but, as can be seen in Table 3.3, females received significantly more group requests (61%) than males (39%) ($F = 6.9$, $p \leq .01$).

Discussion

The results of this study revealed that the overall mean rate of compliant behavior of 2-, 3-, and 4-year-old children attending day care centers was 84%. Moreover, compliance appeared to increase overall after age 2 (from 79% at age two, 86% at age three, and 87% at age four). Overall, girls (86%) were not significantly more compliant than boys (82%). These percentages are very similar to the figure of 85% reported in a study by Piat, Sadler, and Vickers (1973) (cited in Forehand et al., 1975) in a kindergarten setting, and to the 86% reported for 5-year-old children in Griest et al. (1980). Most other studies have reported lower percentages of compliance. However, these studies were either conducted in the children's homes (e.g., Johnson et al., 1973; Lytton & Zwirner, 1975; Johnson & Lobwitz, 1974), or in preschool settings in which the data were aggregated across ages (e.g., Atwater & Morris, 1988).

One possible explanation for the differences in the rates of compliant behavior between this and some other studies, is that this study analyzed compliance in relation to the type of request issued (direct, indirect, group) and in relation to age (2-, 3-, 4-

year-olds), and gender. The present study provided a finer, more detailed breakdown of the rates of compliant behavior. Other possible explanations are that other studies were conducted at different age levels in a different setting than the present study (home vs. day care programs) or with children from low-income families.

An interesting observation in this study was the greater number of requests given overall to 2-year-olds than to either the 3- or 4-year-olds. A future study might examine the relationship between the number of requests given and compliance. This finding corresponds to the lack of gender differences in compliance rates to teacher questions in Honig and Wittmer (1982) and Wittmer and Honig (1991) and to the lack of gender differences in behavior problems at these early ages generally (i.e., Campbell, 1995).

Further investigations on compliance might also look at compliance in the home setting, taking into account age, gender, and type of request. This would give parents and clinicians an even more accurate basis for determining realistic expectations. Other family variables might be considered such as number and age of siblings in the family, ages of siblings, presence of routine or structure, and whether the person giving the request is the mother or the father.

This study provides important information regarding levels for compliance of 2-, 3-, and 4-year-olds in day care settings. Although it is critical to avoid using normative data as the only guideline by which to make treatment decisions, it can be used in combination with a variety of other factors in establishing a diagnostic picture and an accurate treatment plan. Information on normative rates of compliant behavior may also serve as a guide to setting realistic expectations for parents and day care teachers (i.e., Campbell, 1995).

In summary, noncompliance is a significant and pervasive problem that is often linked to other childhood disorders or problems and is often predictive of

maladjustment in later life (e.g., Barkley, 1987). Yet, despite its prevalence, significance, and stability (Richman, Stevenson, & Graham, 1982), there is a paucity of normative data on the rates of compliant or noncompliant behavior in preschool children. The purpose of this study was to collect preliminary data on the natural rates of compliant behavior of preschool children in day care centers. Such data can be useful to psychologists, clinicians, educators, and parents of preschool children as one piece of information in determining when noncompliance is, or is not, clinically significant and requires professional consultation or intervention. Such data can also be useful to clinical program staff in describing the child's natural environment and consequently in establishing or determining the exit criteria for the children in their program. Finally, intervention in the preschool years is most effective in helping prevent and reduce the probability of the development of further behavior problems and later life maladjustment (e.g., Bailey & Wolery, 1992; Dunst, 1993; Guralnick, 1997; Yoshikawa, 1994).

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Chapter 4

The Efficacy of Early Intervention

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Chapter 4

The Efficacy of Early Intervention

> One of the best kept secrets in psychology and education is that early intervention works. (Ramey, Bryant, & Suarez, 1990, p. 51)

For decades scholars, researchers, parents, policy-makers, interventionists, and others have questioned the efficacy of early intervention. However, over the past three decades, with the majority of work being concentrated in the last decade (Harris, 1991), empirical evidence for early intervention programs for young children with, or at risk for, biological and developmental disabilities has been mounting (Guralnick, 1991; 1997; Guralnick & Bennett, 1987). Guralnick (1997) provides excellent reviews summarizing the extensive research that has occurred over the past 30 years in this area.

Early intervention services can be justified not only from an empirical basis, but from a variety of other perspectives as well. This paper will present a summary of how early intervention services can be justified along the following eight dimensions: social validity, legal mandate, health prevention and promotion, child development research, attachment theory, cost effectiveness, empirical data, and philosophical grounds.

Social Validity

First, there is a high degree of social validity for early intervention. Social validity refers to the validation of a program's effectiveness by the significant others in a child's life, e.g., parents, preschool teachers, siblings, and relatives (e.g., Wolf, 1978; Schwartz & Baer, 1991). That is, parents, families, interventionists, and other

professionals, not only want early intervention services but they also believe that these services make a difference to the outcomes and quality of life of their young children. If one were to ask parents, or anyone working in the area of early intervention, "Does early intervention work?" the response would probably be unanimously positive, based upon their experience and perception. Often, quantitative researchers tend to underestimate parent perceptions and clinical judgement due to the lack of empirical data establishing cause-effect relationships. Yet, most who work in that area, or have need of the services, believe that this qualitative data in support of early intervention is as valid as quantitative data.

Legal Mandate

In 1986, in the United States, the Education of the Handicapped Act Amendment (PL 99-457) (1986) mandated that all states significantly increase their programs for young children with handicaps. This legislation represents the most far-reaching national policy ever implemented for early intervention, thereby implicitly suggesting belief in its efficacy. Thus, in the United States and in other countries, there is strong legal, political, and economic support for early intervention services initiated by this unique and remarkable legislation.

Although Canada does not yet have similar legislation, early intervention in Canada has been strongly influenced by research and legislation in the United States. Marfo and Cook (1991) and Poirier, Goguen, and Leslie (1988) provide excellent summaries of Canadian early intervention initiatives and legislation. Marfo states that "many school districts across the country, including even ones in provinces without mandatory special-education legislation...(have drawn) liberally from the Public Law 94-142, as if the latter were a piece of Canadian legislation" (p. 235). He refers to this as a "passive import model."

In Canada, Section 15 of the Canadian Charter of Rights and Freedoms states:

> Every individual is equal before the law and has the right to the equal protection and equal benefit of the law without discrimination and, in particular, without discrimination based on ... Mental or physical disability.

Canada does not currently have federal legislation similar to the United States, in legislating early intervention services to young children and their families. In Canada the federal government is not directly involved in education. Education is within the jurisdiction of the provincial governments. How, and whether, provinces provide early intervention services is left up to each individual province. Currently, even in the absence of federal-level institutional support, funding, and direction, just about every province offers some type of early intervention programming (Marfo, 1991). Many provinces have several to many programs, some of which are operated independently, but most of these are funded by provincial governments.

Health Promotion and Prevention

Recent health promotion initiatives advocate developing preventative processes within families in order to enhance the family's, and child's, resiliency, to be able to counteract the impact of risk conditions such as poverty and developmental delays in overall health and development (Mangham, Reid, McGrath, & Stewart, 1994; Winnett, 1998). There was extensive support for early intervention from the conference, Canada's Children, Canada's Future (Fall, 1996), and from the recommendations published by the Child Welfare League of Canada in an excellent framework for action by individuals, communities and governments (Investing in Children, 1997). From an early intervention perspective, the earlier we intervene with families at risk, the more we will be able to prevent further complications, and the healthier families will be. The rationale for intervening early in the medical field (e.g., Johnson, Nicklas, Webber, &

Berenson, 1997) in order to prevent further complications of, or to ameliorate, diseases such as cancer, tuberculosis, German measles, etc., is well understood and rarely questioned. The rationale for intervening early in the psychosocial area of health needs to be equally as well understood and as rarely questioned.

Child Development Research

Development has been conceptualized as a continuous process, or a cumulative series of transactions between children and their environments. These early transactions are critical to a child's development (Bronfenbrenner, 1979; Sameroff & Chandler, 1975; Wachs & Gruen, 1982). Early experiences have important consequences for later life development both in terms of future adult behavior and intellectual competencies. Considerable theoretical and empirical literature is now available to support the rationale for early intervention. This movement indicates that "developmental outcomes can be substantially altered by the nature of the social and physical environment during the first few years of life" (Guralnick & Bennett, 1987, p. 18). Intervening early can potentially improve the quality of these early transactions, and consequently improve developmental, behavioral, and intellectual outcomes.

Attachment Theory

There is positive support from attachment theory for the notion that early interactions between caregiver and infant nurture positive infant attachment to adults and other human beings (e.g., Bowlby, 1988). This attachment process helps to form one of the pathways for the development of healthy social competencies in early childhood and later adult relationships (Barnard, 1997). Thus, there is some rationale from attachment theory for providing early intervention services to young children and their families.

Cost Effectiveness

There is preliminary evidence to suggest that it is more cost effective to provide early intervention services early in a child's life. Findings from Headstart studies in the United States (Schweinhart &Weikhart, 1993; Weikhart & Schweinhart, 1992) suggest a savings of seven dollars, in terms of unnecessary services in later childhood and adolescence, for every one dollar spent on early intervention services in Headstart programs.

Least Dangerous Assumption Philosophy

"According to the 'criterion of the least dangerous assumption,' in the absence of conclusive data, educational (and clinical) decisions should be based on assumptions which, if incorrect, will have the least dangerous effect on the learner" (LaVigna & Donnellan, 1986, p.28). Thus, in early intervention. it is less detrimental in terms of consequences to the child and family to make assumptions that early intervention is effective and to provide help and support to families, than it is to assume that early intervention is not effective and not provide these services, when in fact families may have benefitted from the support and treatment. (Donnellan, 1984; Dunst & Trivette, 1997).

Empirical Data

There is extensive empirical evidence for providing early intervention services to families and young children. For example one of the early and primary methods for assessing the effectiveness of early intervention was through meta-analysis. Meta-analysis is a statistical technique that is used to integrate, aggregate, and evaluate the results of large numbers of studies. The results of these meta-analyses revealed that early intervention yields a consistent, beneficial effect size of approximately one-half to three-quarters of a standard deviation (an effect size of approximately

one-half of a standard deviation or greater is considered statistically significant) (Casto & White, 1985; Casto & Mastropieri, 1986; Shonkoff & Hauser-Cram, 1987).

In addition to the empirical evidence from these meta-analyses, there is also empirical evidence from studies with specific special needs or conditions including: disadvantaged and environmentally at-risk children (Bryant & Maxwell, 1997), biological risk (Bennett, 1987), acting-out behavior (including delinquency and aggression) (Patterson, Reid, & Dishon, 1992), prenatal programs (Olds, 1989), cognitive and general developmental delay (Guralnick, 1997; Guralnick & Bennett, 1987), language and communication disorders (McLean & Woods Cripe, 1997), motor handicaps (Harris, 1991; 1997), visual handicaps (Davidson & Harrison, 1997), hearing impairment (Calderon & Greenberg, 1997), Down Syndrome (Connolly, et al., 1993; Spiker & Hopmann, 1997), and autism (Dawson & Osterling, 1997; Olley, Robbins, & Morelli-Robbins, 1993).

Harris (1991), Zahr (1994), Ramey, Bryant and Suarez, (1990), Connolly, Morgan, Russell, and Fulliton (1993) and Dihoff et al. (1994) all also found positive support for the effectiveness of early intervention. In summary, there is beneficial and remarkably consistent empirical evidence in support of the efficacy of early intervention. Guralnick (1991; 1997) provides excellent reviews of the research demonstrating the efficacy of early intervention.

The empirical evidence for the effectiveness of early intervention is convincing and compelling and comes from multiple and varied studies. However, even without the empirical research basis there is strong, widespread societal, political and economic commitment to early intervention, in addition to theoretical and philosophical rationale for providing early intervention services to young children and their families (e.g., Caldwell, 1970).

Conclusion

> Early childhood intervention is a young and rapidly growing field. In little more than a decade it has been transformed from an emerging service with a primitive empirical base, scant funding, and virtually no public mandate to a robust area of theory, research and practice. Moreover, . . . early intervention has acquired a growing national audience, increased funding, a promise of more comprehensive programs and services, and unprecedented attention from major state and federal policy making groups. (Meisels & Shonkoff, 1992, p. 15)

In summary, evidence from empirical investigation suggests that early intervention is effective. Even without this strong research base, there is a powerful rationale for providing early intervention services and programs for those who need them. For example, evidence from child development literature and theory (including attachment theory, ecological theory and transactional research) suggests that there is a sound theoretical rationale for intervening early in children's lives. Evidence from family support studies suggests that families, not just children, benefit from support and intervention with their young children (Dunst, Trivette, & Jodry, 1997). Thus, early intervention strategies should include multiple areas of child and family functioning (e.g., Mash, 1998). Philosophically, it is "less dangerous" to assume that young children and their families need our interventions, when in fact they may not, than it is to assume that they do not , when in fact they do. There are compelling social reasons for providing early intervention services and programs (e.g., Odom & McLean, 1993). Families believe, and perceive, that early intervention works. Finally, there is potent legal, political, and societal support and history for early intervention services in the form of extensive, unique legislation and allocation of resources. There are also identifiable characteristics of effective early intervention programs (e.g.,

Yoshikawa, 1994) as well as a set of recommended standards or best practices established by the Council for Exceptional Children (Odom & McLean, 1996).

Early intervention is no longer a fantasy, it is a reality, and the traditional global question: "Does early intervention work?" is no longer apropos. Early intervention does benefit children, their families, communities, and society in general. Future research should examine the influence of program features, the influence of child and family characteristics, and the specific outcomes or goals of early intervention (Guralnick, 1997). Guralnick refers to this type of research as second generation research.

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Chapter 5

Comparison of a Community-Based and a Center-Based Approach for Preschool Children with Behavior Problems

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Chapter 5

Comparison of a Community-based and a Center-Based Approach for Preschool Children with Behavioral Problems

The traditional approach to treating children referred to hospitals or clinics for treatment of behavior problems is on an individual or group basis within a clinic setting. This traditional clinical model typically involves a therapist treating a single patient or group of patients who have identified disorders and who have travelled to the clinic for treatment. There are, however, a number of immediately obvious problems associated with this clinic- or center-based approach to intervention. First, given the prevalence of childhood behavior and mental health problems (Offord, Boyle, & Racine, 1991), there will always be insufficient numbers of professionals to meet the demand and need for these types of services (Jason & Glenwick, 1984; Mash, 1998). Additionally, there will be children with identifiable disorders who, for a variety of reasons, are never seen for treatment (Mash, 1998; Offord et al., 1991).

In the past 20-30 years, there has been growing dissatisfaction with this center-based system of delivering mental health services which has led to a more community-based approach to intervention (Jason & Glenwick, 1984; Winnett, 1998). In a community-based approach, intervention services and programs are provided within relevant community settings. This approach has the obvious advantages of: serving larger numbers of children at one time, thereby serving a preventative function (Brofenbrenner, 1980); increasing the likelihood of greater generalization and maintenance of behavior change (Stokes & Baer, 1977); enhancing the effective and successful integration of the identified patient into the community (Bricker, 1978; Guralnick, 1976, 1978, 1982; Neisworth & Madle, 1975; Peterson & Haralick, 1977);

improving the likelihood of greater family functioning (Trute, 1990); and thus, may better meet the needs of the entire community.

Several authors have compared and contrasted these two approaches (e.g., Glenwick & Jason, 1984; Gordon, Lerner, & Keefe, 1979: Jason & Glenwick, 1984; Lennox et al. 1991; Mueller & Leviton, 1986; Strain, Steele, Ellis, & Timm, 1982) and have unanimously concluded that there are greater benefits of a community-based approach to providing treatment, mental health services, and early intervention. Several studies have also experimentally demonstrated the efficacy of community-based treatment. Yet, although there are many identified and perceived advantages to community-based intervention, only a few studies have actually compared the two approaches in a systematic, experimental fashion.

Review of the Literature

In one study, Tymchuk, Dahlman, and Asher (1981) compared a center-based treatment group of preschool children with developmental disabilities to a community-based treatment group and a control group of children who were on a waiting list for treatment. The results of this study showed that both intervention groups improved significantly more on measures of IQ than did the control group. Unfortunately, there were several methodological problems with this study as the authors themselves point out, including failure to randomly assign children, and the use of IQ measures as the dependent variables.

Kohli (1990, 1991) also attempted to compare the effectiveness of home or community- and center-based training to reduce the developmental disabilities of disadvantaged young children. Kohli (1991) compared 43 children who received home-based training (community) to 20 children who received center-based training and found gains in the community-based group on one developmental measure only. There were no significant differences on any of the other measures used in this study

leading Kohli to conclude that the community-based treatment was equally as effective as the center-based treatment. Again, these two studies contain several methodological problems. The original study (Kohli, 1990) used a quasi-experimental design. Kohli (1991) in a follow up study to the original, used a descriptive survey method.

In a third study, Sherman, Barker, Lorimer, Sumson and Factor (1988) compared the relative effectiveness of two types of community-based treatment (intensive home-based and outpatient treatment) to residential treatment in changing the behavior of children with autism. Fifteen children between the ages of 3 and 7 years, diagnosed as autistic, participated in the study and were randomly assigned to one of three groups (home-based; outpatient; residential) for a total of five children in each group. The results of this study indicated that nonresidential children improved more than those who received residential treatment. This study also contained several methodological problems of small group size and lack of sensitivity of the dependent measures.

Eiserman, Weber, and McCoun (1992) and Eiserman, McCoun, and Escobar (1990) compared the costs and the effects of child and family functioning of a community-based and clinic-based approach to early intervention speech therapy using a randomized experimental design. In Eiserman et al. (1990) 40 3- to 5-year old children with moderate speech disorders were randomly assigned to one of two treatment conditions. Assessments of child and family functioning were conducted pretreatment and again after 7 months of intervention. The results of this study indicated that children in the community-based group performed as well as the clinic-based group on measures of speech-language functioning and general development. Furthermore, results of the cost analysis showed no differences between the groups in terms of program costs. There were no differences between the groups on measures of family functioning. The results of a 2 year follow-up study

(Eiserman et al., 1992) confirmed the findings of the initial study (Eiserman et al., 1990).

In summary, although a few studies have compared the effectiveness of a community- and a center-based approach to early intervention, they have either contained serious methodological or measurement flaws (Kohli, 1990; 1991) or have been compared using children with a variety of developmental disabilities (Sherman et al., 1988; Tymchuk et al., 1981). Eiserman et al. (1990, 1992), on the other hand, followed good experimental procedures and examined a variety of interesting questions (child functioning, family functioning, and parent satisfaction). However, none of the studies cited so far, have compared the effectiveness of a community-based and a center-based approach on different dimensions of child and family functioning with preschool children with behavior problems.

Purpose

The purpose of this study, therefore, was to compare the differences between a community-based and a center-based approach to early intervention with preschool children with behavioral difficulties on three dimensions: behavior change, family functioning, and client satisfaction.

Method

Participants

Children and their families attending the Communication-Behavior Preschool Program (CB) at the Glenrose Rehabilitation Hospital in Edmonton, Alberta, Canada from September 1991 to December 1992 participated in this study. To be admitted to the CB program, children must be between the ages of 3 and 6 and exhibit significant behavior and/or communication problems. All children were screened prior to entry through an outpatient department or clinic in order to determine eligibility for the program. Examples of presenting difficulties might include: speech and language

disorders/delays, attention deficit disorders, oppositional defiant disorders, pervasive developmental disorders, challenging behaviors related to environmental stressors, or anxiety-related behavioral difficulties. The majority of children present with acting-out behavior problems.

The mean age of the children in the study was 4 years 4 months with an age range from 3 years 1 month to 6 years. The mean age of the community-based treatment group was 4 years 4 months while the mean age of the center-based treatment group was 4 years 3 months. Twenty-eight percent of the children were female and 72 percent were male. Table 5.1 presents the means and percentages of the age and gender of the children.

Table 5.1

Mean Age and Percent Gender

			Gender	
Group	N	Mean Age	% Female	% Male
Community	24	4.4	37	63
Center	23	4.3	17	83
Combined	47	4.4	28	72

Seventy-two families attended the program between September 1991 and December 1992 and were eligible to volunteer to participate in the study. Participants were fully informed as to the purpose and procedures of the study. Participation was

voluntary and participants were free to withdraw at any time without jeopardy to their continued treatment at the Glenrose. Out of the total of 72 families, 47 volunteered to participate. Of these volunteers, 53% returned completed data up to the 3 month follow up interval and 38% remained in the study and completed all questionnaires up to the 6 month follow up interval. The total number of participants in each group, community and center, was 24 and 23 respectively, with 15 of the 24 (63%) and 10 of the 23 (43%) respectively remaining at the three month interval, and 12 of the 24 (50%) and 6 of the 23 (38%) respectively, remaining at the six month interval.

Families who participated in the study were typical of the families who generally attended the CB program and included a broad range of SES, ethnic background, and family composition.

Setting

Center-based. The center-based group was conducted in a preschool classroom in a rehabilitation hospital four half-days per week. The classroom is set up much like any preschool environment with a wide variety of centers, toys, and activities. The program is staffed by a teacher, teacher assistant, speech-language pathologist, and psychologist. The program provides a relatively structured environment and the strategies are based on a combination of social learning theory (Bandura, 1973; 1977); language stimulation (Manolsen, 1992); and incidental or natural teaching strategies (Hart and Risley, 1975; McDonald, Alexander, Kysela, & Drummond, 1996). Children participated in small group activities (i.e., free play, story group, snack, craft, and gym activities) with seven children and three staff members per group (i.e., teacher, speech-language pathologist, program assistant). The psychologist provided individual behavior management counselling to families, and parent education groups weekly for four weeks. Parents were gradually introduced into the child group activities, with the psychologist providing direct training of behavior management

strategies (including positive reinforcement, ignoring, redirection, modelling, environmental modification, and time away from reinforcement) within the classroom. The strategies used in the center-based component were taught to the primary caregivers through written and verbal information, sharing, and supervised practice. Parents were encouraged to observe their children in the program as often as possible. Community placement caregivers were notified of the child's involvement, and with parental permission, were also encouraged to observe and participate as frequently as possible. The center-based treatment group received all 8 weeks of their treatment at the hospital. No home, school, or community visits were conducted with this group.

Community-based. The community-based treatment group also received a total of 8 weeks of treatment. However, this group received 4 weeks of community visits following the 4 weeks of center-based treatment. These visits were conducted in the homes, playschools, preschools, daycares, or kindergarten programs as appropriate. The treatment philosophy and strategies were identical to those used in the center-based component and followed the same treatment strategies based on social learning theory, language stimulation, and incidental teaching. Program staff provided a minimum of one home visit per week and two visits to community placements (i.e., kindergarten, playschool, daycare) within the 4 week period.

In both treatment groups, treatment goals were developed jointly by program staff and families. Generally, treatment focused on improving attention and compliant behavior, improving social interaction skills, evaluating the child's development to assess strengths and needs, and exploring future placement options. Treatment included a strong component of family involvement and participation throughout the process in order to facilitate maintenance of child-related outcomes, and family satisfaction.

Measures

Dependent measures were employed prior to the beginning of treatment and again at 3 and 6 month intervals following discharge from the program. The Child Behavior Checklist (Achenbach, 1991; 1992) was used to measure behavior change. The FAM-III (Skinner, Steinhauer, & Santa-Barbara, 1984) was used to measure family functioning. The Client Satisfaction Survey (CSQ) (Larsen, Attkisson, Hargreaves, & Nguyen, 1979) was used to measure client satisfaction with services. (See Table 5.2 for a detailed description of the measures.)

Table 5.2

Measures

Behavior Change Measure

Child Behavior Checklist The Achenbach Child Behavior Checklist (CBC) (Achenbach, 1991; 1992) was administered to all of the families in the program immediately prior to admission, and at 3 and 6 months following completion of the program. The purpose of the CBC is to obtain standardized reports of child behavior in everyday environments. The empirically derived, normative scales are designed to compare children with normal age-mates in terms of clinically significant behavioral difficulties. The profile provides a quantified picture of the relative degree of the child's reported difficulties in a specific area.

Family Functioning Measure

The FAM-III. The general and self-rating scales from the FAM-III (Skinner, Steinhauer, & Santa Barbara, 1984) were administered to all of the families in the program immediately prior to admission, and at 3 and 6 months follow-up. The FAM-III is a four point Likert-style self-report measure used to assess family strengths and weaknesses on seven different dimensions (task accomplishment, role performance, communication, affective expression, involvement, control, values and norms). It is made up of three components, a general scale, a dyadic relationship scale and a self-rating scale. Like the CBC, the FAM-III is widely used for research purposes and appears to be one of the best family functioning instruments located to date.

Client Satisfaction Measure

CSQ. The Client Satisfaction Questionnaire (CSQ) (Larsen, Attkisson, Hargreaves, & Nguyen, 1979) was administered to all families in the program at 3 and 6 months

following discharge from the program. The CSQ is a measure of general satisfaction with services. According to the authors, it has a high degree of internal consistency and correlates with therapists' estimates of client satisfaction.

Procedure

Families were randomly assigned to one of the two experimental groups. The groups each contained between four and eight children per group. Each group received a total of 8 weeks of treatment. The center-based group received all of their treatment at the hospital. The community-based group received their first 4 weeks at the hospital. The second 4 weeks, this group received a minimum of four home visits and two program visits per family within the 4 week period. The first 4 weeks of each program were identical in format, scheduling, routine, content, etc. The second 4 weeks for the center-based children involved a continuation of the principles, strategies, teaching, etc. used in the first 4 weeks. The second 4 weeks for the community-based group involved a continuation of the same principles and teaching strategies except that the teaching was conducted in the community (i.e., the children's homes and programs).

The CBC and FAM-III scales were administered prior to admission to the program, and again at 3 and 6 month intervals following discharge from the program. The CSQ was administered at the 3 and 6 month intervals following discharge. All questionnaires were provided, or sent within one week of the interval and assistance in completing them was made available by an independent research assistant. Questionnaires returned and received beyond 2 weeks of the interval were considered invalid and were therefore not included in the data analysis.

Results

Behavior Change

A series of repeated measures MANOVAS were conducted to compare the differences between group means on each of the dependent measures. Table 5.3 presents the significant mean scores for the CBC measures for each group at each interval (i.e., pre, 3 and 6 months). There were no significant differences between groups on any of the CBC scores.

As can be seen in Table 5.3, there was a significant difference at the .05 level over time on the Total T-score (CBC TOT) of the CBC (F (2, 42) = 3.58, $p \leq .03$). The overall mean Total T-score preadmission to the program was 63.8, it dropped to 60.2 at 3 months, and to 58.8 by 6 months. Similarly, each of the subscale and subdomain mean scores listed in Table 5.3 followed the same pattern. The overall mean score on the externalizing subscale (CBC EX) decreased from 63.8 to 61.3 and 58.9, at 3 and 6 months respectively. The overall mean score on the internalizing subscale (CBC IN) decreased to 58.3 and 57.4, at 3 and 6 months respectively from the pretreatment mean score of 62.7. The overall mean scores also declined on two of the subdomains (aggression and depression) of the CBC. For aggression (CBC AG), the scores decreased from 68.9 at pretreatment to 65.6 and 64.6, at 3 and 6 months respectively. For depression (CBC DP), the overall mean scores decreased from 63.0 to 60.1 and 58.7, at 3 and 6 months respectively. Thus, children's behavior improved significantly over time on each of these subscales and subdomains, regardless of the group to which they were assigned. There were no significant differences on the CBC on any of the remaining subdomains nor were there any significant interaction effects.

Table 5.3

CBC Mean Scores and Standard Deviations

		Treatment Intervals		
Measure	Group	Pretreatment	3 months	6 months
CBC TOT	Community	65.2(11.3)	58.7(11.9)	58.4(12.4)
	Center	61.7(10.3)	62.6(12.3)	59.4(9.1)
	Total	63.8(10.8)	60.2(11.9)	58.8(11.0)
CBC EX	Community	65.4(10.6)	60.0(12.8)	58.6(12.9)
	Center	61.2(10.6)	63.1(12.4)	59.4(10.7)
	Total	63.8(10.6)	61.3(12.4)	58.9(11.8)
CBC IN	Community	63.9(10.2)	56.8(11.4)	56.4(11.8)
	Center	60.9(8.0)	60.8(10.9)	58.9(6.1)
	Total	62.7(9.4)	58.3(11.1)	57.4(9.9)
CBC AG	Community	71.2(10.8)	65.5(12.7)	63.2(10.5)
	Center	65.4(10.4)	68.2(12.3)	63.3(9.0)
	Total	68.9(10.8)	65.6(12.3)	64.6(7.6)
CBC DP	Community	60.4(6.6)	63.3(9.7)	60.0(6.9)
	Center	60.6(7.6)	59.8(8.1)	56.8(5.3)
	Total	63.0(7.7)	60.1(7.0)	58.7(6.4)

Family Functioning

Table 5.4 presents the overall significant mean scores for the FAM-III for each group, at each interval.

Table 5.4

FAM-III General Scale Mean Scores and Standard Deviations

	Treatment Intervals		
Group	Pretreatment	3 months	6 months
Community	54.5(10.2)	55.0(13.1)	53.5(11.8)
Center	48.3(13.4)	50.6(12.5)	44.8(12)
Total	52.3(11.5)	53.5(12.3)	50.5(12.3)

The overall mean scores on the Total score of the FAM-III general scale improved significantly from 3 (53.5) to 6 (50.5) months ($F(20,1) = 7.36$, $p \leq .01$), regardless of the group to which families were assigned. That is, family functioning, or the families' ability to adapt, improved significantly over time on this measure. There were no other significant differences on either the FAM-III total self-rating mean scores, or on the other seven subdomains on the seven FAM-III general or FAM-III self-rating subscales.

Consumer Satisfaction

Table 5.5 presents the overall mean scores for the CSQ for each group at each interval.

Table 5.5

CSQ Mean Scores and Standard Deviations

	Treatment Intervals	
Group	3 months	6 months
Community	29.6(2.1)	28.5(2.9)
Center	28.7(3.8)	28.2(4.3)
Total	29.2(2.9)	28.4(3.4)

Again, there were no significant differences between the groups on measures of satisfaction. In fact, overall, clients were extremely satisfied with both types of programming. However, there was a significant difference in satisfaction over time ($F(1,21) = 4.79, p \leq .04$). The mean level of satisfaction decreased significantly from 29.2 at 3 months to 28.4 at 6 months.

In summary, there were no significant differences between the two treatment groups (community and center) on any of the measures used in the study. That is, no significant differences were found between the center-based approach and the community-based approach to intervention with the children with behavior problems in

this study. There were, however, significant differences over time for both groups on some measures.

Discussion

The results of this study indicate that there were no significant differences between the two types of intervention (community-based and center-based) on any of the measures used in this study. This finding supports the results of other studies cited previously (Eiserman et al., 1990, 1992; Kohli, 1990, 1991; Tymchuk et al.,1981) that have compared community- and center-based treatment approaches and found no differences between the two approaches.

On the other hand, there were significant differences for both groups over time on some of the measures. For instance, children's behavior as rated by the Child Behavior Checklist (CBC) improved on the overall T-score rating; on the two subscales (internalizing and externalizing); and on two subdomains (aggression and depression) regardless of which group they were in. The CBC uses a T-score that has a mean of 50 and a standard deviation of ± 10. Thus, a score of 50 ± 10 is considered to be within the normal range on this measure. Scores outside of this range are considered to fall within the clinical range. All of the mean pretreatment scores for both groups fall within the clinical range (see Table 5.3). By the 6 month follow up interval, with the exception of aggression, all of the other scores fall within normal limits. Thus, even though the scores on aggression improved significantly from pretreatment, parents of the children in the study still rated aggressive behavior as a major problem 6 months later. This finding is consistent with the research that documents the stability of aggression over time (e.g., Campbell, Ewing, Breaux, & Szumowski, 1986; Moffit, 1990; Patterson, DeBaryshe, & Ramey, 1989; Richman, Stevenson, & Graham, 1982).

The family functioning data as measured by the FAM-III are somewhat interesting. Each group demonstrated a very slight increase in their mean scores at 3 months only to fall again at the 6 month interval. Again, the FAM-III score is a T-score with a mean of 50 and a standard deviation of 10. However, unlike the CBC scores, these scores are well within normal limits at pretreatment, and stay within normal limits at both follow-up intervals.

In general, parents were highly satisfied with the program regardless of the treatment group to which they were assigned. There were, however, statistically significant differences in satisfaction between 3 and 6 months. Parents, at 3 months, were more satisfied than they were at 6 months, although all parents were extremely satisfied, overall, whichever approach they received.

In summary, the results of this study indicated that there were no differences between the two types of intervention (community-based and center-based) on any of the measures used in this study. These findings support those of earlier studies in finding equal effectiveness between these two types of intervention (Eiserman et al., 1990, 1992; Kohli 1990, 1991; Tymchuk et al., 1981). There were, however, significant improvements over time on the child behavior measures, indicating that both groups were equally effective in reducing some of the behavior problems of these children.

Limitations and Future Research

The lack of difference between the two types of intervention might be due to sample size. Future research might look at similar research questions with larger numbers of participants. Return rate is always an area of concern in applied research. Further research might look at providing incentives for returning completed questionnaires, or by having a program associate arrange for completion of questionnaires during a visit to the home. Finally, it might be interesting to follow

these children longer than 6 months in order to monitor the development and course of their aggressive behavior. Children who exhibit aggressive behavior may require longer term and more intensive monitoring and intervention than the CB program currently allows.

Clinical Implications

Despite the move towards more community-based programming, the data from this, and other studies, do not support that it is any more efficacious than center-based treatment. It is valuable to be able to offer families a continuum of service delivery options, and to be able to tailor the approach to the individual needs and requests of families and children. Finally, it is important to continue to study other variables and outcomes in determining early intervention efficacy particularly for young children with behavior problems.

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Chapter 6

Conclusion

Chapter 6

Conclusion

Program evaluation is an essential component of any early intervention program. Given the widespread societal, political, and financial support for early intervention and the resulting large and diverse numbers of early intervention programs, it is important to demonstrate local program effectiveness and quality service. It is also important to the staff, stakeholders, and consumers of early intervention to know that the services they are providing, or receiving are being carefully evaluated. The results of meaningful evaluation should assist, and improve decision-making and program planning. Ensuring that program evaluation is an essential element of early intervention and reporting or disseminating the results of how the evaluation impacted decision-making, or improvements to the program contributes to the knowledge and legitimacy of the field.

Best Practice Guidelines

Program evaluation is an integral component of education and early intervention (Snyder & Sheehan, 1996). According to the Joint Committee on Standards for Educational Evaluation (1994) and Snyder and Sheehan (1996), there is no single right, or ideal, evaluation model. Rather, the evaluation model chosen is usually related to the philosophical and educational orientation of the evaluator, and must be "comfortable" to the evaluator, the staff in the program, and to all of the stakeholders involved with the program. According to Snyder and Sheehan (1996), "practices appropriate for evaluation in early intervention will vary according to the nature of the evaluation and the characteristics of the program" (p. 359). It is necessary, however, that whatever model or evaluation process is chosen should meet specific standards or best practice

guidelines as proposed by both the Joint Committee on Standards for Educational Evaluation and Snyder and Sheehan and endorsed by the Division of Early Childhood of the Council of Exceptional Children (McLean & Odom, 1996). These practices are fundamental standards that can be broadly applied within the field, and are applicable to any model.

The practices are divided into four attributes: utility, feasibility, propriety, and technical adequacy (Snyder & Sheehan, 1996). Utility refers to those practices that are intended to ensure that an evaluation will serve the information needs of the users of the evaluation. Feasibility refers to those practices that are intended to ensure that an evaluation will be realistic, prudent, diplomatic, and frugal. Propriety practices are intended to ensure that an evaluation will be conducted legally, ethically, and with respect for the welfare and rights of all of those involved in the evaluation as well as those affected by its results. Technical adequacy practices are those that support the gathering, analysis, and interpretation of information in ways that are valid, reliable, accurate, fair, and replicable. Thus, an adequate evaluation would satisfy all of these practice guidelines.

Evaluation of the Model

It was the purpose of this thesis to apply Hawkins, Fremouw, and Reitz's (1981) Model of Program Evaluation to a short-term early intervention program for pre-school children with behavior problems i.e., The Communication Behavior Preschool Program, (CB) at the Glenrose Rehabilitation Hospital, Edmonton, Alberta. Hawkins et al.'s (1981) model of program evaluation is designed to address four major questions:

1. Who are the clients?
2. What is their natural environment?
3. How does the program serve them?

4. How well does the program serve them?

This thesis was a paper thesis comprised of four discrete papers, each of which addressed one of the four questions posed by Hawkins et al.'s model.

Chapter 2 addressed the first question, who are the clients, by providing a review of the literature of behavior problems in preschool children under the assumption that such a review provides a description that is fairly representative of the children who typically attend the program.

Chapter 3 attempted to address the next question in Hawkins et al.'s (1981) model, what is their natural environment? This chapter provided preliminary data on the natural rates of compliant behavior of typically developing children in preschool settings. These data provide general guidelines of what the expected or anticipated levels of compliant behavior in the child's natural environment would be.

Very young children with behavior problems are frequently served through early intervention programs. Chapter 4, therefore, discusses again from a theoretical perspective, the effectiveness of early intervention programs, in an attempt to address Hawkins et al.'s (1981) third question, how does the program serve them?

Finally, how well does the program serve them? Chapter 5 examined the pre- and post-program characteristics of children and their families who were randomly assigned to one of two types of treatment. One of the groups of children and their families received center-based treatment, the other received a combination of center-based and community-based treatment in order to determine if there were differences between the two approaches in terms of behavior change, family functioning, and consumer satisfaction. The results of this study revealed that there were no significant differences between the two types of intervention on any measures used in this study. There were, however, significant differences in terms of children's behavior over time for both types of intervention, indicating that both types of programming appear

effective in reducing some of the measured behavior problems in young children in this study.

This evaluation adequately met all of the best practice standards, as recommended by both the Joint Committee on Standards for Educational Evaluation (1994) and Snyder and Sheehan (1996).

Utility

> Useful practices are those that suggest the ability of an evaluation to serve the needs of education stakeholders (program staff, administrators, parents, funding agencies) in a manner that is credible, informative, timely, and influential. (Snyder & Sheehan, 1996, p. 361)

Evaluations should serve the needs of the stakeholders of the program by: providing information in a timely fashion, documenting and recording information in a clear manner, and coordinating evaluation plans with staff to facilitate utilization of the information obtained.

The information derived from this evaluation was influential or useful on a number of levels. The data on the normative rates of compliant behavior in typically developing children have served as one guideline, among others, for the staff and families in the program in setting appropriate behavioral expectations for their children. These data are also often presented by a psychologist in another area of the hospital in the parent group sessions she offers for parents of children with noncompliant and defiant behavior. The results of this study have been presented at the Annual Glenrose Research Conference. A paper summarizing these results has also been published in Early Child Development and Care (MacKenzie-Keating, McDonald, Tanchak, & Erickson, 1996).

The information derived from the comparison of two different approaches to early intervention has also been influential and useful to the stakeholders of the

program. Briefly, the finding that there were no significant differences between the two types of intervention has led to a more flexible or family-centered approach. Thus, staff are now available to offer more community involvement and education to those families that request it and to offer solely center-based programming to other families that prefer that type of service delivery. The finding that the program was effective in reducing behavior problems is important to administrators in demonstrating program effectiveness. The fact that, although improved, the levels of aggression stayed within the clinical range, is consistent with the literature on the stability of aggression over time and is important information for the staff in the program, in treating undercontrolled behavior such as acting out, aggressive, and destructive behavior. Even though the aggressive behavior of these children improved, further treatment and followup appeared indicated. The results of this study have been published in Exceptionality Education Canada (MacKenzie-Keating & McDonald, 1998) and have been presented at the Annual Glenrose Research Conference, and at the Outcome Measures in the Health Care Delivery System: Methods, Management and Medicine, Conference in Calgary, Alberta.

Chapter 2 described some of the long term and deleterious effects of behavior problems in young children. This review, in addition to the extensive literature in the area, has been useful to the staff and parents of the program, in their potentially life-long mission in advocating for services and resources for their young children. This information has also been added to the credibility for certain programs or services and funding which these children have heretofore often been denied on the basis that behavior is not a handicapping condition.

In health-related professions, particularly in times of fiscal restraint, there is constantly a need to demonstrate the effectiveness of service delivery, and to provide philosophical support for what we do. The information and rationalization for early

intervention, as outlined in Chapter 3, provides scientific, philosophical and theoretical support for the program. A version of this paper has been published in Exceptionality Education Canada (MacKenzie-Keating & Kysela, 1998). This information has also been incorporated into two reports on early intervention in the Edmonton region: A Three Year Regional Service Delivery Plan (1997-2000) for the Early Intervention Program in the Capital Health Region (1997), and Task Group on Services in the Community for Children Birth to Three Years with Special Needs (1997).

In summary, the information from this evaluation has served the needs of the program staff, families, and administrators by providing useful information in a timely fashion, and clear manner, in the form of published reports or papers, conference presentations, and clinical discussion among program staff. The process of planning significant components of the evaluation was a team effort, involving program staff and administrators, and was based on the need to obtain clinical information for specific purposes. Program staff and others currently use some of the information obtained to help guide clinical practice. Thus, this evaluation adequately met the standard of utility.

Feasibility

> Evaluation practices are feasible when they support the conduct of the program evaluation with the constraints imposed by limited resources, time, demands, and politics. Evaluations are most feasible when they minimize disruptions to stakeholders. (Snyder & Sheehan, 1996, p. 369)

Evaluation practices should not disrupt the delivery of the program in any way and should be realistic, diplomatic, and frugal. This evaluation involved minimal, to no, disruption to the delivery of services or to the program stakeholders, with the exception of Chapter 5, which resulted in minimal disruption to the staff and families involved.

This particular research randomly assigned families to one of two types of intervention. In one or two instances families were not entirely satisfied with their assignment. Although their assignment was not changed, every effort was made to accommodate their needs, or to exclude them from the study and provide a range of treatment alternatives. For example, in one instance a family wanted home visits but were assigned to the center-based approach. They were accommodated by being offered home visits following the 6 month followup period. As well in this study, some families found completion of the questionnaires on the three separate periods onerous. This was not only expressed verbally to program staff by some families but is also reflected by the poor return rate of the questionnaires.

The staff in the program also found this part of the evaluation somewhat disruptive to their typical practices, specifically, by being confined by the requirements of the experiment, including random assignment, counterbalancing, and having to adhere to experimental conditions. As clinicians it is often more comfortable to be able to follow clinical judgment than it is to have to operate under a specific experimental condition.

Thus, although there was some minimal disruption, this evaluation for the most part was conducted within the constraints of the program and the hospital. Furthermore, two of the components of the evaluation were funded by research grants of which the author of this thesis was the principal investigator. Therefore, there were no financial costs to the program or families for these components of the evaluation. This evaluation was realistic, diplomatic, and frugal, thus adequately meeting the program evaluation standard of feasibility.

Propriety

> Evaluation practices are proprietary when they protect the ethical and constitutional rights of participants and audiences of program evaluation. (Snyder & Sheehan, 1996, p. 369)

Where applicable, proposals were prepared and presented to the Glenrose Rehabilitation Hospital and the University of Alberta's Research and Ethics Committees thereby ensuring that the rights of all participants were appropriately protected. This evaluation followed all of the necessary ethical guidelines for ensuring voluntary involvement, informed consent, complete confidentiality, right to treatment, right to withdraw at any time, and so on as set forth by the Glenrose Rehabilitation Hospital and University of Alberta's Research and Ethics Committees as well as by the Psychologists Association of Alberta.

The rights of all participants, staff, and families were protected at all times and stages of the evaluation. Names, or other types of identifying information, were not used in any of the reports, publications, or presentations. Participation in the evaluation was entirely voluntary. Participants were free to withdraw at any time without jeopardizing their or their family's current, or future, treatment. In summary, all legal and ethical safeguards were ensured thereby adequately meeting the standard of propriety.

Technical Adequacy

> Evaluation practices are technically adequate when they support the gathering, analysis, and interpretation of information in ways that are reliable, valid, accurate, representative, fair and replicable. Evaluations are made more technically adequate when descriptions of programs and contexts are precise, when methodology and analyses are clearly described, justified, systematically monitored, and understood by decision makers; when multiple appropriate

> sources of information are accessed; when instruments and measurement procedures are appropriate for the respondents and generate information that is reliable and valid for decision making; and when objective findings are clearly reported. (Snyder & Sheehan, 1996, p. 370)

Evaluation efforts should present accurate information obtained in technically adequate uses from a variety of sources.

The information obtained in this evaluation was obtained from a variety of different sources, utilizing a variety of different methods, and analyzing a variety of different program components. Methods, strategies, design, and procedures were fully described and with sufficient detail thereby enhancing the likelihood of replication. The techniques of clinical or applied research including random assignment, observational systems and statistical analyses were, for the most part, appropriate to the investigation. The technical adequacy of the evaluation is further supported by the fact that three of the papers have been accepted for publication in peer-refereed journals. Thus, the evaluation adequately met the standard of technical adequacy.

Clinical Contributions

The prevalence of young children with behavior problems is relatively high. Moreover, without early intervention, these children are at risk for later life and adult learning, behavior and socialization problems. It is important therefore, that we intervene early with these children in order to enhance their resiliency and reduce the number of risk factors in order to alter this progression. It is mandatory that the services and programs we provide to these children and their families are successful, effective, and of high quality. Therefore, program evaluation should be an integral and routine component of any early intervention program.

The purpose of this thesis was to apply Hawkins et al.'s (1981) Model of Program Evaluation to a short term early intervention program for preschool children

with behavior problems. Program evaluation is an essential and routine component of any early intervention program (Bruder, 1993; McConnell, 1994; Snyder & Sheehan, 1993). Additionally, several best practice guidelines (utility, feasibility, propriety, and technical adequacy) should be followed when conducting such an evaluation (Joint Committee on Standards for Educational Evaluation, 1994; Snyder & Sheehan, 1996).

One of the barriers to successful ongoing program evaluation in early intervention can be in selecting an appropriate evaluation model. Program evaluation in early intervention is extremely complex due to the characteristics of the field and to the great diversity of children and families served and the large numbers and types of early intervention programs. Unlike other program evaluation models, Hawkins et al.'s (1981) model provides a practical approach to evaluating short-term ongoing educational or treatment programs. It allows for diversity and flexibility for program staff and administrators in deciding what to evaluate and how to evaluate it.

This thesis has demonstrated that Hawkins et al.'s (1981) model provides a practical method for evaluating early intervention programs. Additionally, following the best practice guidelines or standards as proposed by Snyder & Sheehan (1996) ensures the evaluation will be conducted in ways that provide useful information in a timely manner, will be conducted with minimal disruption to the delivery of services, will protect the rights of those involved with and affected by the evaluation, and will provide reliable accurate information regarding the program, thus, contributing to the technology of program evaluation in early intervention.

Limitations

A major limitation of this thesis was the retrospective nature of the evaluation. All of the research questions were prompted by questions of clinical interest regarding components of the program and its effectiveness and attempts were made to answer these questions prior to the discovery and application of the model. That is, the

research questions came first based upon questions of clinical significance, and the model was applied during the course of the evaluation. Other limitations included the relatively small scale of the evaluation. Future program evaluation might examine more cells and more interaction between cells. This evaluation was performed with only one program and with a small number of families. Future research might investigate the utility and applicability of Hawkins et al.'s (1981) model with a variety of early intervention programs.

In summary, this thesis has demonstrated that Hawkins et al.'s (1981) model of program evaluation has clinical utility for a short term early intervention program for preschool children with behavioral problems.

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