

Experimental Examination of the Impact of Choice on Treatment Integrity

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EXPERIMENTAL EXAMINATION OF THE IMPACT OF CHOICE ON
TREATMENT INTEGRITY

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This dissertation involved the experimental investigation of the impact of intervention choice on treatment integrity. During the behavioral consultation process, two interventions were generated. The choice intervention was selected by teachers from an array of empirically supported, function-based intervention strategies. The no-choice intervention was developed by an independent expert consultant based on functional assessment results. Teachers implemented each intervention, and treatment integrity and student behavior were measured across each condition. A withdrawal design was used to examine the effect of choice on treatment integrity and the relationship between treatment integrity and student outcomes. A simultaneous treatments design was used to measure teacher preference for the choice or no-choice intervention. Results demonstrated that (a) teachers implemented the choice intervention with a higher level of treatment integrity, (b) lower levels of student problem behavior were associated with higher levels of treatment integrity, and (c) all teachers consistently chose to implement the choice intervention over the no-choice intervention. Results are discussed in terms of the underlying behavioral mechanisms that may explain the findings of the study and the need for future research to identify simple, effective strategies for promoting school-based treatment integrity.

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CHAPTER 1

Introduction and Review of Literature

Consultation is a problem-solving process in which a consultant (e.g., a psychologist, or specialist) works with a consultee (e.g., a teacher, a caregiver, or a staff member) to improve the behaviors of a client (e.g., a student or group of students; Caplan, 1963; Erchul & Martens, 2010; Kratochwill & Bergan, 1990). Though the term consultation has been given numerous meanings (Kratochwill & Bergan, 1990; Reschly, 1976), at least three defining characteristics are regularly associated with the consultation process (Bergan & Kratochwill, 1990). First, as indicated by the definition, consultation is a *triadic relationship* involving a consultant and one or more consultees and clients (Erchul & Martens, 2010; Tharp, 1975; Tharp & Wetzel, 1969). Consultees may belong to a variety of professional fields, including education, medicine, and law; and consultants generally provide a level of training and expertise that the consultees do not possess (Erchul & Martens, 2010). Second, consultation is a *problem-solving process* (Bergan, 1977; Kratochwill & Bergan, 1990) in which efforts typically focus on a consultee's concerns regarding a client or group of clients for whom the consultee is responsible (i.e., a teacher requesting consultative assistance to increase compliance of a student in her classroom; Bergan & Kratochwill, 1990; Caplan, 1970; Lambert, 1974). The third distinguishing feature of consultation is the *indirect* nature of services provided by the consultant to the client (Kratochwill & Bergan, 1990). Consultants work directly with the consultee, whose role is to work directly with the client to modify his or her behavior (Caplan, 1970; Kratochwill & Bergan, 1990; Tharp & Wetzel, 1969). The provision of indirect services enables consultants to meet the needs of more clients than

the traditional method of direct, one-on-one therapy with clients and has historically been considered to be one of the most appealing aspects of the process (Kratochwill & Bergan, 1990; Caplan & Caplan, 1993; Erchul & Martens, 2010).

Historical Background of School-based Consultation

Consultation emerged in the human services field in the mid-twentieth century largely out of the need for a more effective and pragmatic method of delivering mental health services than traditional medical and clinical models, which were generally based on the psychodynamic theory of behavior and consisted of long-term, one-on-one therapy (Caplan, Caplan, & Erchul, 1995; Zins, Kratochwill, & Elliot, 1993). In the mid-1960s, behavioral psychology advanced as an alternative conceptual model that, unlike traditional models, accumulated substantial empirical support, produced sizeable positive treatment effects, and demonstrated that key individuals, such as parents and teachers, could be trained to effectively alter children's behaviors in various settings (Erchul & Martens, 2010; Zins et al., 1993). The advancement of behavioral psychology expanded not only the range of potential change agents, but also the settings in which treatments could be implemented (Erchul & Martens, 2010; Hersch, 1968; Tharp & Wetzel, 1969).

Consultation was formally identified as a method of providing mental health services when the Community Mental Health Centers Act (CMHC; P.L. 88-164) was passed in 1963. The CMHC stipulation that community mental health centers must provide consultation services in order to receive federal funding (Erchul & Martens, 2010; Zins et al., 1993) officially sanctioned consultation services in mental health agencies and schools (Erchul & Martens, 2010). Professionals in a variety of fields (e.g., psychology, education, social work, and psychiatry) increasingly adopted the consultative

approach at mental health agencies and schools across the country (Zins et al., 1993).

Use of consultation escalated in schools with the national impetus toward integrating students with special needs into the mainstream general education environment (Gutkin & Curtis, 2009). The Education for All Handicapped Children Act (P.L. 94-142, renamed the Individuals with Disabilities Education Act [IDEA, P.L. 101-476] in 1990) was passed in 1975 to increase access to public education that meets the educational needs of children with disabilities. IDEA expanded the prospective role of school psychologists to include consultation (Erchul & Martens, 2010; Gutkin & Curtis, 2009; Reynolds, Gutkin, Elliot, & Witt, 1984). Subsequent reauthorization of the Individuals with Disabilities Education Improvement Act of 2004 [IDEIA] specifically included consultation in the definition of psychological services (34 CFR § 300.34 (c)(10)). Since the passage of IDEA, the literature has demonstrated that consultation is an effective mechanism to provide the support necessary for integrating students with disabilities into general education (Bush et al., 1989; Canter, 1991; Franklin & Duley, 1991; Givens-Ogle, Christ, & Idol, 1991; Gutkin & Curtis, 2009; Janney, Snell, Beers, & Raynes, 1995; Shapiro, Miller, & Sawka, 1999; Wilkinson, 2005).

Consultation is a fundamental component of the strategies used to integrate students with special needs into general education (Gutkin & Curtis, 2009; Zins, Curtis, Graden, & Ponti, 1988). General education teachers often require additional support to provide students in special education programs with the academic and/or behavioral support they need to function successfully in the mainstream setting (Curtis & Meyers, 1988; Gravois, Groff, & Rosenfield, 2009; Scruggs & Mastropieri, 1996; Zins et al. 1988). Programs that use consultation services as a primary mechanism to provide the

necessary support to integrate students with disabilities into general education have demonstrated effectiveness in the literature (Bush et al., 1989; Canter, 1991; Franklin & Duley, 1991; Givens-Ogle et al., 1991; Gutkin & Curtis, 2009; Janney, Snell, Beers, & Raynes, 1995; Shapiro et al., 1999; Wilkinson, 2005). Another prevalent approach related to the integration of children with special needs into general education aims at the prevention of students from being unnecessarily removed from mainstream settings by using a pre-referral intervention process, also termed intervention assistance. In this process, teachers consult with educational specialists (e.g., school psychologists) to provide students with academic and/or behavioral support in the general education environment (Zins et al., 1988). Currently, 69% of states have mandated intervention assistance prior to evaluating and/or placing students in special education, and 86% of states require or recommend the use of prereferral intervention teams (Truscott, Cohen, & Sams, 2005).

Consultation has become a core element of school psychology and one of the most preferred activities of school psychologists (Cummings, Harrison, & Dawson, 2004; Fisher, Jenkins & Crumbley, 1986; Meacham & Peckham, 1978; VanVoorhis & Levinson, 2006). The centrality of consultation as a form of service delivery in the schools is exemplified by the vast number of publications dedicated to the topic (e.g., Bergan & Kratochwill, 1990; Caplan & Caplan, 1993; Cole & Siegel, 2003; Conoley & Conoley, 1992; Dinkmeyer & Carlson, 2007; Dougherty, 2005; Erchul & Martens, 2010; Erchul & Sheridan, 2008; Gutkin, 1997; Gutkin & Curtis, 2009; Kratochwill, Elliot, & Callan-Stoiber, 2002; Kratochwill, Elliott, & Carrington Rotto, 1995; Lambert, Hylander, & Sandoval, 2004; Nastasi, 2006; Noell, 1996; Parsons & Kahn, 2005; Rosenfield, 2002;

Rosenfield & Gravois, 1996; Sheridan, 1997; Sheridan, Kratochwill, & Bergan, 1996; Zins & Erchul, 1995, 2002; Zins et al., 1993; Zins & Ponti, 1990), its recognition as a component of comprehensive psychological services in the professional literature (Gresham & Curtis, 2009; Ysseldyke et al., 2006), and the number of state departments of education, agencies, and national organizations implementing and promoting consultation as an essential approach to meeting students' needs (American School Counselor Association, 2005; Bush et al., 1989; Canter, 1991; Connecticut State Department of Education, 2004; Council for the Accreditation of Counseling and Related Educational Programs, 2001; Council on Social Work Education, 2001; Cummings et al., 2004; D'Amato, Sheridan, & Phelps, 2003, 2004; Franklin & Duley, 1991; Givens-Ogle et al., 1991; House & McInerney, 1996; Ikeda, Tilly, Stumme, Volmer, & Allison, 1996; National Association of School Psychologists, 2000; Tindal, Shinn, Walz, & Germann, 1987; Ysseldyke et al., 1997; Ysseldyke et al., 2006).

Effectiveness of consultation in the schools. Initial literature reviews of consultation indicated that it was an overall effective method of service delivery in schools (Kratochwill, Elliott & Busse, 1995; Medway, 1979, 1982; Sheridan, Eagle, Cowan, & Mickelson, 2001; Sheridan, Eagle, & Doll, 2006; Sheridan, Welch, & Orme, 1996). These early reviews included studies that evaluated one or more of the three models primarily used in the schools: behavioral consultation (BC), mental health consultation, and organizational consultation (Gutkin & Curtis, 1982; Meyers, Parsons, & Martin, 1979; Reschly, 1976). Although each consultative approach involves considerably different theoretical foundations, goals, problems targeted (i.e., dependent variables), types of interventions used, and standards for evaluation and interpretation of

results (Reschly, 1976; Gresham & Kendell, 1987), clear trends emerged indicating that, on the whole, school consultation produced positive results. Medway (1979, 1982) found positive outcomes in 78% and 84% of the studies reviewed, respectively. In a meta-analysis of 54 studies, Medway and Updyke (1985) reported that consultants, consultees, and students involved in the consultation process showed significantly greater improvement than participants who do not engage in consultation (Sheridan, Welch, & Orme, 1996). Sheridan et al. reviewed 46 school consultation outcome studies from 1985 to 1995 and found results consistent with previous reviews. Seventy-six percent of the studies reported positive results on at least one outcome measure. Furthermore, 67%, 28%, and 5% of all outcomes were positive, neutral, and negative, respectively.

One of the most consistent trends that emerged in the early research reviews of school consultation was the prevalence and efficacy of the BC model compared to the mental health and organizational development models (Alpert & Yammer, 1983; Gresham & Kendell, 1987; Medway, 1979, 1982; Sheridan, Welch, & Orme, 1996). In the first review of school consultation research, Medway (1979) found that the majority of the studies published between 1972 and 1977, and 75% of the studies that reported consistently positive effects, involved BC. Later reviews continued to indicate the predominance of BC among school consultation research and its superior effectiveness compared to other models (Alpert & Yammer, 1983; Gresham & Kendell, 1987; Medway, 1982; Sheridan et al.). In a review of 46 school consultation research articles published between 1985 and 1995, Sheridan et al. found that 46% (N = 21) of studies employed BC, 11% (N = 5) used mental health consultation and 4% (N = 2) involved organizational consultation. Ninety-five percent of the studies using BC reported positive

results in at least one outcome measure, and 89% of all outcome measures reported by studies using BC were positive. Fifty-seven percent of the outcome measures reported by studies using mental health consultation model reported positive results, and 60% of the articles using the mental health consultation model reported positive results for at least one measure.

Behavioral Consultation

As evidence emerged on the efficacy of applying the principles of behavior analysis in education, psychologists increasingly incorporated behavioral theory and technology into their consultative approaches (Reppucci & Saunders, 1974; Tharp & Wetzel, 1969). Bergan (1977) developed a standardized approach to BC based on the problem-solving model (D’Zurilla and Goldfried, 1971) and early efforts to use behavior modification with consultation in applied settings (Martens & DiGennaro, 2008; Reppucci & Saunders, 1974; Tharp & Wetzel, 1969). Initial attempts to integrate behavioral technology with consultation services on a large scale exposed several issues that impeded its success, including organizational restrictions, too much use of jargon by the consultant, challenges with modifying consultee behavior, and insufficient resources (Erchul & Martens, 2010; Reppucci & Saunders, 1974). To address these limitations, Bergan incorporated the use of effective, strategic communication and problem-solving skills, the development of specific intervention plans, and the evaluation of outcomes into the behavioral consultation model (Martens & DiGennaro, 2008).

The primary goal of BC is to alter the student’s behavior in the desired direction. To do so, consultation activities are often directed toward modifying the behavior, knowledge, and/or skills of the consultee. For example, eliminating a student’s disruptive

behavior in the classroom may require the teacher to develop more effective behavior management skills. The BC process focuses on identifying the aspects of the environment that are impacting the student's problem behavior and modifying these environmental conditions to alter the student's behavior. The consultant engages in standard, strategic verbal interactions with the consultee during interviews to (a) define the problem behavior in objective, measurable terms, (b) identify the environmental conditions that evoke and maintain the student's problem behavior, and (c) design and evaluate intervention plans using the principles and technology of applied behavior analysis (Kratochwill & Bergan, 1990; Erchul & Martens, 2010).

Stages of behavioral consultation. The BC process is carried out in four stages of problem solving: problem identification, problem analysis, plan implementation, and problem evaluation (Kratochwill & Bergan, 1990). The problem identification stage is accomplished through the problem identification interview (PII), during which the consultant and consultee (a) specify the target problem behavior in objective, measurable terms, (b) estimate the extent to which the problem behavior occurs (i.e., frequency, duration, and/or intensity), (c) identify the conditions in which the problem behaviors typically occur, (d) establish the procedures that will be used to measure baseline levels of the problem behavior, and (e) verify the existence of a discrepancy between current and desired levels of the student's problem behavior (Kratochwill & Bergan, 1990).

The main objectives of the problem analysis stage are to hypothesize which environmental conditions may be influencing the student's behavior and to generate an intervention plan to address the student's problem behavior (Kratochwill & Bergan, 1990). During a problem analysis interview (PAI), the consultee and consultant (a)

analyze the baseline data collected after the PII and set goals for behavior change, (b) thoroughly discuss the environmental conditions (e.g., antecedents and consequences) that occur in relation to the problem behavior to determine existing environmental variables that may be evoking and reinforcing the student's behavior, (c) and develop an intervention plan based directly on the conditions analysis and on principles of behavior (e.g., positive reinforcement, negative reinforcement, extinction, and stimulus control; Kratochwill & Bergan, 1990; Martens & DiGennaro, 2008).

In the treatment implementation stage, the consultee is responsible for implementing the intervention plan and continuing to monitor the student's behavior as it was measured during baseline. The consultant is responsible for increasing the likelihood that the plan will be effective by (a) providing any materials and/or training necessary for implementation and (b) ensuring the consultee implements the intervention as it was designed by monitoring treatment implementation through brief contacts with the consultee or direct observation. If the consultant determines that the student is not making adequate progress or the consultee is not implementing the intervention as it was designed, the consultant works with the consultee to make any revisions that may be necessary to address procedural issues (Kratochwill & Bergan, 1990).

In the treatment evaluation stage of BC, the efficacy of the intervention plan is evaluated after it has been implemented for a designated period of time (e.g., four weeks). In a treatment evaluation interview (TEI) the consultant guides the consultee through a decision-making process to determine whether the student has met the established goal(s) for behavior change based on visual inspection of graphed outcome data collected across baseline and treatment implementation phases. The most common design used to evaluate

intervention effectiveness is the basic time-series, or A/B design. Based on the level, trend and variability of the baseline data compared to data collected during the plan implementation stage, the consultant and consultee determine the extent to which the goal was met (i.e., goal was fully met, some progress was made, or no progress was made toward meeting the goal). If the goal was met, the consultant and consultee may decide to keep the plan in place, generalize the plan to other behaviors or settings, fade the plan, or discontinue the plan entirely. If it is determined that the goal has not been met, the consultant and consultee may decide to modify the intervention plan or return to the problem identification or analysis stage of the BC process (Kratonwill & Bergan, 1990).

Effectiveness of behavioral consultation. Behavioral consultation has become the most researched and predominant consultation model in the school setting. Nearly four decades of research have indicated that BC results in greater outcomes than other consultation models (Alpert and Yammer, 1983; Busse, Kratochwill, & Elliott, 1995; Gresham & Kendell, 1987; Kratochwill, Elliot & Busse, 1995; Medway, 1979, 1982; Sheridan et al., 2001; Sheridan et al., 2006; Sheridan, Welch, & Orme, 1996). Sheridan et al. (2001) reviewed 52 cases in which the BC model was implemented jointly with teachers and caregivers of students in kindergarten through 9th grade who exhibited a range of academic and behavioral problems at home and school. The authors calculated the effect sizes using the “no assumptions” approach, which makes no assumptions about population distribution and homogeneity of variance in its calculation of effects (Busk & Serlin, 1992; Busse et al., 1995) and is calculated by dividing the difference between baseline and treatment means of an individual case by the standard deviation of the

baseline. The average effect size across all cases was 1.10 ($SD = 1.07$), reflecting a large effect size (Cohen, 1992).

Sheridan et al. (2006) found similar effects in a more recent review of the effectiveness of BC conducted over 8 years with caregivers and teachers of 125 students (pre-school through 9th grade). Participants were grouped according to the number of diversity characteristics exhibited, including ethnicity (non-Caucasian), socioeconomic status (household income of less than \$15,000 per year), family composition (fewer than two adults in the home), maternal educational level (less than a high school education), and language spoken in the home (non-English). Large average effect sizes (calculated using the “no assumptions” approach) were found across all groups of participants, with average effect sizes of 1.35 (median = 1.05; $SD = 2.18$), 1.21 (median = 1.08; $SD = 1.12$), and 1.51 (median = 1.28; $SD = 1.52$) for participants exhibiting zero, one, and two or more dimensions of diversity, respectively. Results of these reviews support not only the efficacy of the BC model in addressing diverse problem behaviors, but also the robust effectiveness across diverse populations.

In addition to producing positive behavioral outcome data, implementation of BC on a school-wide level has led to reductions in the number of special education referrals and increases in the referral-to-placement ratio for special education (Fuchs, Fuchs, & Bahr, 1990; Graden, Casey, & Bonstrom, 1985; Gutkin, Henning-Stout, & Piersel, 1988; Martens & DiGennaro, 2008; Rosenfield, 1992). Consultation teams and problem-solving and prereferral intervention programs tailored after the BC model have sprouted in schools across the country since the 1980s. Furthermore, BC has become the means through which schools comply with federal mandates requiring the use of positive

behavioral interventions to address problem behaviors exhibited by students with disabilities, and the development of a functional behavioral assessment plan when students with disabilities face disciplinary actions (IDEA; Martens & DiGennaro, 2008).

Behavioral consultation and functional behavioral assessment. In a seminal article on the critical dimensions of effective psychological treatments, Yeaton and Sechrest (1981) stated that strong interventions must be conceptually relevant, or based on theory that explains (a) the factors that evoke and maintain the problem, and (b) the methods that remedy the problem by addressing the cause. The BC process is grounded in the theoretical foundation of applied behavior analysis. As such, intervention development is based on the environmental events hypothesized to be evoking and maintaining problem behavior (stimulus functions). However, one major limitation to the BC model is that the information on which intervention development is based is gathered almost entirely from verbal report in the PII and PAI (Witt, Gresham, & Noell, 1996). This practice raises questions about the accuracy and reliability of the information due to concerns about the completeness of information and susceptibility to error (Iwata & Worsdell, 2005; Noell & Witt, 1996; Sturmey, 1994). The systematic use of direct assessment methods is a central tenet of measuring and documenting behaviors in applied behavior analysis (O'Neill et al., 1997; Steege, Davin, & Hathaway, 2001).

As a process that is rooted in applied behavior analysis, functional behavioral assessment (FBA) provides stronger conceptual relevance to interventions derived in the BC process. Like BC, the FBA process consists of a systematic assessment of the environmental variables surrounding the occurrence of problem behavior to form a hypothesis regarding the functional relationship between the problem behavior and

environmental events. Based on this hypothesis, an intervention is developed to decrease the occurrence of problem behavior and increase engagement in appropriate behaviors (Ervin, Radford et al., 2001; Gresham, Watson, & Skinner, 2001; Gresham, 2004; Iwata et al., 2000; Kratochwill & Bergan, 1990; O'Neill et al., 1997; Payne, Scott, & Conroy, 2007). FBA differs from BC in its use of a wider variety of more rigorous assessment methods to determine the functional relationship between problem behaviors and the environment (Gresham et al., 2003; O'Neill et al., 1997). These methods are categorized into three general approaches: indirect (informant) methods, descriptive (correlational) analysis, and functional (experimental) analysis (Gresham et al., 2001; Iwata & Worsdell, 2005; O'Neill et al., 1997). Indirect informant methods gather information from individuals who work directly with the student and can provide anecdotal information on patterns in the student's behavior. The information gathered from indirect methods is temporally and physically removed from the occurrence of the problem behavior (Cone, 1978; Gresham et al., 2001) and assists with identifying or narrowing down the range of variables that may be impacting the problem behavior (O'Neill et al., 1997). Indirect methods include interviews, behavior rating scales and checklists, and review of school or medical records. The functional assessment interview is one of the most widely employed forms of indirect assessment. It can be used to enhance the PII in the BC process by increasing the specificity of the information gathered from the consultee, including (a) environmental events temporally removed from, but associated with the occurrence of the problem behavior, (b) appropriate behaviors that could result in the same consequences that often follow problem behavior (replacement behaviors), (c) situations in which the student typically engages in appropriate behavior, and (d)

strategies previously used to address the problem behavior that were temporarily effective, partially effective, or ineffective (O'Neill et al., 1997).

Direct observation methods validate the information gathered through indirect, informant methods by systematically documenting behavior and the surrounding environmental events as they occur (Bijou, Peterson, & Ault, 1968). Individuals in the student's environment (e.g., teachers, school staff, family members) directly observe and record behaviors using a variety of recording methods (e.g., frequency count, interval recording, duration recording, and time sampling; Gresham, 2003; O'Neill et al., 1997). A descriptive analysis is conducted to identify a correlation between the occurrence of the problem behavior and specific antecedents and consequences. The most common approach to conducting a descriptive analysis is a method referred to as Antecedent-Behavior-Consequence (A-B-C) recording, in which an observer documents each occurrence of the problem behavior, along with the time, setting, and antecedent and consequent events (Sulzer-Azaroff & Mayer, 1977). Data collected from the A-B-C recording can be used to compute conditional probabilities (Sackett, 1979) or correlational analyses (Vyse & Mulick, 1990), which reveal the proportion of problem behavior occurrences preceded and followed by various antecedent and consequent events (e.g., the proportion of times tantrums were preceded by academic demands, or the proportion of times the student received peer attention after throwing an object; Eckert, Martens, & DiGennaro, 2005; Lerman & Iwata, 1993). Conditional probabilities have been used in several studies (e.g., Eckert et al., 2005; Gunter, Jack, Shores, Carrell, & Flowers, 1993; Mace & Lalli, 1991; Shores et al., 1993; Snyder & Patterson, 1986). Descriptive analysis can be conducted in the BC process during baseline data collection