

ABSTRACT

Title of Dissertation: THE EFFECTS OF ONLINE COACHING
ON INSTRUCTIONAL CONSULTATION
SKILL DEVELOPMENT AND TREATMENT
PROCESS INTEGRITY

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Providing early intervention to teachers through indirect service delivery has become an important priority in serving student needs. The Instructional Consultation Institute, designed to train school-based consultants in the IC problem-solving model, includes online coaching during an actual case where consultant-trainees practice their new consultation skills. This study investigates the effects of online coaching on consultant-trainees' levels of skill development and studies the relationship between skill development and the integrity with which the IC process is followed.

Archival data were used to analyze consultant-trainee (N = 132) and coach perception of skill development before and after receiving online coaching, and to explore the relationship between skill development and treatment process integrity. Although demographic data are limited, the consultant-trainees and coaches were from multiple states and represented a variety of professional roles. Data from three forms (the

IC Professional Development Survey, the Rating of Consultant's Skill Development and the Student Documentation Form were analyzed.

Results from paired samples t-tests indicated significant level of growth between consultant-trainees' perceptions of their own skill development before and after participating in the online coaching. Consultant-trainees indicated they felt competent in performing their skills after the coaching. The data showed suggested that consultant-trainee and coach perception were similar. Discrepancies existed in the areas of contracting and communication skills, where consultant-trainees rated their skills significantly higher than coaches did, but the actual number of consultant-trainees rated as competent was similar between the two groups. However, in curriculum-based assessment, where consultant-trainees rated their skills lower than coaches did, far fewer consultant-trainees than coaches rated trainees as competent. Using Pearson correlations it was determined there was no relationship between consultant-trainee perception of skill development and treatment process integrity, as measured by completion of the SDF, but that a significant relationship between the coaches' perceptions of skill development and SDF completion did exist.

THE EFFECTS OF ONLINE COACHING ON INSTRUCTIONAL CONSULTATION
SKILL DEVELOPMENT AND TREATMENT PROCESS INTEGRITY

by

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DEDICATION

I would like to dedicate this project to the people who have helped support me during the completion of my dissertation. It has taken over ten years to get to this point. There were times when I thought I would never complete this journey, and while others probably felt the same, no one ever voiced their concerns. I felt only support and encouragement from those around me in my quest to finish this doctoral program and, specifically, this dissertation.

I would, especially, like to thank my family. When I started this doctoral program I was newly married with no children. Now, my son Eric is 9 and my daughter Emma is 7. I want to thank them for understanding that sometimes Mom had to go to class or work on the computer and couldn't play right away. My husband, Mike has been very supportive. He has given me the time and opportunities I needed to get to school, to study, and to write. I especially thank him for agreeing to give me this past year to finish my dissertation. He has also been extremely helpful in editing and in teaching me how to create the perfect table in Excel.

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Chapter 1

The Problem

Assistance to those students who are exhibiting difficulties in school but who do not qualify for special education has increased over the past twenty years (Reschly & Ysseldyke, 2002; Zins & Erchul, 2002), and early intervention services are now incorporated into the latest special education law reauthorization (IDEIA, 2004). Problems with the special education service delivery model included both the emphasis on the discrepancy model and the lack of support for children who are struggling but are not provided service. These problems have led to over referral to special education, misclassification of students as disabled, costly and time-consuming procedures, frustrated general education teachers and students falling farther and farther behind (Reschly & Ysseldyke, 2002). Once these problems became evident, alternative solutions were sought. One such possible solution has been the emphasis on early intervention and prereferral strategies (Reschly & Ysseldyke, 2002; Rosenfield, 1987; Zins & Erchul, 2002). These alternative solutions were designed to provide support to teachers both in general and special education.

Problem-Solving Models

One way of providing early intervention and prereferral strategies for all students is through the use of problem-solving models (Tilly, 2002). These models are beneficial in helping teachers work with students about whom they have concerns. Benefits also include lowered numbers of referrals to special education (Gravois & Rosenfield, 2002), the creation of interventions designed specifically to meet

individual needs, and an emphasis on data-based decision making (Telzrow, McNamara, & Hollinger, 2000). The models differ in the types of documentation, the amount of teacher involvement, and the specific process followed. Many of the problem-solving approaches, however, have a basis in the behavior consultation literature (Telzrow et al., 2000). Consultation models generally follow the shift towards an emphasis on use of problem-solving strategies, data-based decision making, a focus on achievement of student positive outcomes, and evaluation of treatment integrity (Reschly & Ysseldyke, 2002). One such model is Instructional Consultation (IC), which was the focus of this study.

Instructional Consultation

IC (Rosenfield, 1987, 2002) is a problem-solving approach that is used to support teachers in the classroom. It is a consultee-centered model in that the focus of the process is to change the way teachers view concerns and to expand teachers' skills in dealing with students about whom they have concerns (Knotek, Rosenfield, Gravois, & Babinski, 2003; Rosenfield, 1987; Rosenfield, 2002a; Rosenfield, 2002b). IC consists of a structured problem-solving framework within a collaborative nonhierarchical relationship between a consultant and consultee. Its assumptions include beliefs that (a) all children can learn, (b) early intervention is preferable to waiting for failure, (c) the critical arena for intervention is the student-teacher relationship within the general education classroom, (d) the instructional match and setting is the focus of problem-solving, (e) a problem-solving community is the foundation for professional and student learning, (f) teachers, as professionals, are

entitled to consult and collaborate, and (g) change is a process, not an event (Laboratory for IC Teams Coaching Manual, 2005).

Consultation Process Related to Outcomes

Since consultation has increasingly been recommended in the school environment (Reschly & Ysseldyke, 2002), it is important to assess its effectiveness. Studies show correlations of varying degrees among certain aspects of the consultation process and student outcome (Flugum & Reschly, 1994; Fuchs, Fuchs, Bahr, Fernstrom, & Stecker, 1990; Telzrow et al., 2000). Some aspects of the process that have been found to be related to outcomes include: behavioral definition of the problem; collection of baseline data; clearly identified goals; presence of a systematic intervention plan; graphing data that shows the student's response to intervention; and direct comparison of student performance before and after intervention implementation (Flugum & Reschly, 1994; MacMann, Barnett, & Allen, 1996; Telzrow et al., 2000). It is important to note that these are correlations and therefore can not be used to demonstrate causality. As Levinsohn (2000) states in her study, there has been a lack of methodologically rigorous studies that examine exactly how consultation relates to student outcomes.

With respect to IC, studies have mostly shown results in the areas of student and consultee (or teacher). Gravois and Rosenfield (2006) found that minorities in schools that employed the IC process were at less risk of being referred and placed in special education. Another area of student improvement was found in goal attainment (LaFleur & Rosenfield, 2005, as cited in Rosenfield, Silva, & Gravois,

2008). This study showed that students involved in an IC case met or exceeded 78 to 87% of their goals.

Positive results were also shown for consultees involved in IC cases. Some of these results included increases in teacher confidence in dealing with similar problems in the future (Knotek, Rosenfield, Gravois, & Babinski, 2003), increases in teacher satisfaction, learning of new strategies, implementation of new strategies (Rosenfield, Silva, & Gravois, 2008), and a change in the way teachers think about problems (Knotek et al; Rosenfield et al.).

Treatment Integrity

Central to outcome studies is treatment integrity, defined as the degree to which the treatment has been implemented as it was designed. Without documentation of treatment integrity, it is not possible to assign the outcome to the intervention. Two types of treatment integrity have been identified in school consultation research: consultation process integrity and consultation intervention integrity (Fuchs et al., 1990). Treatment integrity could refer to the intervention, i.e., the actual strategy that the consultant and teacher have designed to work with the student, or it could deal with process integrity, i.e., whether or not the consultant is actually meeting with the teacher or using the process as it was designed. So far, very few research projects have systematically assessed if consultants in a study were providing consultation services as they were intended (Gutkin, 1993, Sheridan, Welch, & Orme, 1996). Also, most of the research on consultation treatment integrity looks at its relationship with student outcomes (Fuchs et al., 1990; Flugum

& Reschly, 1994; Telzrow et al., 2000), rather than focusing on how treatment integrity relates to consultee or consultant outcomes.

Several studies have looked at documentation to assess which portions of the consultative process are related to student outcome (Flugum & Reschly, 1994; Fuchs et al., 1990; Levinsohn, 2000; Telzrow et al., 2000). While the implementation of the critical elements of the process appears to be low (Flugum & Reschly; Telzrow et al.), there does seem to be a relationship between student outcome and implementation of the following elements: problem identification including a behavioral definition, direct measure of current performance, clearly identified goals, implementation of a systematic intervention plan, graphing of data collected post intervention, and a comparison of post intervention data to baseline data (Flugum & Reschly, Fuchs et al., Telzrow et al.).

In Instructional Consultation, one document that tracks the consultation process is the Student Documentation Form (SDF). In her study, Levinsohn (2000) identified which components of the SDF were more or less completed. She found that consultants had the most difficulty completing areas that dealt with monitoring student progress and collecting/graphing baseline data. Studies that look at which parts of the SDF are hardest to complete or are less often completed may have implications for training of consultants. It may be that certain aspects of the process need more training than others, and it is helpful to be able to determine which aspects those may be. It may also be that some skill areas need different types of training. For example, there are certain skills that seem to require continued practice with feedback in a real life setting before consultants achieve a level of competency.

Training/Skill Development

Preservice consultation training is limited (Anton-La Hart & Rosenfield, 2004; Hellcamp, Zins, Ferguson & Hodge, 1998). School psychologists frequently report the desire to spend more time in consultation, but feel unprepared because of a lack of training and supervision (Costenbader & Swartz, 1992). The number of specialist and doctoral training programs offering consultation courses has increased (Anton-LaHart & Rosenfield, 2004; Costenbader & Swartz). The training provided, however, is for the most part introductory, since most trainees have no more than one course at the preservice level (Anton-LaHart & Rosenfield). The consultant-trainees may leave the course having developed consultation skills to the point where they are competent to apply those skills in a simulated situation. The next step, however, the application of those skills in real life situations, is typically not developed. These advanced skills and proficiency with them emerge when the consultants have been given extended opportunities to practice their skills in real life settings with continued feedback. As Rosenfield (2002b) suggests, “most professional programs provide only limited opportunities for the development of competency and expertise,” (p. 109) in the consultation domain.

The training design is the most important component to consider when expecting someone to transfer skills from a training/workshop to daily activities and the type of training offered is significantly linked to skill transfer (Showers & Joyce, 1996; Vail, 2004). For many years professional development or inservice training within the schools or around school issues has consisted mainly of one shot workshops or limited training experiences, with little or no follow up support for what

was learned. This type of experience does not usually result in professionals changing their practices within classrooms (Gravois, Knotek, & Babinski, 2002; Kruger, Cohen, Marca, & Matthews, 1996; Showers & Joyce, 1996). Thus, neither preservice nor inservice consultation training represents the best in application of skills.

Recently, more has been written about how to make professional development and inservice training increasingly useful and likely to evoke change in the participants' behaviors (Gravois, Knotek, et al., 2002; Joyce & Showers, 1980; Kruger et al., 1996; Kruger, Struzziero, Kaplan, Macklem, Watts, & Weksel, 2001; Reschly & Ysseldyke, 2002; Rosenfield, 2002b). The most effective training designs cited in the literature include the following steps: presentation of information, modeling or demonstration, practice with feedback, and application of skills in a real setting with some type of coaching or feedback (Gravois, Knotek, et al., 2002; Joyce & Showers, 1980). This same framework can be used with many types of content. Obviously the specifics of what is learned will vary depending on the purpose of the training. The framework must be followed, however, in order to have the participants work their way toward competency.

Training in consultation is no exception. Rosenfield (2002b) has developed a framework for educating instructional consultants from the novice stage through competence and towards proficiency. In order to arrive at proficiency or expertise within the IC model, the consultant-in-training moves through the stages identified by Joyce & Showers (1980) of awareness and understanding, skill acquisition, application of skills, and advanced skill development. Other models for consultation

training have included steps similar to those defined by Joyce & Showers. Galleich (1983) and Brown (1985) have both created models for consultation training and each has included four stages: didactic instruction, lab activities, field experience, and supervision.

Research on inservice training has mostly focused on participant ratings of training, knowledge gain, and skill acquisition (Goodwin, Garvey, & Barclay, 1971; Kruger & Struzziero, 1997; McDougall, Reschly, & Corkery, 1988). Participants in trainings have been seen to significantly improve in objectives that were set prior to the training. Goodwin et al. found that the group that received microconsultation training improved in observed objectives during a simulated consultation.

McDougall et al. identified six behavior objectives that would be measured after a one day workshop in behavioral consultation. Results indicated significant increases in each area.

Supervision through Coaching

The final stage identified by most models as necessary for consultants to reach proficiency incorporates application of skills in a real setting with some type of coaching or feedback (Gravois, Knotek, et al., 2002; Joyce & Showers, 1980; Reschly & Ysseldyke, 2002; Rosenfield, 2002b). This is the step that seems to be missing most often in preservice and inservice training opportunities (Anton-LaHart & Rosenfield, 2004; Costenbader & Swartz, 1992). In fact, there is a real lack of information on supervision practice and research in the consultation literature (Cramer & Rosenfield, 2004). Obtaining continued feedback in practice settings is an obstacle (Gravois, Knotek, et al; Kruger et al., 2001; Kruger & Struzziero, 1997), and

yet is critical to the transfer of new skills (Gravois, Knotek, et al; Kruger & Struzziero; Rosenfield, 2002b; Showers & Joyce, 1996). Finding supervisors with expertise in consultation skills, or specifically IC, to work individually with each new consultant has been problematic. Some solutions may include doing group supervision, which allows one supervisor simultaneously to provide feedback to more than one consultant, or using peer supervision or coaching as an option (Harvey & Struzziero, 2002).

One approach to supervision is coaching. The term coaching implies a non-hierarchical, collaborative relationship that is more aligned with the relationship developed between consultant and consultee. Coaching is also defined as a collaborative, confidential, nonjudgmental opportunity for structured, positive feedback in a trusting, safe, supportive environment (Laboratory for IC teams coaching Manual, 2005; Jenkins, Garn, & Jenkins, 2005; Lam, Yim, & Lam, 2002; Stoltenberg, 1993; Zins & Murphy, 1996). This is different from supervision, which is more directive, usually includes an evaluative process, and has a hierarchical relationship between supervisor and supervisee. Coaching has been used in several different arenas including: athletics, business, education, family-centered care, and professional development (Rush, Sheldon, & Hanft, 2003). The coaching process usually includes three steps: the preconference, data collection/observation, and the feedback/coaching conference (Gravois, Knotek, et al., 2002; Jenkins et al.; Lam et al.). The feedback that is provided should follow research-based guidelines for effective feedback. Feedback content will vary according to the process.

There are many positive results from coaching. Studies have indicated that coaching leads to an increase in knowledge and skill, a readiness to transfer new skills to the real life environment, and an ability to apply those skills appropriately (Jenkins et al., 2005; Kruger & Struzziero, 1997; Lam et al., 2002; McLoughlin, 2002; Showers & Joyce, 1996; Spitzer & Wedding, 1995; Stoltenberg, 1993; Zins & Murphy, 1996). The disadvantages of coaching seem to mostly be related to time and geography (Kruger & Struzziero; Lam et al.). For example, in a group coaching situation, finding a time when the entire group can meet, and a place that is convenient for each member of the group can be difficult. Even in the online coaching process, which alleviates the geographical considerations and many of the time issues (coaches and consultant-trainees can go online whenever they have the time), there is still a time delay in the communication, which might cause problems (Kruger et al., 1996; Kruger & Struzziero).

Research on coaching has, for the most part, indicated positive results. In business, the participants seemed to come away from the coaching with an increased understanding of their roles and responsibilities (Stevens, 2005), and with actual change in behavior that has been maintained over time (Wasylyshyn, Gronsky, & Haas, 2006). Within the educational arena, the research has mostly focused on teachers. The teachers who were coached reported increases in knowledge and skill (Lam et al., 2002; Morgan, Menlove, Salzberg, & Hudson, 1994), decreases in isolation (Slater & Simmons, 2001), greater effectiveness in the classroom (Hornberger, 2002), and an increase in ability to transfer new skills into real-life practice (Jenkins, Garn, & Jenkins, 2005). Zins and Murphy (1996) found similar

increases in skills and knowledge and in job enthusiasm among school psychologists who were involved in a peer coaching situation.

In the area of consultation, there is not much research on coaching. Vail (2004) studied consultant-trainees' perceptions of the coaching component of the IC inservice training program. The results indicated that over 90% of the participants rated the coaching as relevant, effective, and thorough. The participants also reported feeling that their skill development had grown, although the amount of growth depended on the skill. Vail found that within the coaching process, the giving of information or a suggestions followed by positive feedback was most associated with skill growth.

Distance Learning

Distance learning opportunities can offer solutions to several of the limitations associated with face-to-face meetings. Since it is an asynchronous form of communication, it limits time issues and it alleviates geographical concerns (Kruger et al., 2001; Kruger & Struzziero, 1997). The speed associated with this type of communication has been greatly increased through the use of computer technology (Kruger & Struzziero).

There are advantages and disadvantages associated with online communication. Advantages include: ease of access (Spitzer & Wedding, 1995); collaboration (McLoughlin, 2002; Myrick & Sabella, 1995; Van Gorp, 1998); anonymity (Myrick & Sabella; Smith, Ferguson, & Caris, 2003); and benefits resulting from communicating with the written word. When communicating via e-mail or online, the written word is used. This allows both people involved the time to

read what has been already written and to take time to reflect on what and how to respond (Kruger & Struzziero; Spitzer & Wedding); the time to prepare what one wants to say more thoroughly and to edit what has been written before sending (Maxwell & McCain); and the ability to print and save for later reference (Myrick & Sabella).

There are disadvantages associated with distance learning and computer-mediated communication. There is a disruption in temporal order that may lead to difficulty in discussions (Kruger & Struzziero, 1997), specifically an inability to clarify immediately what was meant (Kruger et al., 1996). The other significant disadvantage to this type of communication is the lack of nonverbal cues (Kruger et al., 1996; Kruger et al., 2001; Kruger & Struzziero; Myrick & Sabella, 1995; Smith et al., 2003). Other limitations exist concerning the technology itself. Not everyone has easy access to a computer (Vail, 2004), or understands the more complicated technology (Maxwell & McCain, 1995), or is adept at typing (Myrick & Sabella).

To date, computer-mediated communication is being used in more and more areas, including: education, consultation, and supervision. In education, this type of communication (the use of e-mail) has been found to influence professional development and teaching (Spitzer & Wedding, 1995) and to enhance expertise in team problem-solving (Kruger, Cohen, Marca, & Matthews, 1996). In the area of consultation, e-mail can be used to increase professional development opportunities, increase knowledge, and decrease a sense of isolation (Kruger et al.; Kruger & Struzziero, 1997). More specifically, computer-mediated communication can be used in supervision within the area of consultation. Harvey and Struzziero (2000) report

that this type of supervision can, “transcend the boundaries of time and place,” (p. 150). Vail (2004) studied the use of e-mail in an online coaching process. She found that participants reported e-mail to be easy to access, comfortable to use, and provided an opportunity for reflection not often found in face-to-face communication.

Training in Instructional Consultation

This study will focus on evaluating one aspect of the training in Instructional Consultation (IC). Different trainings in IC may occur in different locations with different instructors, but there is a training manual and set course of training procedures. Whatever the place, the training follows the same framework of didactic presentation, modeling, practice with feedback, and coaching. The introductory training provides 20-25 hours of didactic and simulated activities that are, “used to provide awareness, understanding and beginning skill development for all participants.” (Gravois, Knotek, et al., 2002, p. 121), followed by a coaching during application phase, which is done either face-to-face or online.

The skills necessary to become trained in consultation may vary according to the purpose of the consultation. The majority of models seem to distinguish between two types of skills – artful/process skills and scientific/content ones. The artful/process skills focus on consultation delivery. These skills include communication, collaboration, and the use of the problem-solving process. The scientific/content skills emphasize the application of research-based knowledge. Included in this area are the application of curriculum-based assessments, effective instructional and management procedures, and how to use data to monitor and evaluate progress (Vail, 2004).

Evaluating the effectiveness of training requires that the performance of the participants be examined on the skills central to the model of consultation in which training was conducted. In her study of online coaching of IC Vail (2004) includes a rating scale used to determine consultant's skill development. The scale lists different skills that the consultant will need in order to follow the IC process when consulting with a teacher. These include knowing how to apply contracting, defining concerns in observable terms, prioritizing concerns, writing a statement of current performance, establishing measurable goals, conducting curriculum-based assessment, conducting systematic observations, charting/graphing data, evaluating student progress, using progress using data, designing appropriate interventions, completing the Student Documentation Form, using collaborative communication skills, making joint decisions with consultees, and maintaining a collaborative stance.

This study focused on assessing consultants' skill development within these same areas after receiving training from the IC Institute and coaching online. The IC training program follows the guidelines of effective training design that were discussed, i.e., presentation of information, modeling or demonstration, practice with feedback, and application of skills in a real setting with some type of coaching or feedback (Gravois, Knotek, et al., 2002; Joyce & Showers, 1980; Reschly & Ysseldyke, 2002). Due to its complex integration of many skill areas, consultation training requires multiple applications with feedback (Gravois, Knotek, et al.).

There are not, however, enough supervisors with extensive skills in consultation, or specifically IC, to work individually with each new consultant in the locations in which new training has taken place. The IC Institute alleviates this issue

by using an online coaching process for consultant-trainees who are applying new skills in their first IC case. The coaching process began when the coach contacted the consultant-trainee, and the trainee found a teacher with whom to work through a case. The consultant-trainee audiotaped meetings with the teacher, and sent those along with a reflection form and a copy of the SDF to the coach. The trainees were required to audiotape at least five meetings, including one of Contracting, two of Problem Identification and Analysis, one of Intervention Design, and one of Intervention Implementation and Evaluation (Laboratory for Instructional Consultation Teams Manual for Participant Consultants, 2005). Along with the tapes, the consultant-trainees sent the coaches a reflection form, which allows consultant-trainees to reflect on the previous meeting and to choose a skill on which to focus for the next meeting.

The coach listened to each tape and provided feedback via e-mail. Feedback was given in six general areas, including focus skill, content appropriateness, working relationship, SDF, Instructional Assessment, and overall effectiveness (Laboratory for Instructional Consultation Teams Manual for Online Coaches, 2005). The consultant-trainee received the feedback with sufficient time to review and ask questions/receive clarification from the coach if necessary prior to meeting with the teacher again.

Research Questions and Hypotheses

The literature has reflected many advantages and limitations associated with online communication and with coaching. There have not been many studies of the effect of online coaching on skill development. Vail (2004) did find that consultant-trainees rated all of their IC skills as improving significantly following coaching. She also discovered that different skills were impacted differently. More specifically,

after coaching, the consultant-trainees felt that they were more able to apply some skills than others. Vail used a rating scale to assess skill development. One limitation of the rating scale in the Vail study is that it is subjective and not subject to confirmation. This study will compare coach and consultant-trainee perspectives on skill development. Also measured was the treatment integrity of the consultation process as applied by the consultant-trainees. To do this, the study assessed the relationship between completion of the essential elements of the Student Documentation Form (SDF), used by the IC staff as a measure of treatment process integrity, and the consultant-trainee's skill development. Two questions were asked. The first question asked about the relationship between the online coaching and skill development and replicates parts of the Vail (2004) research with a new sample and with a different survey form. The second question attempts to determine if completion of documentation of the IC process, as measured on the SDF, was related to level of skill development as measured by the coaches and consultant-trainees.

The hypotheses stated in this study were based on the limited research available and the author's own observation and experience in the online coaching program.

Research Question 1.

-Does participation in an online coaching process for Instructional Consultation (IC) result in increases in skill development of IC related skills for consultants, as measured by perception of skill development by consultant-trainee and coach?

**Research Hypothesis 1a.*

-There will be a significant difference between scores on a retrospective pre and post coaching self-report survey of consultants' skill development of IC related skills.

**Research Hypothesis 1b.*

-There will not be a significant difference between consultants' self-report of skill development and coaches' reports of consultant skill development.

Research Question 2.

Does skill development as perceived by consultant-trainees lead to high levels of treatment process integrity, as assessed by the Student Documentation Form (SDF)?

**Research Hypothesis 2a.*

-There will be a significant correlation between level of consultant-trainees' perception of skill development and level of completion of the SDF.

Definition of terms

Online Coaching Process. Coaching is a nonhierarchical, collaborative relationship designed to provide support to a person who is attempting to apply newly acquired skills. The goal is to offer, in this case, consultant-trainees, the opportunity to practice new skills in a real-life setting accompanied by feedback.

Skill Development. Skill development progresses throughout training. For the purposes of this study, skill development focused on the consultant-trainee's and the coach's perceptions of the consultant-trainee's progress through the stages of awareness and understanding to competency and proficiency. The consultant-trainees filled out the IC Professional Development Survey as a retrospective pre-test and a

post-test. Coaches filled out the Rating of Consultant's Skill Development (Vail, 2004).

Treatment Integrity. Treatment integrity is defined as the degree to which the treatment has been implemented as it was designed. In this study treatment process integrity was operationally defined as completion of the Student Documentation Form (SDF). The Student Documentation Review Form was used to determine if there was a relationship between the consultant's level of skill development and the level of completion of the SDF.

Chapter 2

Review of Related Literature

Consultation is being increasingly recommended within the school environment (Reschly & Ysseldyke, 2002; Zins & Erchul, 2002). Reschly and Ysseldyke speak to the paradigm shift that is occurring on how to view students who are experiencing difficulties as one away from, “the correlational science of standardized testing, prediction, and placement to an experimental science of interventions designed to maximize learning guided by short-run empiricism-problem-solving” (Reschly & Ysseldyke, p. 16). Reschly & Ysseldyke point to the increase in governmental support for noncategorical eligibility for services and functional assessments, futures conferences that emphasize systems that are not driven by categorical labels, demands for data-based practices that lead to improving student outcomes, and movement towards comprehensive school mental health programs that stress prevention and early intervention. This shift toward problem-solving strategies has led to an increased interest in consultation.

One way to provide early intervention and prereferral strategies for students is through the use of consultation and problem-solving models. These consultation models generally follow the shift described by Reschly and Ysseldyke (2002) that promote the use of problem-solving strategies, data-based decision making, achievement of student positive outcomes, and an evaluation of treatment integrity. This study will focus on consultation, Instructional Consultation (IC), in particular, which addresses these issues. This chapter will provide an overview of consultation as an alternative model of service delivery, delineate the components that research

has confirmed as effective, and evaluate the literature on training of these consultation skills.

For many school-based practitioners this is a relatively newer way of working with teachers. Addressing training issues is essential to improve outcomes and treatment integrity. Training models emphasize the need for supervised practice when learning new techniques. This can be difficult organizationally as there are often not enough qualified people to provide supervision to new consultant-trainees. One way of solving that problem is to use coaching. It is also possible to make coaching more efficient by utilizing new technologies. The IC training model uses a distance learning model to provide coaching to new consultant-trainees. This type of distance learning is gaining increasing support due to the way it breaches geographical and time barriers. This study will focus on determining if the e-mail coaching is also effective at increasing consultant-trainee skill development and the integrity with which the trainee follows the problem-solving process.

Definition of Consultation

School consultation is defined as, “a method of providing preventively oriented psychological and educational services in which consultants and consultees form cooperative partnerships and engage in reciprocal, systematic problem-solving process guided by eco-behavioral principles” (Zins & Erchul, 2002, p. 626). One of the many benefits of the consultative approach is that not only is the student concern addressed, but also the consultee gains new skills, and the environment is assessed and altered as needed (Zins & Erchul). The similarities among the various models of consultation, including behavioral, instructional, and organizational, include the use

of a problem-solving approach, the focus on work-related problems, and the view that participation should be voluntary. Another similarity is the reliance on stages of a problem-solving process. For the most part these stages include problem identification, problem analysis, intervention design, intervention implementation, and evaluation of outcomes (Knotek, Rosenfield, Gravois, & Babinski, 2003; Reschly & Ysseldyke, 2002; Telzrow & Hollinger, 2000; Zins & Erchul, 2002). The roles and relationships of the consultant and consultee, the focus and content of the intervention, and the organizational level of implementation may differ (Zins & Erchul).

The major characteristics of a consultation model exist for each particular model along a continuum. Some models may focus more on the client, while others emphasize the teacher's role (consultee). The latter, called consultee-centered, concerns itself more with changing the consultee, whether in terms of changing how the consultee views the problem or in enhancing the consultee's skills in dealing with similar issues in the future.

Instructional Consultation

One particular model of consultee-centered consultation is Instructional Consultation (IC). IC proposes a collaborative, nonhierarchical process that focuses on utilizing a structured problem-solving framework. It is consultee-centered because the goal of this process is to change the way teachers view concerns and to expand teachers' skills in dealing with students about whom they have concerns (Knotek et al., 2003; Rosenfield, 2002a; Rosenfield, 2002b; Rosenfield, 1987).

IC stages. IC follows a structured, systematic problem-solving process.

There are six stages that the consultant and consultee will follow in each case. These include: Contracting, Problem Identification and Analysis, Intervention Design, Intervention Implementation, Evaluation of Intervention, and Follow-up/Redesign/Closure (Knotek et al., 2003; Rosenfield, 2002a; Rosenfield, 2002b; Rosenfield, 1987).

1. *Contracting.* In this stage, the consultant makes sure that the consultee has enough information to make an informed decision about whether or not to engage in the process. The philosophy, goals, stages, roles, and responsibilities of IC are discussed. At the end of the stage the consultee has the opportunity to make an informed decision about whether to continue.

2. *Problem Identification and Analysis.* The intense focus on problem identification separates IC from some other problem-solving approaches that devote minimal time to this part of the process. The emphasis in this stage is on generating a shared understanding of the problem by both the consultant and consultee and on the use of data to analyze the problem. The problem is defined in observable and measurable terms, data are collected on the student's current functioning, and goals are set. IC is a data-based decision making process that relies heavily on data to narrow areas of concern, define a student's current functioning, and analyze progress (Knotek et al., 2003; Rosenfield, 2002a). Each IC case uses a form called the Student Documentation Form (SDF) to document progress through the stages, as well as, to document students' responses to intervention.

3. *Intervention Design.* At this point, the consultant and consultee work together to design an intervention that is based on evidence and feasible to implement. The specifics of who, what, when, and where are all decided before implementing each strategy.

4. *Intervention Implementation.* The fourth stage is the actual implementation of the intervention.

5. *Evaluation of Intervention.* In this stage, the data that have been collected are graphed and compared to baseline data and goals. Decisions are made on the effectiveness of the intervention.

6. *Follow-up/Redesign/Closure.* The final stage is closure. Cases are usually closed when a student reaches his/her goals, the teacher feels comfortable enough to continue independently, and/or the school year has ended. Closure is also conducted when the dyad decides to discontinue the process for any reason.

Academic focus of IC. One goal of IC is to change the way teachers view student difficulties. The IC process emphasizes looking at academic skills, even when a teacher's beginning concern is behavioral. IC approaches academic skills within an ecological framework (Rosenfield, 2002a). The focus is on understanding learning as a result of interaction among the instruction, the task, and the student (Rosenfield, 2002a; Rosenfield, 1987). It is important to note that the student is only one part of an instructional triangle, consisting of the student, the instruction, and the task; even then, the student variables considered are the student's current skill and other alterable characteristics, rather than internal attributes over which teachers have no control (Rosenfield, 1987).

The other pieces of the triangle are of equal importance when identifying a problem. When a problem occurs, it is considered the result of an instructional mismatch rather than an internal student issue. Therefore, the strategies that are developed are usually an attempt to close the gap between what the teacher is asking the student to do and the student's current skill level. This places a lot of the responsibility for change on the teacher and is a different way of thinking about problems than on student deficits. This is one reason why the development of a collaborative relationship between consultant and consultee is so important. The consultant uses specific communication skills to help the teachers reframe their thinking about problems to make them solvable in the classroom.

Consultation Outcomes

Although this study is about consultation training, it is important to document that the consultation process is effective. There is a lot of emphasis these days on outcomes, and this is especially true in education. Reschly and Ysseldyke (2002) report the demand for data-based practices that lead to improving student outcomes. In studies of consultation, the most often reported outcomes are student outcomes. The emphasis in this review is on research on IC Teams.

Student outcomes. Studies of consultation outcomes mostly focus on determining the relationship between aspects of the consultation process and student outcomes (e.g., Dunson, Hughes, & Jackson, 1994; Flugum & Reschly, 1994; Fuchs & Fuchs, 1989; Fuchs, Fuchs, Bahr, Fernstrom, & Stecker, 1990; Kratochwill, Elliot, & Busse, 1995; Telzrow et al., 2000).

Published research on IC Teams has focused on special education outcomes (Gravois & Rosenfield, 2006; Levinsohn, 2000; Rosenfield, Silva, & Gravois, 2008). Gravois and Rosenfield looked at how implementing quality instructional practices, such as those designed and implemented through the IC process, affected referral and placement of minority students into special education, given that “One of the goals of the IC Teams is to help teachers resolve concerns in the general education classroom rather than refer students to special education” (Rosenfield et al., p. 28). Gravois and Rosenfield examined results from 13 schools that had IC teams and compared them with 9 schools that did not. Three different types of calculations were used to determine the extent of disproportionality of minority students in special education: risk index, odds ratio, and composition index. After two years of implementation, there were decreases in all three calculated indices in the IC schools in terms of the risk of minority students being referred to and placed in special education. Specifically, when compared with rates of minorities being referred and placed in schools without IC, there was a significant decrease in the risk for minority students in the IC schools.

Another study of the effect of IC Teams on student outcomes focused on goal attainment. LaFleur and Rosenfield’s (2005) (as cited in Rosenfield, Silva, & Gravois, 2008) report that program evaluations of IC teams show that when the process is followed with integrity, the vast majority of goals set by teachers and consultants are achieved. The students in the cases evaluated met or exceeded between 78% and 87% of the goals.

Consultee outcomes. In consultee-centered consultation the person responsible for implementing the intervention is usually the consultee (teacher). There has not been much research on consultee outcomes as a result of participating in the consultation process. Dunson et al. (1994) found observed changes in the consultees' behaviors after being involved in behavioral consultation were in a positive direction. For instance, the consultee's were observed to have slightly increased individual and group instruction and verbal praise, while slightly decreased disapproving and neutral behavior.

Kruger et al. (2001) looked at whether consultation affected consultees' knowledge of working with students and their feelings of isolation. The authors felt that it was important to study consultee outcomes because, "knowledge of interventions and opportunities to discuss work-related dilemmas with colleagues might help the teacher generalize the effects of consultation beyond the case currently being addressed" (Kruger et al., p. 134). This study is especially relevant here because they also studied the impact of distance learning, in this case, they assessed the use of e-mail as a viable means of conducting consultation.

Kruger et al. (2001) coded e-mail sent between four different dyads, comprised of one school psychologist (consultant) and one teacher (consultee), who were working together in a client centered consultation process. At the end of 14 weeks, the e-mail messages were coded based on 7 content areas: observation-based information, conceptual information, personal information, suggestion, evaluation of others, support, and feedback. At that time, the teacher and school psychologist were both asked to rate each message in regard to whether or not the message was

perceived to help the teacher in either enhancing knowledge of how to work with students or in decreasing feelings of isolation.

Mean ratings of the perceptions of helpfulness to teacher indicated that both school psychologists and teachers felt that the messages helped the teachers to at least a moderate extent. On a Likert scale from 1 to 7 (7=very high extent), the mean results for enhancing teachers' knowledge of working with students was 5.2 for teachers and 4.2 for school psychologists. In the area of decreasing isolation, the mean numbers were 6.2 for teachers and 5.2 for school psychologists. Limitations to generalizability in this study include the small sample size and the reliance on participants' perceptions for data.

In another study, Knotek et al. (2003) examined if consultees benefited from participation with an Instructional Consultation Team. The authors used a micro-ethnographic investigative approach to determine if the IC process supported the development of the consultee. Participants in the study were from one elementary school, and included 13 case managers and 5 teacher consultees. Audiotapes of the consultation meetings, direct observations, and documentation (consultation documentation and documentation from team meetings) were used to gather information. Limitations of the study include the potential lack of generalizability due to the focus on a single site and the small sample size.

These data were analyzed and produced four general themes: (a) the experience of IC as initially paradoxical, (b) the collaborative nature of IC communication and problem-solving, (c) conceptual changes regarding consultees' understanding of the problem space and appropriate interventions, and (d) issues

related to consultants giving up the expert role. Teachers reported that while initially the IC process seemed to be counter-intuitive to what they had been taught about dealing with concerns, after participating in the process they felt more confident in dealing with similar problems in the future (four out of five teachers). Initially, the process of narrowing the issue seemed, especially, difficult. The teachers were concerned that they were oversimplifying the issue. Once they understood that narrowing was not ignoring the “whole child”, they understood that one must focus the issue in order to more effectively work with the child. The second theme related to the collaborative nature of IC. The teachers in this study found the process to be very collaborative. Indicators of collaboration included mutual communication between case manager and consultee, both parties involvement in the process, and joint responsibility for action.

Overall, the teachers who had participated in the process indicated certain consultee changes, which was the third theme identified. These included “(a) a shift in focus of concern from global issues to achievable, positive goals; (b) a new understanding of the population of students that could be successful in their regular education classes; and (c) the efficacy of the use of data in planning instruction for students experiencing academic problems” (Knotek et al., 2003, p. 317).

The final theme was related to giving up the expert role. Some of the case managers had difficulty giving up the expert role because it was so ingrained in their other duties. School psychologists and resource teachers usually provide expert services by giving suggestions to teachers and services to students. These specialists found the change to a dual responsibility difficulty. In the end, however, they

appreciated the collaborative nature and felt that it fostered flexibility in thinking and better served students.

Rosenfield et al. (2008) report several studies that have looked at teacher outcomes after having been involved with a consultation case via an IC team. They have identified outcomes in teacher satisfaction, implementation of new instructional strategies, and teacher problem-solving and change (Costas, Rosenfield, & Gravois, 2003, as cited in Rosenfield et al., 2008; Knotek et al., 2003). Surveys and interview techniques were used in six school districts that had implemented IC teams. Over a two-year period of data collection, approximately 83% of teachers were either satisfied or very satisfied with IC teams. Costas et al. found that 92% of teachers reported learning a new skill or strategy as a result of consultation with an IC case manager, and that half of those teachers actually used that skill or strategy with another student or group of students. Not only did the teachers learn new instructional strategies, they also began to think differently about how to solve problems. Costas et al. showed that 57% of teachers reported learning how to use data to make decisions. However, these conclusions were based on teacher perceptions, and observational data were not available to confirm them.

Treatment Integrity

According to Levinsohn (2000), “In a model such as IC the consultant is responsible for balancing many steps and procedures to ensure the process has been followed correctly. Therefore, having high consultation process integrity is critical” (Levinsohn, p.15). Treatment integrity has also been linked with student outcomes (Flugum & Reschly, 1994; Fuchs et al., 1990; Kovalski, Gickling, Morrow, &

Swank, 1999; Levinsohn, 2000; Telzrow et al., 2000). Two types of treatment integrity have been identified in the literature: consultation process integrity and consultation interventions integrity (Fuchs et al.; Levinsohn). As Levinsohn notes, consultation process emphasizes the inclusion of systematic checks to ensure that consultants are providing consultation services as intended. She reports that ways to assess this type of integrity include using audiotapes to rate the consultation sessions, following a script, self-reporting on questionnaires, and coding the consultation documentation form. The other type of integrity stresses assessing if interventions are implemented correctly. This type of integrity is usually measured using self-monitoring or rating systems.

In order to gain the most benefit from a process such as consultation, it must be followed with integrity and must include those pieces that have been identified as beneficial to the process. Sheridan, Welch, & Orme (1996) and Gutkin (1993) have both talked about the lack of research examining if a treatment was delivered as it was intended. Sheridan et al. found in their review of research that only 26% of the studies assessed the integrity with which the participants followed the specific model studied.

One way of measuring treatment integrity is to examine the documentation associated with consultation cases. Flugum & Reschly (1994), Fuchs et al. (1990), Levinsohn (2000), and Telzrow et al. (2000) have all looked at documentation of the consultation process to determine if integrity of the process is related to student outcome, or to identify which components of the consultation process are most beneficial in bringing about change. Some of these studies focus more on a

component analysis of the consultation process than treatment integrity per se. They are important to a study of treatment integrity, however, because they show that if pieces of the consultation process are skipped, the process is not as effective.

Similarly, if the pieces of the process are not followed correctly, or at all, the process does not result in the most positive results it could.

Fuchs et al. (1990) determined that the consultation process and intervention integrity are linked with student achievement. Teachers were randomly assigned to four groups. There were three groups who received a variant of the Behavioral Consultation (BC) model: BC1 was least inclusive (including only problem identification and analysis), BC2 was more inclusive (problem identification, analysis, and plan implementation), and BC3 was the most inclusive variant of the BC model (problem identification, analysis, plan implementation, and evaluation). The final group was a control group. Observational data indicated that the more inclusive versions of the BC model were more effective in reducing problem behavior. The pre-observation to post-observation data indicated greater reduction in student-peer discrepancy for BC2 and BC3 than for BC1 and the control group.

Another study by Flugum & Reschly (1994) looked at the relationship between different indicators of problem-solving and reported student outcome. The authors used a sample of 312 students and looked at degree of improvement on the outcome variable. They found that when pre-referral interventions contained certain critical elements that have been associated with effective interventions, student outcomes improved. The critical elements were identified as behavioral definition, direct measure of behavior, systematic intervention plan, treatment integrity, graphing

of results, and direct comparison with baseline data. While the relationship was significant between the elements of problem-solving and student improvement, the results indicated generally low rates of implementation for the critical elements. Only 38% of the teachers and 27% of the related service personnel who filled out the questionnaires reported that baseline data had been collected. Of both groups, 75% did report that interventions were implemented as planned; however, no objective data were collected.

Telzrow et al. (2000) looked at the fidelity of problem-solving implementation by teams and the relationship to student outcome. This particular study examined the use of a specific problem-solving approach called “Intervention Based Assessment” (IBA). The IBA process includes those components that have been identified as critical to building effective interventions (Flugum & Reschly, 1994). These components include a behavioral definition of the problem, baseline data, clearly identified goal, hypothesized reason for the problem, systematic intervention plan, evidence of treatment integrity, data indicating student response to intervention, and comparison of student performance with baseline.

The fidelity with which the process was implemented by 227 problem-solving teams in Ohio was measured to see how it relates to student outcome. Telzrow et al. found that the fidelity with which the team implemented the problem-solving components fell below desired standards. The components that appeared to be implemented with the highest degree of fidelity were having a behavioral definition of the problem and clearly defined goals. Those that were implemented with the least degree of fidelity included having a hypothesized reason for the problem and

evidence of treatment integrity of the intervention. The lack of evidence of treatment integrity was reported by the authors as limiting the conclusions that can be reached about the influence of the process on student outcome.

They did find statistically significant but modest correlations between ratings of student outcomes and ratings of six of the eight problem-solving components (correlations ranged from .13 to .24). Two of the components, clearly identified goals and data indicating student response to intervention were found to be significant predictors of student outcome and accounted for 8% of the variance. The two components that were found to be statistically unrelated to student outcome were hypothesized reason for the problem and treatment integrity. This might, however, be explained by their low levels of treatment integrity. The authors also suggest that the quality of interventions might be a confounding variable in the relationship between student outcome and the problem-solving process as a whole. If the treatments were not of good quality, the problem-solving process would not likely be successful. They report the need for further study in this area.

Other limitations of this study include sample composition and the data collection method employed by the authors. The sample was taken from schools that were already implementing the problem-solving process, which may indicate that these schools were more committed to using such processes. For that reason, these schools may not be representative of all schools. Only two thirds of the schools that were using the process returned the documentation for examination, which might also indicate that these were the schools that were more proficient in use of the process. Finally, the data collection technique might represent a limitation. While the authors

stress that written case documentation is an accepted method for evaluation treatment integrity, it is possible that the teams could misrepresent the truth. It might be that some teams actually did implement the process with integrity but it was not reflected on the documentation. The converse might also be true.

Levinsohn (2000) attempted to address some of the methodological limitations of prior research in her dissertation by using a comparison group, criterion-referenced assessment, and examining treatment integrity. She looked at two different problem-solving models to assess their relationship to student outcome. The first model, the Instructional Consultation Team model, uses a more formal process of problem-solving. It includes the components identified above as essential to creating effective interventions, and emphasizes looking at the student's instructional level and mismatch between student, task, and environment. In this model there is also a formal documentation process to assess treatment integrity. The case progress is summarized on a Student Documentation Form (SDF). Levinsohn operationalized treatment integrity as scoring the SDF for completeness and accuracy. The other model was the Student Support Team model. This model does not use a stage-based problem-solving process, but focuses more on intervention implementation.

The students in this study were second graders who had been referred due to reading problems. Each student was given a pre-test prior to intervention and a post-test after intervention implementation to determine reading achievement. Levinsohn (2000) found that in the IC group there were significant correlations between change in reading scores and several components of the process. These components were

collecting baseline data (correlation of .55), graphing data (correlation of .50), and intervention implementation. Similar results were also found in other studies looking at the relationship between graphing data and student outcome (Flugum & Reschly, 1994; Telzrow et al., 2000). Levinsohn also reported variability across cases with regards to treatment integrity. She suggests that there is a need for additional professional development to ensure more uniform and higher levels of treatment integrity within these problem-solving models.

Levinsohn's (2000) research also indicates other differences between the students with respect to the two models of problem-solving. Students in the IC team model started out with lower reading achievement levels than those in the SST model (mean pre-test score for SST=80.2, mean pre-test score for IC=63.2; $F=7.24$, $p<.01$). Yet, at post-test, these significant differences no longer existed ($F(1,34)=.028$, $p=.60$). The SST students were more likely to be placed in special education (seven times more likely), and this was even more pronounced for African-American students. Levinsohn suggests that the use of a more formalized, stage-based problem-solving model (such as IC) has a positive impact on decreasing special education placements, increasing the appropriateness of special education referrals, and decreasing the overrepresentation of minorities in special education.

Kovaleski et al. (1999) did not specifically state which stages of the consultation process must be implemented, but they did assess if the level of implementation of a prereferral process was related to student improvement. Pennsylvania schools in 1990 implemented prereferral teams called Instructional Support Teams (IST). Kovaleski et al. identified several schools (117) from

Pennsylvania that had implemented the process and determined if the teams were implemented with high integrity or low integrity to the process. Data were collected from 492 students from those schools. These data would be compared with data from 237 students in schools that had not yet implemented the IST. Data from average students (comparison students in the same class as those identified as participating in the study) were also collected. Implementation levels were determined by a validation process that had been mandated from the state. Students were assessed on measures of time-on-task, task completion, and task comprehension. Each of these areas was measured on three different occasions (pre intervention, post intervention, and follow-up).

Kovaleski et al. found that students in schools with high implementation performed better over time in all three areas than students in schools with low implementation or no implementation of the IST process. Over time, the students in the high implementation schools were actually approximating the performance of the average peers in all three areas. The authors note that the data from the area of comprehension were especially important. Students in the high implementation schools became less reliant on teachers. Also interesting was the fact that the initial levels of time-on-task and task completion (not looking at accuracy) were not extremely low for any of the treatment groups. This may indicate that students who are at risk for school difficulties may appear busy, but may not be learning at optimal levels (Kovaleski et al., p. 180).

Bergan and Tombari (1976) looked at consultant skill in implementing problem-solving and its effect on problem identification, plan implementation, and

problem resolution. The authors measured this by studying case reporting forms. In their study, evidence of problem identification was present in 43% of the cases, plan implementation in 31%, and problem solution in 30% of those cases examined. One important fact to note is that when problem identification did occur, goal attainment resulted in 97% of the cases. The authors also emphasized the need for consultant skill when attempting to introduce consultation to consultees within schools. They found that when consultants lacked skill or were inefficient, the consultant and consultee were less likely to even begin the problem-solving process; students were instead referred for tests or to special education, or consultees changed their minds about working with a consultant. Most of the time (44% of cases that didn't get to problem identification), these children were instead referred to special education for some type of evaluation.

Kratochwill, Elliott, & Busse (1995) also looked at consultant skill as it related to implementing certain components of problem-solving. They studied graduate students who had participated in a behavioral consultation training project. The students who had participated in the project exhibited an average of 88% accuracy in attaining pre-established objectives for consultation. They found that the students had a high degree of mastery in using consultation in both simulated and actual settings.

Training

Preservice training. The literature on preservice training models began with Froehle's (1978) competency-based training and Galleich's (1983) modes of training. However, there is little evidence that actual training follows these

guidelines. Froehle focused on clearly identifying what skills need to be learned and determining to what level they need to be learned. The possible levels include knowledge capacity, behavioral capacity, and judgment capacity. Training should be continued until the trainee has reached the level of performance set prior to beginning training, and required that the skills to be learned have been defined in objective terms. Gallesich's modes of consultation training are didactic experience, lab exercises that include demonstration and role-play, field experience, and supervision in small groups. Brown (1985) combined Gallesich's modes with Froehle's competencies. In the first stage didactic instruction is used to develop knowledge competencies. The model then provides lab experiences to develop behavioral competencies, field placement activities to develop judgmental competencies, and supervision to create a personal standard of functioning.

Rosenfield (2002b) writes about a framework for educating consultants, specifically instructional consultants. Her framework takes the consultant from novice to competent and finally to expert. It is based on the developmental processes of Alexander (1997) and Joyce and Showers (1980). The first stage is a novice stage, which is one of acclimation. This parallels with the training stages of awareness and understanding and skill acquisition. Suggested instructional activities include lecture, discussion, reading, observation, and role-plays. Developmentally, the consultant moves on to the competence stage, which is a stage of applying the skills.

Instructional activities might include actual consultation cases, which are taped and supervised consistently. The final developmental stage is expertise or proficiency. In this stage the consultant has advanced skill development, and will continue to practice

these skills in real life cases with continued professional development, research, teaching, and supervision of others.

Bergan, Kratochwill, and Luiten (1980) emphasized similar techniques in training prospective school psychologists in behavioral consultation. The authors propose a competency-based consultation training format that focuses on establishing objectives, training procedures, and evaluation procedures. The training procedures included lectures, discussions, readings, role-play, feedback, and application of skills learned in real world situations with supervision. The evaluation used the consultation-analysis record to record verbalizations of 49 trainees during interviews. The results indicated that the trainees focused most on specifying the problem with the consultee, summarizing, and validating what was said, which were the topics emphasized in training objectives.

Studies (Kratochwill et al, 1995; Levinsohn, 2000; Vail, 2004) indicate that training can play an essential role in treatment integrity and thus in student outcome. Training, however, has not always kept up with practice needs (Anton-La-Hart & Rosenfield, 2004; Costenbader & Swartz, 1992). This is true for school psychology and other applied areas of psychology. For example, Stoltenberg (1993) wrote that in APA approved counseling psychology programs 31% required a course in consultation and 52% included it as part of direct service in practicum hours.

Hellcamp, Zins, Ferguson, and Hodge (1998) surveyed faculty who train in consultation from clinical, counseling, industrial/organizational, and school psychology doctoral programs. They found that overall, 44.9% of the respondents indicated their program offered no required courses on consultation. There were

significant differences among the specialty areas, with school psychology programs offering the greatest number of required courses (an average of 1.56). Overall, 62% of the programs did not require practicum placements in consultation. Again, school psychology programs offered significantly more placements (an average of 1.88). The respondents were asked to rate the adequacy of their programs training in consultation, and 54% felt that the training was adequate or very adequate. Only 15% of the school psychology programs felt their training was inadequate, even though based on an average of less than two courses.

In comparison to the trainers, Costenbader & Swartz (1992) reported that almost two-thirds of school psychologists received no or less than one semester of formal training in consultation, and over half felt the training was inadequate or less than adequate. In a survey of NASP members, they found that 76% of those surveyed felt that training in consultation was very important to the functioning of a school psychologist. The respondents also indicated that the amount of time spent in formal preservice training was correlated with the perception of the quality of training. Of those participants who rated their training as superior (9% of the total surveyed), 63% had more than one year of consultation training. The authors felt that the results of this study clearly suggested the need to include formal courses in consultation practice in their preservice curriculum.

There have been some improvements since the early 1990's. Anton-LaHart and Rosenfield (2004) report that specialist and doctoral training programs offered more consultation specific coursework and field experience than in the past. They found that while the number of courses has increased (73% of non-doctoral and 96%

of doctoral programs offered at least one separate consultation course), the level of supervision for actual field experience has not (43% of programs indicated no regular supervision during coursework, and 32% did not provide any regular supervision during practicum).

In this study consultation course faculty were surveyed to determine how they prepared students for working as consultants. Students typically gained experience in consultation by working with a consultee on a specific case. A large portion of the courses, however, did not provide consistent weekly or biweekly supervision for the consultant-trainees. The role of supervision and feedback are definitely seen as a crucial component of consultation training (Anton-LaHart & Rosenfield, 2004; Gravois et al., 2002; Rosenfield, 2002b; Kruger et al., 1996; Kruger et al., 2001; Showers & Joyce, 1996), but is practically nonexistent in consultation literature (Cramer & Rosenfield, 2004).

Inservice training. Professional development is also provided to practitioners. Traditionally, inservice training has been comprised of short workshops with little follow up or practice of skills learned (Lam, Yim, & Lam, 2002). Showers & Joyce (1996) found that in the 1970's as few as 10% of participants in these types of workshops implemented what they had learned. Earlier, Joyce & Showers (1980) had proposed their guidelines for a productive training design. The training stages they identified include awareness and understanding, skill acquisition, application of skills, and advanced application skill development. Many current training models use these same components (Gravois, Knotek, et al., 2002; Rosenfield, 2002b; Showers &

Joyce, 1996). Reschly & Ysseldyke (2002) have identified similar steps. They maintain that,

effective continuing education that leads to persistent changes in professional services requires a multi-step process; that is, (a) awareness and knowledge acquisition, (b) demonstration, (c) simulated try-out with feedback, (d) implementation in the work setting with feedback, (e) additional training opportunities to overcome problems that emerge in implementation, and (f) support and incentives for changing roles through performance evaluation and other mechanisms (p. 15).

Inservice training research. Specific studies of inservice consultation training have focused on participant ratings of training, knowledge gain, and skill acquisition. As early as 1971, Goodwin, Garvey, and Barclay used microconsultation techniques to train 112 school psychologists in behavioral analysis and modification, as a precursor to behavioral consultation. The experimental group was involved in an eight-week training. The training included demonstrations, discussion and integration of skills, and practice with feedback. A criterion level had been established prior to beginning, and training continued until the criterion level was met. Participants were observed during a simulated consultation setting before, immediately after, and a short time after (two months). The group that received the microconsultation training significantly improved in behavioral responding, interview structure, and environmental assessment to a greater degree than did the control groups, which had received no training.

McDougall, Reschly, & Corkery (1988) in a similar study, used a one day workshop to train 67 related service personnel in behavioral consultation. McDougall et al. used the same competency-based training modes of lecture, discussion, role-play, and feedback, but there was no provision for supervised practice. Sixteen of the initial trainees completed the required behavioral consultation case and audiotapes after the workshop. Results indicated significant increases ($p < .01$ or more) in the six behavioral objectives that had been identified prior to the training: target problem behaviorally defined (pre-training mean=47.1, post=91.0), strength of target behavior estimated (pre=17.6, post=70.6), antecedent defined (pre=29.4, post=94.1), consequence defined (pre=35.3, post=94.1), behavioral goal specified (pre=5.9, post=58.8), and observation system established (pre=35.3, post=94.1).

The authors also identified several areas within consultant verbalizations that they expected to change. For instance, they expected that statements regarding background environment would decrease post training. Not all of the desired outcomes were obtained (inference statements did not decline significantly and behavior setting statements did not increase), which might indicate that training was only partially effective. The authors suggest that this may be due to the relatively short length of the training or the lack of supervised practice.

Kruger and Struzziero (1997) looked at a small sample of school psychologists with regard to their perceptions of a computer-mediated peer support group. Four school psychologists from Massachusetts agreed to participate in the study. Two were involved in consulting with teachers in their schools and would provide support online to those teachers. The other two were not directly involved in

a case but were to provide support to the psychologists only. The teachers also used e-mail, but could only send and receive messages from their respective consultants. The school psychologists, on the other hand, could all e-mail each other as well as read any e-mail sent to a teacher. All school psychologists also filled out questionnaires both before and after project implementation regarding perceived outcomes.

Results indicated that while the school psychologists had high expectations prior to beginning the project, the outcome exceeded those expectations. On a 7 point Likert scale, pre-project expectations means were all between 5 and 6. Post-project perceived outcomes were all over 6. All the school psychologists felt that most of the messages enhanced their knowledge as a consultant (73.8% of messages) and ability to know what support to offer (75.2% of messages). The mean percentage of messages that the school psychologists felt contributed to feelings of competence as a consultant was only 29.1%. The participants seem to feel that the social benefits were great from this type of project; group cohesion was felt to be great and differences between pre and post expectations on all social support scales decreased. Similar to many of the other studies mentioned above, however, the sample size was very small, which limits generalizability of these results. Also, data were collected of the participants' perceptions of events, and it is likely that social desirability might have affected the results, given the small number of subjects.

Supervision

Anton La-Hart & Rosenfield (2004) found that while the number of courses devoted to consultation has increased in preservice training for school psychologists,

a large portion of the programs did not provide weekly or biweekly supervision of consultation students' skills. They suggest that there is a need for more empirically supported training and supervisory methods. These methods could improve consultation students' skills and the likelihood that they will apply those skills in the field.

Most of the research dedicated to supervision within the field of psychology and education has dealt with counselor and teacher supervision (Goodyear & Bernard, 1998; Kagan, 1988; Ward & House, 1998). Some literature has looked at supervision for consultants (Brown, 1985; Conoley, 1981; Harvey & Struzziero, 2000; Schon, 1987; Stoltenberg, 1993). Conoley discussed some issues that emerge during training of new consultants regarding supervision. Some of the strategies she suggests for supervising new consultants are, "mutual feedback, nondefensiveness, consistent supervisor behaviors, supportive versus confrontive style, and responsiveness to students' needs" (Conoley, p. 260).

Brown (1985) proposes a reciprocal relationships model of supervision for training consultants. Based on Bandura's social learning and reciprocal determinism theories, Brown has identified three principles that guide supervision within this model. The first principle is that trainees are operating in two different environments, field placement and supervisory, both of which will impact what they believe about their ability to function, the importance of the consulting process, and their outcome expectations. The second principle is to help the consultant remember that the consultee may be responsible for expectations set by others in the organization that may differ from those of consultation. For instance, the norms of the organization

may dictate that professionals within that environment do not ask each other for help. This is different from the consultation relationship, which is based on collaboration and seeking assistance when needed. Finally, the supervisor must help the consultant to remember when designing interventions that the client is also influenced by forces other than the consultee. The consultant must, therefore, take in to account the complex set of relationships that exists within the organization when designing an intervention that is feasible. Brown identifies different issues that will likely need to be addressed at different stages of the consultation process. Rather than basing the supervisory process on a temporal or completely developmental design, Brown emphasizes also paying attention to the issues that are related to the process of consultation itself. Like Conoley (1981), he feels that, “many of the supervisory issues that arise are related to the specific stages of the consultation process itself rather than the supervisory time frame,” (Brown, 1985, p. 418). For instance, during entry, the supervision may focus on interpersonal style and relationship building.

Stoltenberg (1993) has designed a model of supervision for consultation training, based on Stoltenberg and Delworth’s (as cited in Stoltenberg, 1993) Integrated Developmental Model of supervision of counselors. The model is based on human development theory. Supervision is defined as, “an intensive, interpersonally focused, one-to-one relationship where the supervisor facilitates the development of competence in the trainee” (Stoltenberg, p. 132). Stoltenberg has identified three levels of development that are measured across eight specific domains of competence. Progress is monitored by looking at changes in the three levels: self- and other-awareness, motivation, and autonomy. These three levels are assessed

across the eight domains of competence that are related specifically to consultation. Trainees will pass through each level of any domain before reaching mastery or integration. At the final level of autonomy the trainee/consultants can fully understand the emotional impact of the consultation concern on each person involved, are able to be more objective, are confident in their consultation skills, and will seek advice when needed. At that point, supervision becomes much more like a consultative relationship, characterized by collaboration and sharing of ideas. Stoltenberg reports that while research on the model's relationship to clinical supervision has been supportive, there is no direct empirical support within the consultation literature. He calls for more studies examining the key constructs of the model as it relates to consultation.

More recently, Harvey and Struzziero (2000) explored the process of supervising indirect interventions, such as consultation. They identified several techniques that are specific to supervision of indirect services: develop a supervision plan, facilitate communication, interact directly with the client and consultee, modify the model to fit supervisee's development, keep records, use computer-mediated consultation and supervision, encourage peer supervision, and support consultation with para-professionals.

With respect to using computer-mediated consultation and supervision, Harvey and Struzziero discuss using e-mail technology as a way of communicating between two professionals. They report on the use of the Global School Psychology Network, where professionals can communicate and support each other. Two of

Harvey and Struzziero's suggestions, computer-mediated consultation and peer supervision are utilized in the IC training model that is the focus of the current study.

To build competence Rosenfield (2002b) suggests that consultant trainees must be given the opportunity to apply the skills they have learned in real life situations and supervision is a large part of this process. The supervisor listens to tapes of the trainee and consultee, reads logs and final report summaries, and consults with on-site supervisors to evaluate the competence of the trainee in applying consultation skills. Audiotaping, especially, is seen as a necessary tool for supervision. Through audiotaping sessions with consultees and listening and reflecting on the tapes, the trainees and supervisors are able to attend to consultation skill development in three key domains: process, content, and communication.

In another study on supervision of consultants, Kratochwill & Sheridan (1991) taught 15 school psychology students interview skills in three phases of behavioral consultation. The focus of the study was on determining if the training package was effective at teaching consultative interview skills. The authors did, however, also add a supervision portion to the training in the second and third phase. The supervisors were three advanced school psychology students who were to meet with the consultant-trainees prior to and following each of the case interviews (consultant with consultee). The supervisor was to help the consultant-trainee plan for the interview and then evaluate the results. While they did not collect any quantitative data on the supervision piece, the authors did report that the consultant-trainees felt that the supervision was helpful in working with the cases. The model of supervision used by

the supervisors was systematic and included self-reflection and self-evaluation. The information on the specific supervision techniques used was vague.

Coaching

Obtaining continued feedback in practice settings is often an obstacle (Gravois, Knotek, et al., 2002; Kruger & Struzziero, 1997; Kruger et al., 2001). It is possible to do group supervision, which allows one supervisor to simultaneously provide feedback to more than one consultant (Harvey & Struzziero, 2000; Kruger & Struzziero, 1997; Showers & Joyce, 1996; Stoltenberg, 1993). It is also possible to use peer supervision or coaching as an option (Harvey & Struzziero). The term coaching implies a more non-hierarchical, collaborative relationship that is more aligned with the relationship developed between consultant and consultee. This is in contrast with a supervisory relationship that is based on the hierarchical relationship of an expert advising someone with less skill. Coaching is also defined as a collaborative, confidential, nonjudgmental opportunity for structured positive feedback in a trusting, safe, supportive environment (Lab for IC Teams Manual for Online Coaches, 2005; Jenkins et al., 2005; Lam et al., 2002; Stoltenberg, 1993; Zins & Murphy, 1996).

Types of coaching. Coaching has long been a staple of athletics. As Burdett (1998) stated, “in today’s competitive world of sports, no athlete could expect to make it to the top without a world-class coach supported, in turn, by a world-class organization” (p. 142). In recent times, coaching has been moving into other arenas, including business and education. Coaching is utilized in athletic training models,

leadership development for business, supervision of teachers, family-centered care, and professional development (Rush, Sheldon, & Hanft, 2003).

The type of coaching used in each of these areas varies, as it does within the areas themselves. In business, the term most often used is executive coaching. Within education, the terms include: technical coaching, collegial coaching, challenge coaching, team coaching, cognitive coaching, and peer coaching (Slater & Simmons, 2001). Each term may suggest a different way of organizing the coaching or different goals for the outcome. For example technical coaching deals with learning a new skill, while collegial coaching focuses on refining skills that are already present. The type of coach may also differ. In some instances the pair may include two peers with equal knowledge and skill who alternate the role of coach and coachee (reciprocal coaching). At other times, as in expert coaching, an outside person may take the role solely as coach (Benedetti & Reed, 1998). While the titles may differ, these processes all have some things in common. Each requires a confidential give and take relationship that must exist in an environment of trust, openness, and honesty (Jenkins et al., 2005; Lam et al., 2002; Zins & Murphy, 1996; Rush et al., 2003; Slater & Simmons, 2001; Wasylyshyn, Gronsky, & Haas, 2006; Stevens, 2005).

The coaching process. The process that is used during coaching may also vary. Rush et al. (2003) have identified a five-phase process: initiation, observation or action, reflection, evaluation, and continuation or resolution. The coaching process usually includes three steps: the preconference, data collection/observation, and the feedback/coaching conference (Benedetti & Reed, 1998; Gravois, Knotek, et al.,

2002; Jenkins et al., 2005; Lam et al., 2002; Slater & Simmons, 2001). The Laboratory for IC Teams Manual for Online Coaches (2005) defines the three steps as: (1) an identification by coach and consultant of a skill on which to focus, (2) a chance to observe, and (3) an opportunity for the coach and consultant to determine if the focus skill was observed and then to provide structured feedback.

The feedback that is provided should follow research-based guidelines for effective feedback. For example, effective feedback is specific, descriptive, non-judgmental, directed toward a behavior than can be changed, and is rephrased if the consultee needs clarification. Feedback content will vary according to the process. The IC training program provides its coaches with six general areas in which to provide feedback. These include: focus skill area performance, appropriateness of content, quality of working relationship, accuracy and appropriateness of the SDF, appropriateness and quality of curriculum-based assessment, and overall impression of effectiveness and efficiency of session (Laboratory for IC teams Coaching Manual, 2005).

Coaching advantages and disadvantages. Whether face-to-face or online, individual or group, coaching has many positive results. Studies have shown an increase in knowledge and skill, a readiness to transfer new skills to the real life environment, an ability to apply those skills appropriately, increased job enthusiasm, increased understanding of others, and increased communication among colleagues (Jenkins et al., 2005; Kruger & Struzziero, 1997; Lam et al., 2002; McLoughlin, 2002; Showers & Joyce, 1996; Sptizer & Wedding, 1995; Zins & Murphy, 1996).

Along with these advantages of coaching, there are also limitations to this approach. Most of the disadvantages are related to time. There are time related drawbacks to the group approach (Kruger & Struzziero). For example, finding a time when the entire group can meet, and a place that is convenient for each member of the group can be difficult. Even in the online coaching process, which alleviates the geographical considerations and many of the time issues (coaches and consultants can go online whenever they have the time), there is still a time delay in the communication. There is a delay between when the coach writes the feedback, the consultant reads the feedback, reflects on it, and then responds. This disruption in temporal order may lead to difficulty in discussions (Kruger & Struzziero). For instance, there is an inability to clarify or respond immediately (Kruger et al., 1996).

Research on coaching. There have been few studies dealing with coaching in business, education, or consultation. Within the business arena, executive coaching has been growing in popularity, while there has been relatively little empirical research on the process of coaching with executive clients (Stevens, 2005). Stevens conducted informal phone interviews with seven executives from major business sectors who had all previously been involved in a coaching relationship with a consulting psychologist as the executive coach. The general themes that evolved indicated that the executives thought that the purpose of executive coaching was to help the executives to gain a deeper, clearer understanding of their role issues. The benefits they attributed to the coaching included: more measured and considered judgments and actions, better choices and decisions, better self-restraint in handling power and status, and more clarity on role responsibility. While this may give us

some good information on what executive might be thinking, it is not necessarily generalizable, given the small sample, to all executive coaching participants.

Wasylyshyn et al. (2006) also surveyed employees who had been involved in a coaching program. The employees all had worked for a specific large business that had initiated a coaching program termed VISTA in order to increase emotional competence. The VISTA model paired (N=41) executive potential employees who needed help developing emotional competence with external licensed consulting psychologists. The pair then followed a four-phase process of data-gathering, feedback, coaching, and follow-up. Data were gathered through the use of a psychometric battery, observation, and interview. The feedback phase was the one in which specific behaviors were identified for focus and insights were discussed on the underlying basis of the behaviors. The coaching phase itself usually consisted of 8 to 10 face-to-face meetings with the coach. At that time the coach and employee would talk about updates in work issues that relate the goals that had been set, review homework, set a focus for upcoming sessions, and assign new homework. Between coaching sessions, the employee would practice new behaviors and apply what had been learned. The major goal of the coaching was to increase emotional competence. Wasylyshyn et al. sent surveys to 33 past VISTA participants. Of those, 84.8 % responded. When surveyed (1 to 6 years after being coached), 100% of the participants indicated a medium to high level of sustainability of the learning and/or behavior change. The bosses of these employees were also surveyed; they indicated 95% medium to high level of sustainability. The biggest benefit as cited by the

employees was an improved self-awareness and deeper insight into how one's behavior affects others (38.1 % of participants).

Of the studies dealing with coaching in the field of education, most seem to look at coaching among teachers (Hornberger, 2002; Jenkins et al., 2005; Lam, et al., 2002; Morgan, Menlove, Salzberg, & Hudson, 1994; Showers & Joyce, 1996; Slater & Simmons, 2001). Showers and Joyce (1996) first proposed peer coaching as a means for increasing staff development in the 1970's. In the 1980's they found that implementation of new content increased dramatically when teachers were involved with weekly peer coaching seminars. Currently they have moved on to working with entire staffs that have volunteered to participate with peer coaching (Showers & Joyce). They have found that it is necessary to have commitment from the entire staff in order for coaching teams to be successful at planning and developing curriculum and instruction while attempting to reach shared goals. Showers and Joyce have actually suggested omitting the feedback portion of the coaching. They believe that observing another teacher and working together to plan instruction and develop support materials are sufficient for teachers to learn. As they write, "the formation of peer coaching teams produces greater faculty cohesion and focus and, in turn, facilitates more skillful shared decision making," (Showers & Joyce, p. 16).

Lam et al. (2002) studied peer coaching in two schools in Hong Kong. As part of an action research project, two schools (one elementary and one secondary) implemented a peer-coaching program. The authors point out that the main challenges for schools in Hong Kong are to separate discussion and observation of teachers from appraisal; similarly in the West, educators are trying to create

enthusiasm for peer coaching as a means of teacher development. For the purpose of this study, peer coaching was defined as, “an interaction in which teachers talk about and reflect on their classroom teaching, design and plan teaching materials together and are observed by and learn from one another,” (Lam et al., p. 184).

Each of the schools implemented a peer-coaching program during the 1998-1999 school year, with an evaluation stage to follow. Data were collected through regular meetings, workshops, interviews, surveys, and observation. The format for each peer coaching or research lesson included a preparation meeting, a classroom observation, and a discussion phase. Groups of teachers would come together to plan how to teach a certain part of the curriculum. One teacher would then model with his/her class while the others observed. Finally the group would reconvene to review and discuss. The elementary school had 28 research lessons during that school year, with almost every teacher (N=38) participating at least once. The secondary school had 17 lessons with about 80 percent of teachers (N=50) participating at least once. The teachers reported two limitations of the peer coaching process: (1) time constraints, due to too many other responsibilities and the difficulties associated with finding a time when the entire group can meet for the three separate stages, and (2) psychological pressure as the teachers seemed to feel that their professional skill might be questioned by other members of the team, which could lead to a more negative self-esteem.

In general, the teachers (N=68 out of a possible 88) found the peer coaching helpful to professional development. On a 7 point Likert scale survey, more teachers felt that peer coaching had enhanced their teaching quality than had not (average

scale score of 4.9). The question that the teachers answered the most positively indicated that despite time constraints they would be willing to participate in peer coaching again (average scale score of 5.31). These numbers seem to indicate a moderate positive perception of the program.

Slater and Simmons (2001) studied the implementation of a peer-coaching model in a high school. Seventeen teachers at the high school agreed to participate in training for and implementation of this model. The teachers attended an orientation followed by four training sessions. These sessions included training on peer coaching research, instruments used, the peer coaching relationship, and advanced conferencing skills, along with role-playing and continued training after implementation. After the initial training, the teachers implemented the model they had learned. Each pair was to complete four observations, with pre-conferences scheduled prior to the observations. Observations were recorded on specific forms and shared with the other teacher in the pair. After the semester was over, the teachers filled out instruments asking them their opinions on various issues related to the coaching. The teachers indicated that the coaching helped to enhance teaching skills (29% strongly agreed, 59% agreed). The teachers also reported that the coaching helped overcome teacher isolation.

Hornberger (2002) examined the effectiveness of a peer coaching course for rural teachers. The author wanted to find out if the teachers implemented what they had learned from the course and, if so, what impact it had on their teaching. Twenty teachers (out of 40) returned the survey. Of the 20, 13 (65%) stated that they had, to some extent, implemented the peer coaching process they had learned in the course.

The majority of the teachers reported that the environment of the classroom (70%) and the structure and delivery of lessons (55%) had changed since the course. They stated that they felt more effective in the classroom (80%) and have consulted with peers for ideas (90%). Overall, the teachers agreed that the peer-coaching course was a positive influence (95%). The one teacher who reported negatively indicated that the course was not valuable because he/she already knew much of the information, and because the course did not provide peer coaches, but teachers were asked to find their own. Limitations of the study included the low implementation and low response rates.

In a different type of study, Jenkins et al. (2005) were interested in finding out what and how preservice teachers observe when peer coaching. Subjects were 23 male and 14 female preservice physical education teachers trained in peer coaching. Subjects taught physical education at a private school comprised of grades K through 9. Each preservice teacher taught at least three or four units of instruction and acted as a peer coach for another one or two. The coaching consisted of three stages: pre-lesson conference, lesson observation, and post-lesson feedback conference. The peer coach used a Peer Coaching Form to record notes during the observation. Three investigators then coded the forms independently. A total of 169 forms containing 946 statements were analyzed. The data seemed to indicate the presence of three themes: (a) systematic observation was helpful to guide coaching by focusing attention on issues important to the specific teacher education program, (b) as time progressed the preservice teachers were more able to transfer the theory they learned into practice, and (c) over time the coaches started to identify the students as

individuals rather than simply a generic student, which is associated with greater pedagogical content knowledge. One of the other conclusions drawn from these data is that peer coaching must be conducted over a long period of time, as shown by the fact that some of these themes only developed over the two semester time frame of this study. One limitation to this study is the relatively small sample size, all from one preservice program and their work in only one school.

In another study of preservice teachers, Morgan et al. (1994) examined the effects of peer coaching as a method of supervising preservice teachers who were identified as low performing. The five preservice teachers who were selected had been identified as low performing based on several pretests grades given prior to the practicum experience. The preservice teachers were responsible for providing direct instruction procedures with small groups of elementary students in the area of reading (three of the five also provided instruction in spelling). Coaches were other preservice teachers who demonstrated superior performance in the same practicum. Peer coaching effects were measured by percentage of effective teaching behaviors in reading (or spelling) sessions, the rate of praise statements, rate of pupil responses, and the number of lessons mastered by the pupils. The sessions with the pupils were videotaped, and then reviewed by the coaches. The peer coaches were reviewing to determine if the preservice teachers had produced an effective instructional trial. The authors defined an effective instruction trial based on ten specific characteristics such as the use of effective cues, pauses, signals, corrections, repetitions of corrections, modeling, specific and general praise statements, and rate of pupil responses. An effective trial included all ten of these characteristics.

Results indicate that each of the five preservice teachers improved in percentage of effective instructional trials. The rate and consistency of improvement varied, but all ended up with percentages of at least 80% as compared with baselines that ranged from 5 to 60%. For all five, the rate of specific praise increased, as did general praise in four of the five teachers. Rate of pupil responses at the end of the coaching had not changed significantly from the baseline rate. The number of lessons mastered during the preservice teachers' groups did not change as compared to the number of lessons mastered when the regular classroom teacher conducted the group. The preservice teachers did report that they felt the peer coaching was helpful, although the student outcome data were less positive.

In 1996 Zins & Murphy reported results from a survey of school psychologists' involvement with peer support groups. They defined the peer support group as a small group (two or more people) who meet periodically and are characterized by sharing of expertise and knowledge, provision of mutual support, and joint problem-solving among professional colleagues. This exploratory study assessed the respondent's

(a) current or past involvement in a PSG (peer support group); (b) number of years involved; (c) frequency of group meetings; (d) specific benefits of participating in the group; (e) variables perceived to be important to the success of the group; and (f) for those not in a PSG, the extent to which they would like to become involved in one (Zins & Murphy, p. 63).

They surveyed a random sample of 500 members of the National Association of School Psychologists, with a return of 399 surveys deemed usable. Results indicated

that 64% of the respondents had at some time been involved in a PSG, and that 50 % were currently involved. Over 93% of those who were not currently involved in a PSG expressed interest in becoming part of one. Less than one fourth of the total sample was currently involved in any individual or group clinical supervision. Those respondents who had or were participating in a PSG indicated that the greatest benefits were in the areas of improved skills and knowledge and in job enthusiasm. They were also asked to report what they felt were the characteristics of the group that made it successful. The elements they identified were: enthusiastic and committed participants, structured meetings, convenient times and places to meet, administrative support, members with common goals, interests, and commitment, and an atmosphere of mutual respect, openness, and trust.

Coaching Consultation Skills

There have not been many studies on coaching related to consultation. Vail (2004) looked at the coaching component in the Instructional Consultation inservice training program. The subjects were 19 consultant-trainees and 4 coaches who volunteered to participate in the study. Each consultant-trainee identified a teacher who would work through the consultation process with him or her. The coaching process required the consultant-trainee to audiotape the session with the teacher. The tape, along with a copy of the form used to document the case (Student Documentation Form) and a self-reflection form (see Appendix C) (where the trainee reflected on items such as the progress through the process, focus areas, and skill needs), were mailed to the coach. The coach then listened to the tape, reviewed the written materials, and provided feedback via e-mail to the consultant-trainee. The

type of feedback will be described in more detail in the section on Instructional Consultation Skill Development. Vail used several rating forms and questionnaires as well as examined the actual e-mails from the coaching sessions in order to determine types of responses given by coaches during coaching, consultant-trainees' and coaches' perceptions of consultant-trainees' skill development following coaching, and perceptions of e-mail as a form of providing coaching.

Results of analysis of the coaches' statements gathered from the actual e-mails indicated that coaches were fairly directive in their coaching and that they focused mostly on the problem identification stage (accounting for 45-60% of the feedback). It also seemed that coaches were able to differentiate their responses based on the consultant-trainee's skill level. The actual e-mail data suggested that coaches gave different and more types of feedback on specific skills to some consultants rather than others. For instance, when the coach perceived a real need, based on consultant-trainee reflection or on the tape, the coach would use more teaching types of coaching responses. Over 90% of the consultant-trainees rated the coaching as relevant, effective, and thorough. They also felt that all of their IC skills had increased significantly following coaching, with 100% of the consultant-trainees reporting growth although the amount of growth differed depending on the skill. The consultant-trainees' ratings for each skill showed significant improvement after coaching. Effect sizes ranged from a low of 0.41 (Observation) to 1.86 (Defining the problem observably). The consultants reported that positive and critical feedback, specificity/examples, support, and suggestions were the most helpful types of

coaching, and that the giving of information or a suggestion followed by positive feedback was most associated with skill growth.

This study has several limitations that affect its generalizability. First of all, the sample size is very small and consists only of consultant-trainees and coaches trained through the University of Maryland's Instructional Consultation program. The form used for collecting data may also have contributed to the limitations. The data collected is mostly subjective – the consultant-trainees' and/or coaches' perceptions. This current study is attempting to replicate Vail's (2004) exploratory study, with a larger sample size, while looking to see if increased skill development is associated with increased integrity to the IC process.

Distance Learning/Compute- Mediated Communication

Definition. The use of e-mail or the internet is a possible answer to some of the limitations associated with face-to-face workshops, meetings, or supervision. In its beginning distance learning may have been associated with correspondence courses relying on textbooks and the postal system (Maxwell & McCain, 1995). It has, however, “evolved into live-satellite broadcasts to hundreds of people, simultaneous-interactive teleconferencing among multiple sites, and global-computer networking among millions of pc's,” (Maxwell & McCain, p. 5). This type of computer-mediated communication is an asynchronous form of communication, which refers to the fact that it takes place in different time frames. Paper-based or digital-based texts, such as e-mail are asynchronous; the time between responses need not be immediate.

The advantages associated with computer-mediated communication include limiting time issues and alleviating geographical concerns (Kruger et al., 1996; Kruger & Struzziero, 1997; Maxwell & McCain, 1995; Miller, 2001; Myrick & Sabella, 1995; Smith et al., 2003; Spitzer & Wedding, 1995; Van Gorp, 1998); ease of access (Spitzer & Wedding); increases in collaboration (McLoughlin, 2002; Myrick & Sabella; Van Gorp); an anonymity that may increase openness of communication (Myrick & Sabella; Smith et al.); and benefits from communicating with the written word (Kruger & Struzziero; Spitzer & Wedding). The most reported limitation to this type of communication seems to be the lack of nonverbal cues (Kruger et al., 1996; Kruger et al., 2001; Kruger & Struzziero; Myrick & Sabella; Smith et al.). Other disadvantages are disruption in the temporal order (Kruger & Struzziero), lack of immediate clarification (Kruger et al., 1996), and disadvantages associated with the use of technology (Maxwell & McCain; Myrick & Sabella), such as concerns of equity, access, and additional costs. Besides being used in teacher education (Kruger et al., 1996; Maxwell & McCain; Smith et al.; Spitzer & Wedding; Van Gorp), computers are being used in consultation (Kruger & Struzziero; Kruger et al., 2001; Miller) and in supervision (Harvey & Struzziero; Myrick & Sabella).

Computer-mediated communication in education. Spitzer & Wedding (1995) provided an overview of LabNet, which is an electronic community of science and math teachers. On the network, the teachers share questions, concerns, and suggestions on how to teach. The authors have identified some ingredients that have helped to make LabNet successful. These are having a purposeful use, an intentional, collaborative design, building a critical mass of active participants, and providing

well-trained moderators. They cite a recent survey (Jacobs & diMauro as cited in Spitzer & Wedding) that indicated that 80% of the LabNet community felt that their participation in the network had influenced their professional development and teaching. Areas that the teachers felt were most impacted included gathering ideas and materials, promoting the use of project-based learning, enhancing teaching and student learning, and providing access to a community for support and collaboration.

Kruger, et al. (1996) studied a hybrid approach to extend the effectiveness of traditional, short term training in problem-solving. Participants were five school professionals (principals and teachers) from a suburban school system. The participants were initially trained face-to-face in team problem-solving and using e-mail. After the initial face-to-face training, the remainder of training was conducted using e-mail. The participants all selected a student in their school for whom they had a concern. They were then to use the problem-solving techniques from training to help find solutions for that concern. The participants were able to e-mail and receive e-mail from the trainer and the other participants, as well as create their own self-reflections to e-mail to others. E-mails were collected and then coded as one of eight possible categories: observation-based information, suggestion, conceptual information, personal information, support, specific feedback, group feedback, and global feedback. A total of 134 messages were exchanged and coded. Observation-based information (communications that could be verified through observation) occurred the most frequently (76.1 %), while global feedback the least (9.7%). Participants were responsible for rating each of the e-mail messages they had written or received as to which messages contributed to their expertise in team problem-

solving, and on average, “the participants perceived that 54.8% of the messages enhanced their expertise in team problem-solving” (Kruger, et al., p. 250).

Results of a logistic regression were that only two of the content categories (specific feedback and conceptual information) were significantly related to perceived enhancement of expertise. Participants were also responsible for rating the initial face-to-face training. They found that both the face-to-face and computer-mediated trainings were determined to be moderately important in facilitating expertise, but the face-to-face training was seen as more valuable (average Likert scale score of 5.77 versus 4.63 for the computer-mediated). The authors were especially surprised that the participants rated the self-reflection part of the computer-mediated training as the least valuable (3.94).

Computer-mediated communication in consultation. Miller (2001) suggested that technology will offer the advantages of access, speed, and flexibility to consultation. In fact, he concluded, “a combination of web-based consultation services, chat room exchanges, interactive video sessions, and face-to-face consultation sessions with consumers will offer the latest in cost-effective consultation services” (Miller, p. 3). While there have not been a large number of studies examining the use of computer-mediated communications in consultation, it seems to be a viable way to provide consultation services to teachers; it might help to increase professional development opportunities and knowledge acquisition, while also decreasing a sense of isolation felt by many teachers or other school personnel (Kruger et al., 2001; Kruger & Struzziero, 1997).

Computer-mediated communication in supervision. Within the area of consultation, it may also be possible to use computer-mediated communication in supervision (Harvey & Struzziero, 2000; Myrick & Sabella, 1995). It can be used by the university supervisor who has to meet with any number of students who are spread across different school systems, or the district supervisor who may find it difficult to visit all schools and meet face-to-face with each supervisee, or can be used in peer supervision, allowing colleagues to share ideas and develop professional ties from varied geographical areas (Myrick & Sabella). Harvey and Struzziero devote part of their chapter on supervision of indirect interventions to using computer-mediated consultation and supervision. They make reference to the Global School Psychology Network (GSPN), described above. The network allows school psychologists from all over the world to discuss common professional issues and to provide support and consultation among professionals. Harvey and Struzziero stress that computer-mediated supervision is not necessarily a replacement for face-to-face supervision, but can be used in conjunction with the more traditional mode, allowing supervisors to, “transcend the boundaries of time and place” (Harvey & Struzziero, p. 150).

Vail (2004), whose study was discussed above, also found that e-mail was generally perceived well. Vail had the participants rate their perceptions of the use of e-mail as a coaching tool. She found that e-mail was perceived to be easy to access, comfortable to use, and provided opportunities to reflect. Results indicated that 100% of coaches and 84% of consultant-trainees found e-mail easy and accessible and 100% of the consultant-trainees felt comfortable as a participant in the

e-mail coaching. One of the coaches reported feeling uncomfortable using e-mail for coaching. One advantage felt by both coaches and consultant-trainees was that the use of e-mail allowed for re-reading and reflecting on one's comments. The area that came out lowest pertained to ease of understanding or conveying complex information, with 80% of consultant-trainees indicating ease with this type of communication while only 50% of coaches did. Limitations associated with the e-mail included difficulties communicating about complex topics, and accessing computers.

Instructional Consultation Skill Development

Based on Vail's (2004) results, it seems appropriate to suggest that different skills or topics are better suited to computer-mediated types of supervision or coaching, maybe based on the complexity involved. In fact, consultation training is a complex integration of many skill areas (Gravois, Knotek, et al., 2002), all of which are important to the overall process. The skills seem generally to fall into two categories, artful/process skills and scientific/content skills. The artful/process skills of Instructional Consultation focus on consultation delivery, such as communication, building a working collaborative relationship, and the use of the problem-solving process. The specific/content skills of the model emphasize the application of research-based knowledge. The application of curriculum-based assessments, effective instructional and management procedures, and how to use data to monitor and evaluate progress are examples of this type (Vail). In order for a consultant to be successful, it is important to develop skills in both these areas.

Skills that are mentioned in the literature as being necessary for all models of consultation include self-awareness, other-awareness, interpersonal skills, communication skills, determining the culture of an environment, organizational functioning, ethics, consultation stages, developing and evaluating interventions, and evaluation techniques (Arrendondo, Shealy, Neale, & Winfrey, 2004; Stoltenberg, 1993; Vail, 2004; Zins & Erchul, 2002). These skills include those in both of the areas of artful/process and specific/content. While most of the models of consultation have similarities, there are specific skills central to each. Rosenfield & Gravois (1996) have identified a set of critical IC skills, which include: knowledge of the problem-solving steps themselves and how to apply them; effective communication skills; collecting and graphing data; conducting assessments; and effective intervention design and implementation. Vail (2004) used these skills when creating the rating scale completed by consultant-trainees and coaches in her study. In order to evaluate the effectiveness of the model, it is important to assess consultants based on the skills essential to the model of consultation in which training was conducted.

Summary

This review of the related literature has demonstrated that consultation is increasingly being recommended (Reschly & Ysseldyke, 2002) within the area of school psychology. The research has shown that outcomes of consultation occur in the areas of student and consultee (Dunson et al., 1994; Fuchs & Fuchs, 1989; Knotek et al., 2003; Kratochwill et al., 1995; Kruger et al., 2001). Research specifically in the area of Instructional Consultation (IC) has also shown outcomes resulting from the consultation process, changes in special education referral patterns (Gravois &

Rosenfield 2002, 2006; Levinsohn, 2000) and goal attainment (Rosenfield et al., 2008). Studies examining the effects of IC have also demonstrated teacher outcomes (Knotek et al., 2003; Rosenfield et al., 2008).

One important aspect of determining whether consultation affects important variables is to ensure that the consultation is delivered with integrity since research shows that integrity of the consultation process is related to student achievement (e.g., Bergan & Tombari, 1976; Fuchs et al., 1990, Levinsohn, 2000). The aspects of the process that seem to be the most important include clearly identified behavior and goals, baseline data collection, a systematic intervention plan, graphing of data, comparison of data post and pre intervention, and intervention integrity (Flugum & Reschly, 1994; Levinsohn, 2000; Telzrow et al., 2000). Since each of these factors can be found on the SDF, it is observable documentation as to whether they have been included.

Training is an essential element in attaining treatment integrity. Pre-service coursework opportunities in consultation have been improving but continue to lag (Anton La-Hart & Rosenfield, 2004; Costenbader & Swartz, 1992; Hellkamp et al., 1998). Traditionally, inservice provided to practitioners have included only short workshops with little follow-up or practice of skills learned (Lam, Yim, & Lam, 2002). The literature seems to agree that effective training must follow certain steps, that include: didactic training, demonstration and role-play, field experience, and supervision (Gallesich, 1983; Joyce & Showers, 1980), in order to develop skill through the following progression: awareness, understanding, skill acquisition, application, and advanced application (Gravois, Knotek, et al., 2002; Joyce &

Showers, 1980; Reschly & Ysseldyke, 2002; Rosenfield, 2002b; Showers & Joyce, 1996). The research suggests that following these steps will lead in an improvement in skill application (Bergan et al., 1980; Goodwin et al., 1971; McDougall et al., 1988).

Supervision is an essential component in training for skill application (Anton La-Hart & Rosenfield, 2004; Gravois, Knotek, et al., 2002). In reality, however, practice and research in the area of consultation supervision has been largely ignored (Anton La-Hart & Rosenfield, 2004; Cramer & Rosenfield, 2004; Rosenfield, 2002b; Stoltenberg, 1993). One study (Kratochwill et al., 1991) did find that consultant-trainees found supervision helpful. One way to provide supervision is to use a coaching technique.

Research in coaching is not extensive, but there is some literature in the areas of business, education, and consultation. In business, coaching has been shown to be effective at giving the client a better understanding of issues (Stevens, 2005) and at creating sustainable behavior change (Wasylyshyn et al., 2006). The research in the educational arena shows that coaching consultation is effective at increasing knowledge, confidence, application of new skills, and job enthusiasm (Hornberger, 2002; Jenkins et al., 2005; Lam et al., 2002; Morgan et al., 1994; Showers & Joyce, 1996; Slater & Simmons, 2001; Zins & Murphy, 1996). Vail (2004) has shown that coaching of new consultant-trainees has resulted in improved skill development. She also reported that online coaching is an effective way of providing support to the consultant-trainees.

Online communication, or computer-mediated communication is a growing field. It has been used to provide professional development and support to teachers and consultants. Research indicates that computer-mediated communication can result in enhancement of teacher expertise (Kruger et al., 1996), enhancement of consultation knowledge (Kruger & Struzziero, 1997; Kruger et al., 2001; Vail, 2004), and reduction in feelings of isolation (Kruger et al., 2001). As a supervision tool it has been found to be easy to access, comfortable to use, useful in skill development, and allows for reflection (Vail, 2004).

The same consultant skills assessed in Vail's (2004) study will be assessed in this study, focusing on consultant-trainees' and coaches' perceptions of skill development after completion of online coaching through a case. These skills will be measured by coaches and consultant-trainees to determine if skills increased after coaching, and also to find out if skills increased to a level of competence. The relationship between skill development in those areas and completion of the Student Documentation Form will also be assessed in order to determine if there is a relationship between perceived skill development, as measured by a survey of coaches and consultants, and a measure of process integrity of the consultation process.

Chapter 3

Methodology

The purpose of this study was to determine if participation in an online coaching program was related to IC consultants' skill development. In addition, this research also examined the relationship of completion of the SDF, used as a measure of treatment process integrity, to skill development. This chapter will include a description of the consultant-trainees, the coaches, the instruments used to measure skill development, and the procedures for collecting and analyzing the data.

Participants

The participants included consultant-trainees and their coaches. The data used in this study were archival, currently stored in a file cabinet in a locked room at the University of Maryland. Due to confidentiality and restrictions from using archival data, it was not possible for the researcher to get a full set of demographic data on the consultant-trainees and their coaches, but available data were reported.

A total of 132 consultant-trainees participated, each of whom had completed an IC Training Institute and a case that had been coached. This was the first IC case for each of the consultant-trainees. Available demographic data included the following: gender of the consultant-trainees, their roles in their schools, and years in that role. Of the group of consultant-trainees, 11 of the 132 were male. Each consultant-trainee was a school-based professional and had current access to working with a teacher consultee in a school. The roles represented were: administrators, central office personnel, guidance counselors, school psychologists, general educators (both elementary and secondary), reading and math specialists, special educators, and

Title 1 teachers. The greatest number of consultant-trainees came from a general or special education background. The number of years they had in their current roles varied from a little over one year to 18 years. The participants came from a variety of states, including Delaware, Maryland, Michigan, Nevada, North Carolina, and Virginia. While the lack of demographic data was a limitation of this study, the wide geographic base provided strength for the generalizability of results. In order to be included in the study, participants had to have completed their case and returned their informed consent forms.

Data were from instructional consultation trainings held during the years 2004-2007. The percentage of total cases that were completed varied by year. In the 2004/05 academic year, 69 cases were started, and 38 were finished, a 55% completion rate. The numbers for the 2005/06 year were 74 cases started with 34 completed, for a 46% completion rate. In the final year reviewed (2006/07), 101 cases were started and 73 were completed, a 72% completion rate.

The coaches who provided the online coaching have all received IC training and have participated in at least one online case (as either consultant-trainee or coach). The number of coaches used each year varied (22, 36, and 68 respectively). Previous coaches and the coordinators of the program nominated those who were chosen to coach others. At the end of each case, the coach recommends the consultant-trainee as a possible coach if they assess that the trainee had the skills necessary to coach others. The coaching coordinators, who monitor the coaches each year, also recommend current coaches to continue or not be asked to return. Coaches usually take from one to five cases at any one time. The average number taken is two

to three per coach. The coaches' years of experience as a coach ranged from one to six years.

Instruments

The instruments used in the study include the IC Professional Development Surveys (post and retrospective), Rating of Consultant's Skill Development (Vail, 2004), the SDF Review form, and the SDF itself. Each instrument and its development will be described below.

Instructional Consultation Professional Development Survey. The IC Professional Development Survey (Babinski, Gravois, Knotek, & Rosenfield, 2001) (see Appendix B) was developed to assess a consultant-trainee's skill development. The rating scale was based on a set of critical skills for IC as outlined by Rosenfield and Gravois (1996). The scale has used a 5-point scale ranging from not competent (1) to very competent (5). The skills that have been measured by the scale included collaborative communication skills, problem-solving skills, assessment, and designing intervention. A complete list of the specific skills can be found in Appendix B. Each of the four general areas measured by the scale is made up of several items. Cronbach's alphas were calculated within each area to determine the internal consistency. Table 1 shows the results. Cronbach's alpha scores of .80 or higher are considered good indicators of internal consistency.

The survey has been used with the IC training participants on multiple occasions. The consultant-trainees fill out the survey before the training, after the training, and twice after completing their online case. The post coaching surveys are filled out by the consultant-trainees from different frames of reference. The first is

based on the consultant-trainees' perceived skill level after completing the case and the coaching requirements. The second requires the consultant-trainees to reflect back and retrospectively rate their perceptions of their skill level post training but prior to receiving online coaching.

Table 1

The Internal Consistency Within Each Area Measured by the Professional Development Survey

Area Measured	Cronbach's Alpha
Retrospective	
Communication Skills	0.91
Problem-solving	0.91
Assessment	0.83
Designing Interventions	0.85
Post	
Communication Skills	0.88
Problem-solving	0.89
Assessment	0.75
Designing Interventions	0.75

This design for the consultants-trainees to rate themselves is called the retrospective pretest-posttest design. Research indicates that the retrospective design was a valid measure of perceived change especially when using self-report instruments (Hoogstraten, 1982; Sprangers & Hoogstraten, 1989). The traditional pretest-posttest design required the subjects to rate their performance both before and after completing the intervention. Completion of the intervention has been found to lead subjects to change their internal standards for evaluating their performance, and

therefore, create a response bias. The subjects were responding to different internal standards when completing the posttest than they were when completing the pretest. The retrospective pretest-posttest design allows subjects to use the same internal standards when completing both surveys (Hoogstraten). The retrospective design has also been found to lead to more agreement between the index of change and objective measures (Hoogstraten) and to be more robust for procedural differences (Sprangers & Hoogstraten). Sprangers & Hoogstraten demonstrated that reversing the order of the posttest and retrospective pretest did not affect the posttest scores or the retrospective pretest scores.

Rating of Consultant's Skill Development). The Rating of Consultant's Skill Development form (see Appendix A) was developed for Vail's (2004) study of the effectiveness of the IC online coaching program. Vail designed the rating scale based on a set of critical IC skills similar to those on the Professional Development Survey. The scale uses a 5 point scale that takes into consideration the levels of impact for training outlined by Joyce and Showers (1980): awareness (as described on the survey as the ability to articulate skill but not use appropriately), understanding (can articulate skill and describe appropriate action, but has difficulty demonstrating), skill development (can demonstrate skill, but inconsistently), and skill application (can apply skill consistently). Vail included a fifth level that measures the consultant's ability to coach someone else in the skill. This was added because it has been identified as a goal of the IC training model (Vail).

Vail designed two versions of the rating form for use in her study – one for coaches and one for consultant-trainees. However, for this study only the coaches

filled out the Rating of Consultant's Skill Development (Vail, 2004) form. The rating scale measures skills similar to those on the Professional Development Survey, including: elements of communication skills and collaboration, problem-solving skills, conducting curriculum-based assessment, and designing intervention. For a complete list of the skills measured see Appendix A.

The coaches rated the consultant-trainee's skill level at the end of the case only. They also included a general recommendation for the consultant-trainee's skill as a coach. Vail initially used a process of content validity, based on the IC model, to design her forms (see Vail for a complete description of the process). The forms were then piloted and revised according to feedback on clarity and inclusiveness (Vail).

SDF/SDF Review Form). The Student Documentation Form (SDF) (see Rosenfield, 2002; Rosenfield & Gravois, 1996) has been used to document the progress of the case through the IC process and to assess treatment integrity (Levinsohn, 2000). For each step of the IC process there is a corresponding section of the form. For instance, during the problem identification stage, part of the goal is to define the problem operationally. Once that is done, the operational definition is written on the SDF. Similarly there are places on the SDF to record the student's baseline functioning, goals, intervention design, and data on post intervention functioning.

At the end of each year, Level of Implementation data are collected to determine the extent to which IC has been implemented within project schools working with the University of Maryland's Lab for Instructional Consultation Teams which provides training, technical assistance, and program evaluation to schools

implementing the IC Team model. Part of the data that has been collected included a rating of each of the SDFs for cases that have reached intervention implementation. The rating form, designed by the IC Lab, has included a scoring procedure to assess the level of completion of the SDF, as well as, a section to analyze goal attainment. The section on goal attainment scaling was not included in this study since it was not relevant to the questions asked. Each year before using the review form, the reviewers are trained on its scoring procedure. They are required to score several sample SDFs together, and continue working together until an acceptable inter-rater reliability rate has been reached.

Each part of the SDF is reviewed to determine if it is complete. The parts that are reviewed are presented in Table 2. Each part is assigned a 1 or a 0 depending on whether or not it met the criteria for being complete. The criteria are described on the rating form.

For this study the SDFs were scored by the researcher using the rating form. The researcher was trained by a staff member at the IC Lab on the proper use of the rating form. She and the examiner then scored one SDF separately and compared results. There was 100% agreement on the scoring of that SDF. The staff member then individually scored 20 randomly selected SDFs. These scores were compared with the examiner's scores for those SDFs. There was a 98% agreement between the two, indicating an acceptable level of inter rater reliability.

Table 2

Components of SDF Completion

Number on SDF Review	General Description
2	Names (case manager, teacher, and student) Date Started
3	SDF Consultation Summary date of each contact brief summary follow-up meeting and tasks
4	Concern
4a	general statement
4b	instructional levels considered
4c	statement of current performance
4d	measurable short-term goals
4e	goal time specified
5	Operational Definition (what is behavior and when will it be recorded)
6	Baseline (total number of points up to 3)
7	Graph (clearly marked axes)
8	Intervention Description (what, when and who)
9	Intervention Implementation (indicated on graph or summary)
10	Intervention Evaluation (data on graph regularly)

Materials

Manual for online coaching. Consultant-trainee and coaches received designated manuals (Laboratory for Instructional Consultation Teams Manual for Online Coaches (2005) and Manual for Participant Consultants (2005)) that discussed the rationale for coaching, the necessary forms, and the process that will be followed. The manual that the consultant-trainees received prior to beginning the online portion of the training is a guide that helps participants work their way through the online coaching process. The manual provides an overview of the online coaching program, goals and objectives, requirements for participation, the coaching process, and information on how to get informed consent, audiotape, and code tapes. The manual also includes sample forms for informed consent, organizing, the case, frequently selected focus skills, and reflection.

The coaches who participated in the online coaching program also received a manual. This manual contains many of the same items as the manual for participants. It also provides an overview of the coaching role, the coaching responsibilities, a framework for feedback, and how to provide feedback.

Procedures

Program Description. Each consultant-trainee attended an IC training session that provided an introduction to IC. The large group portion of the program, which consists of 20-25 hours of didactic and simulated activities, is designed to increase the participants' skill development through basic awareness, understanding, and beginning practice stages (Gravois, Rosenfield, et al., 2002). Skills included the critical assumptions, processes, and structures of IC, specific collaborative

communication skills, the Instructional Assessment (IA) process, stages of problem-solving, case documentation, and an introduction to online coaching (Gravois, Rosenfield, et al.). The training program has functioned as an in-service training forum for practitioners already working in the school community. The expectation has been that, once finished the large group portion of the program, the participants would apply what they have learned in their school setting.

In order for the consultant-trainees to transfer the skills they've learned to practice in their own schools, they must continue developing their skills to the application stage. The transfer step requires application of skill in a work setting with consistent feedback (Gravois, Rosenfield, et al., 2002; Rosenfield, 2002b; Showers & Joyce, 1996). To facilitate this transfer online coaching has been provided to the IC Institute participants.

Coaching process. As in other administrations of the training, the coaches contacted each of their assigned consultant-trainees after the coachees completed their large group portion of the training. They encouraged each consultant-trainee to identify a teacher with whom to work. The coach also reviewed with the consultant-trainee important parts of the online process, which are described in detail in the manual that each consultant-trainee received.

Once the consultant-trainees identified teachers, they set up a first meeting with their teacher consultees. Prior to each meeting with the teacher, the consultant-trainee selected a focus skill with the coach. A list of possible skills on which to focus is included in the manual. The consultant-trainee audiotaped each session with the teacher. At the first meeting, the consultant-trainee and teacher signed the

informed consent forms. There were several forms that the consultant-trainee and teacher can choose to sign. One of these forms provided consent for the coach to listen to the audiotapes of the sessions. The coach will not listen to any tapes until the appropriate form has been signed. There is another form for consent for the Lab to conduct research using that particular case's data.

Once the consultant-trainee and teacher met for contracting, the teacher agreed to participate, and a regular meeting time was scheduled, the consultant-trainee sent the audiotape of the contracting session and appropriate forms to the coach. As the consultant-trainee and teacher met on a regular basis, each subsequent session was also taped and sent to the coach. The coach listened to each audiotape as it arrived, and provided feedback to the consultant-trainee via e-mail. Consultant-trainees were required to audiotape at least five sessions, including one of Contracting, two of Problem Identification and Analysis, one of Intervention Design, and one of Intervention Implementation and Evaluation. Tapes were coded to protect confidentiality.

The coaching manual provides a guideline on what the coach is expected to include in the feedback. The categories include: Focus Skill Area Performance, Appropriateness of Content, Quality of Working Relationship, Accuracy and Appropriateness of Student Documentation Form, Appropriateness and Quality of Instructional Assessment, and Overall Impression of Effectiveness and Efficiency (Laboratory for Instructional Consultation Teams Manual for Online Coaches, 2005). Feedback was sent so that the consultant-trainee would have sufficient time to review the feedback and get any needed clarification prior to meeting with the teacher again.

Along with the tape, the consultant-trainee sent a reflection sheet and a copy of the SDF. The reflection sheet (see Appendix C) allowed the consultant-trainees to reflect on how the session went and on whether or not the consultant-trainees were able to achieve their goals for that session, and included the following sections: collaborative problem-solving process, collaborative communication skills, and instructional assessment/CBA.

The coach did not meet face-to-face with the consultant-trainee as all communication occurred via e-mail, except for the reflection sheet and the tape itself. It therefore required that each consultant-trainee and coach have access to a computer with an internet connection and an e-mail account. The coaches and trainees also each needed an audiotape player and tapes. The trainees were provided envelopes and mailing labels to mail the tapes.

Data Collection and Analyses

Data Collection. All of the data used for this study were archival data stored at the IC Lab at the University of Maryland, College Park. The data were stored in filing cabinets in a room that was locked when no one was there. The researcher used the codes given to each case, with all identifying information removed by the Lab, when transferring data onto a spreadsheet. Data collected included scores from the Professional Development Surveys (Babinski et al., 2001) and the Rating of Consultant's Skill Development (Vail, 2004). The researcher also scored the SDF using the SDF Review form, using a process developed by staff at the Lab. No names or identifying information appeared anywhere on the spreadsheet; data were identified using code numbers only.

University of Maryland IRB determined that since only archival data were used, the project did not require IRB review or approval.

Data Analysis. The first research question asked whether the online coaching process was related to an increase in skill development. A within subject pretest-posttest design was used to determine if the consultant-trainees' felt that their skills developed over the course of the online coaching. The scores from each area on the retrospective and post-tests were compared. As a supplemental analysis, the results were also analyzed to determine if any of the four areas measured by the survey was significantly different from others. A two tailed t-test for dependent means was used to ascertain if there was a significant difference between mean scores from the retrospective and post-tests.

To answer the question of whether the consultant-trainees' perception of skill development matched the coaches' perceptions, the scores from the consultant-trainees' post Professional Development Survey were compared with the scores from the coaches' Rating of Consultant's Skill Development (Vail, 2004) form. While both surveys measured comparable skills, the format for each was different. Therefore, the results of the Professional Development Survey were reformatted in order to allow the comparison. For instance, the Professional Development Survey included one section on assessment that asked questions about curriculum-based assessment in reading, math, and writing, as well as questions about using data to evaluate progress and completion of the SDF. On the other hand, the coaches' survey had only one question on CBA and a separate question on evaluating progress.

Decisions on which scores to compare were made by the researcher and her advisor. Table 3 shows how the two surveys were compared.

The overall analyses assessed whether there was a relationship between the scores that the coaches and trainees assigned to the skills obtained by the trainees. Along with descriptive analyses of the scores, a t-test for dependent means was also conducted. A two-tailed test was used to determine if the difference between the two means (scores on consultants' post tests and scores on coaches' scales) was significant. For all analyses, significance was set at the .05 level.

In addition to the t-test, a two-way chi-square test was also conducted in order to analyze the relationship between the coaches' scores and those of the consultant-trainees'. The chi-square explored the relationship between the number of consultant-trainees' given a certain rating by the coaches and the number given the same rating by consultant-trainees themselves. The original surveys each used a similar five-point scale to rate the items. According to the rating scales, a score of 4 or 5 is rated as competent. Table 4 shows what each score meant on the original surveys, and how they were combined in the chi-square analysis. The purpose of the chi-square analyses was to determine if both the coaches and the consultant-trainees rated the level of competence achieved in a similar way.

Table 3

Comparison Between the Items Assessed by the Two Surveys

Rating of Consultant's Skill Development	Professional Development Survey
contracting	contract setting with a teacher
defining concerns in observable terms	defining concerns in observable terms
prioritizing concerns	prioritizing concerns
establishing measurable goals	establishing measurable goals
conducting curriculum-based assessment (CBA)	conducting CBA in reading conducting CBA in math conducting CBA in writing
charting/graphing data	charting and graphing data
evaluating student progress using data	evaluating student progress using data
designing appropriate interventions	using instructional match in intervention incorporating student's prior knowledge into intervention plan selecting materials that build on student's skills drill sandwich word search forming questions pocket words chunking/phrasing
using collaborative communication skills	asking relevant questions reflecting teacher's feelings paraphrasing teacher's concerns active/reflective listening clarifying teacher's concerns summarizing offering information
maintaining a collaborative stance	making joint decisions with teachers

Table 4

The Meaning of Scores Used by the Different Surveys and the Chi-Square Analysis

Score	Meaning of Score		
	PDS	R of CSD	Chi-Square Analysis
1	Not competent	No understanding of skill	Combined scores of 1 and 2 to equal "not competent"
2	Minimally competent	Has understanding, but unable to use skill	
3	Somewhat competent	Can demonstrate skill in some situations	Emerging competence
4	Fairly competent	Can apply skill consistently	Combined scores of 4 and 5 to equal "competent"
5	Very competent	Can coach someone else on this skill	

Note: PDS = Professional Development Survey; R of CSD = Rating of Consultant's Skill Development

The second research question asked whether or not skill development was related to level of process integrity, as assessed by the SDF. The level of completion of the SDF, as assessed using the SDF Review Form, was compared to the consultant-trainee's post Professional Development Survey and the coaches' Rating of Skill Development form, using only the total score of the latter. A Pearson correlation between the scores was conducted to explore the relationship. The correlation coefficient measured the magnitude and direction of the relationship between the measures.

Chapter 4

Results

Two research questions guided this research. The first was whether participation in an online coaching process resulted in increases in skill development of IC related skills, as measured by perception of skill development by consultant-trainee and coach. There were two hypotheses related to this question. The second question asked whether increased skill development as perceived by the consultant-trainee and coach was associated with high levels of treatment process integrity as assessed by the Student Documentation Form (SDF). Only one hypothesis was applied to the second question.

Research Question 1

Consultant-trainees' perception of skill development (Hypothesis 1a). The first hypothesis stated that participation in an online coaching case would increase consultant-trainees' perceptions of their own skill development. To answer this question, the differences between scores on post-coaching and retrospective pre-coaching self-report surveys were compared. The surveys measured skill development in four general areas of IC related skills: collaborative communication skills, problem-solving skills, assessment, and designing intervention. The score for each of the four general areas was made up of the average of the items within that specific area (See Appendix B for complete listing of items). Cronbach's Alpha analyses were conducted to ascertain the internal consistency within each of the areas; these results ranged from good to excellent and were reported in the previous chapter (see Table 1).

Consultant-trainees assessed skill level in each of the areas using a five-point scale, ranging from *Not Competent* through *Very Competent*. A score of at least 4 represented the minimal level of competency expected after completing a case with online coaching. Table 5 shows the percent of consultant-trainees who rated themselves at each level on both the retrospective and post surveys. On the retrospective pre-test, 18% of the consultant-trainees rated themselves as competent (a score of 4 or 5) within the area of collaborative communication skills, while on the post-test, 79% did. In the area of problem-solving, retrospectively, 2% considered themselves as competent prior to the online coaching, while 58% did after participating. There were similar increases in the other two areas as well. In the assessment area, the percentage increased from 2% to 33% and in designing intervention, the increase was from 1% to 54%.

Paired samples t-tests were conducted to determine the significance of any difference between the post and retrospective scores. Table 6 summarizes the results, including number of subjects, means, standard deviations, t scores, significance levels, and effect sizes. Post coaching scores were significantly higher than retrospective scores in each of the four general areas. Effect sizes were calculated using Cohen's d to determine the practical relevance of the differences. In terms of effect sizes, the results indicated large effect sizes across all areas.

Table 5

Percent Distribution of Scores on Retrospective and Post Professional Development Surveys

Area Assessed	Scores				
	1	2	3	4	5
Collaborative Communication Skills Retro	8	30	44	16	2
Collaborative Communication Skills Post	0	0	21	66	13
Problem Solving Retro	29	46	23	2	0
Problem Solving Post	0	0	42	56	2
Assessment Retro	64	26	8	2	0
Assessment Post	0	15	52	31	2
Designing Intervention Retro	59	32	8	1	0
Designing Intervention Post	0	7	39	50	4

Note. The meanings of the scores are as follows: 1 = consultant does not have an understanding of this skill or not competent; 2 = consultant understands this skill but has difficulty using it or minimally competent; 3 = consultant can demonstrate this skill in some situation or somewhat competent; 4 = consultant can apply this skill consistently or fairly competent; and 5 = consultant could coach someone else on this skill or very competent

Table 6

Consultant-trainee Perception of Skill Development Growth

Subject	Mean	N	SD	t	p	Effect Size	
Pair 1	Collaboration Post	4.2665	130	0.47893	18.998**	<.001	1.71
	Collaboration Retro	3.1286		0.81317			
Pair 2	Prob Slvng Post	4.0531	129	0.48680	25.349**	<.001	2.53
	Prob Slvng Retro	2.4092		0.77804			
Pair 3	Assessment Post	3.5646	130	0.66259	28.628**	<.001	2.49
	Assessment Retro	1.7885		0.75776			
Pair 4	Intervention Post	3.9351	130	0.66381	28.881**	<.001	2.93
	Intervention Retro	1.9135		0.71411			

**p<.001

Relationship between consultant-trainees' and coaches' perceptions of skill development (Hypothesis 1b). The second hypothesis of Research Question 1 was whether coaches and consultant-trainees perceived the consultant-trainees' level of skill development similarly. The hypothesis was that there would be no significant difference between consultant-trainees' self-report of skill development post online coaching and coaches' reports of consultant-trainee skill development. A score of 4 or 5 has represented a rating of competence on each of the items assessed. A 4 has meant that the consultant-trainee could apply the skill consistently and is fairly competent, and a 5 has indicated that the consultant-trainee could coach someone else on that skill and is very competent. Table 7 shows the percentage of coaches and consultant-trainees who rated themselves using each score.

Paired samples t-tests were used to determine if the differences between the coaches' and consultant-trainees' post scores were statistically significant. Correlations were also run and results can be found in Appendix D.

The results indicated no significant difference between coaches' and consultant-trainees' scores in seven (7) of the ten (10) areas assessed. Significant differences were found in the areas of contracting, $t(108) = 2.152, p < .05$; conducting curriculum-based assessment, $t(105) = 4.116, p < .05$; and using collaborative communication skills, $t(106) = -2.813, p < .05$. In the area of conducting contracting with teachers, the consultant-trainees ($M = 4.51$) felt that they had higher levels of skill development than did the coaches ($M = 4.31$). This was also true in the area of collaborative communication skills; the consultant-trainees ($M = 4.28$) had a higher perception of their skill levels than did

Table 7

Percent Distribution of Scores on Coaches' and Consultant-trainees' Post Surveys

Item Number	Scores				
	1	2	3	4	5
Contracting - C	0	1.8	10.6	41.6	46
Contracting - CT	0	0	5.3	36.8	57.9
Observable Definition - C	0	6.3	28.8	44.1	20.7
Observable Definition - CT	0	3	30.8	44.4	21.8
Prioritizing - C	0.9	1.8	23	45.1	29.2
Prioritizing - CT	0	0.8	13.5	58.7	27.1
Measurable Goals - C	1.8	8.1	27.9	34.2	27.9
Measurable Goals - CT	0	1.5	22.7	56.1	19.7
Conducting CBA - C	1.8	9.1	20	40	29.1
Conducting CBA - CT	0.8	20.3	37.6	33.1	8.3
Graphing Data - C	3.7	3.7	28.4	33	31.2
Graphing Data - CT	0	3	22.6	42.1	32.3
Evaluating Progress - C	1.8	7.3	19.3	38.5	33
Evaluating Progress - CT	0	1.5	22	46.2	30.3
Intervention Design - C	2.7	2.7	19.6	44.6	30.4
Intervention Design - CT	0	2.3	17.3	54.9	25.6
Communication Skills - C	0.9	0.9	22.5	44.1	31.5
Communication Skills - CT	0	0	4.5	60.2	35.3
Collaborative Stance - C	0.9	0.9	18	37.8	42.3
Collaborative Stance - CT	0	0	12	46.6	41.4

Note. C = Coach; CT = consultant-trainee

the coaches ($M = 4.04$). In the curriculum-based assessment area, however, the coaches ($M = 3.83$) rated the consultant-trainees' levels of skill development higher than did the consultant-trainees themselves ($M = 3.29$). Effect sizes were large in each of the three areas as well. Results are shown in Table 8.

When one looks at the percentage of consultant-trainees rated as competent (a score of 4 or 5) in each of these three areas, there are similar results. In contracting, 6% fewer consultant-trainees were rated as competent by coaches than by consultant-trainees themselves and in collaborative communication skills the number was 5% less rated as competent by coaches. However, in the area of using curriculum-based assessment, the difference was much larger. Coaches were more likely to rate the consultant-trainees as competent. The data shows that coaches rated 42% more consultant-trainees as competent.

In order to determine if there was a relationship between the type of rater (coach or consultant-trainee) and the number of consultant-trainees rated as competent, chi-square analyses were run. The surveys originally used a five-point scale. Since a rating of 4 or 5 has represented a rating of competence, these two areas were combined to form a *Competence* level. Scores of 1 and 2 were considered as *Not Competent* and a score of 3 was considered *Emerging Competence*. Table 9 shows the percentage of both coach and consultant-trainee post scores that fell in each category.

Chi-squares were done on each of the ten areas studied. Table 10 shows the results. There were no significant differences, indicating that the coaches and consultant-trainees saw the outcome of competence in a similar way.

Table 8

Skill Development Scores: Consultant-trainees' and Coaches' Perceptions

Subject	Mean	N	SD	t	p	Effect Size	
Pair 1	Contracting Post	4.51	109	0.603	2.152*	0.034	0.29
	Contracting Coach	4.31		0.742			
Pair 2	Observable Definition Post	3.88	107	0.782	1.167	0.246	
	Observable Definition Coach	3.77		0.842			
Pair 3	Prioritizing Post	4.11	109	0.665	1.278	0.204	
	Prioritizing Coach	3.99		0.822			
Pair 4	Measurable Goals Post	3.92	106	0.719	1.465	0.146	
	Measurable Goals Coach	3.75		0.998			
Pair 5	Conducting CBA Post	3.83	106	1.002	4.116**	<.001	0.59
	Conducting CBA Coach	3.28		0.861			
Pair 6	Graphing Data Post	4.02	105	0.855	1.566	0.12	
	Graphing Data Coach	3.85		0.998			
Pair 7	Evaluating Progress Post	4.03	104	0.797	0.888	0.376	
	Evaluating Progress Coach	3.93		0.958			
Pair 8	Intervention Design Post	3.98	108	0.882	0.689	0.492	
	Intervention Design Coach	3.91		0.666			
Pair 9	Communication Skills Post	4.04	107	0.780	-2.813**	0.006	-0.293
	Communication Skills Coach	4.23		0.483			
Pair 10	Collaborative Stance Post	4.3	107	0.662	0.997	0.321	
	Collaborative Stance Coach	4.21		0.777			
Pair 11	Total Post	4.02	109	0.496	-0.739	0.461	
	Total Coach	3.96		0.688			

*p<.05. **p<.01

Table 9

Percent Distribution of Coach and Consultant-trainee Scores by Competence Level

	Coach			Consultant-trainee		
	NC	EC	C	NC	EC	C
Contracting	1.8	10.6	87.6	0	5.3	94.7
Observable Definition	6.3	28.8	64.9	3	30.8	66.2
Prioritizing	2.7	23	74.3	0.8	13.5	85.7
Measurable Goals	9.9	27.9	62.2	1.5	22.7	75.8
Conducting CBA	10.9	20	69.1	21.1	37.6	41.4
Graphing Data	7.3	28.4	64.2	3	22.6	74.4
Evaluating Progress	9.2	19.3	71.6	1.5	22	76.5
Intervention Design	5.4	19.6	75	2.3	17.3	80.5
Communication Skills	1.8	22.5	75.7	0	4.5	95.5
Collaborative Stance	1.8	18	80.2	0	12	88

Note: NC = not competent; EC = emerging competence; C = competent

Table 10

Chi-Square Results of Type of Rater's Relationship with Competence Level

Item Measured	Likelihood Ratio	df	Asymp. Sig.
Contracting	1.7	2	0.427
Defining concerns in observable terms	8.618	4	0.071
Prioritizing concerns	4.027	4	0.402
Establishing measurable goals	1.535	4	0.82
Conducting CBA	6.379	4	0.173
Charting/graphing data	3.62	4	0.46
Evaluating student progress using data	7.454	4	0.114
Designing appropriate interventions	6.354	4	0.174
Using collaborative communication skills	0.796	2	0.672
Maintaining a collaborative stance	0.551	2	0.759

Note: df differences are due to some columns and rows with zero or a very small number of subjects

Research Question 2

Relationship between skill development and treatment process integrity

(*Hypothesis 2a*). The second research question posited was whether increases in skill development correlate with increases in treatment process integrity. Pearson correlations were conducted, comparing scores from the four general areas on the consultant-trainees' post surveys of skill development and a total score from the coaches' rating forms of consultant-trainee skill development with a total SDF score.

Table 11 summarizes the results of the correlations.

The hypothesis was that increases in skill development would be significantly correlated with increases in treatment process integrity, as measured by completion of

the Student Documentation Form (SDF). There was a significant relationship between the average of the coaches' Rating of Consultant's Skill Development (Vail, 2004) and the Total score from the SDF ($r = .289$), indicating that the coaches' ratings were related to the integrity scores.

Table 11

The Relationship Between Skill Development and Treatment Integrity

Subject	N	Pearson Correlation	p
Pair 1 Collaboration Post SDF	104	-0.062	0.532
Pair 2 Prob Slvng Post SDF	103	-0.036	0.718
Pair 3 Assessment Post SDF	104	0.063	0.523
Pair 4 Intervention Post SDF	104	0.169	0.086
Pair 5 Total Post SDF	104	0.049	0.619
Pair 6 Total Coach SDF	91	0.289**	0.005

** $p < .01$

Supplemental Analysis

Each of the four general areas from the consultant-trainees' post coaching survey was compared to the others in order to determine which area of skill development they rated highest. The scores in the area of collaborative communication skills were found to be significantly higher than any of the other three areas (problem-solving skills, assessment skills, and skills in designing interventions).

As was seen on Table 5, 79% consultant-trainees ranked themselves as fairly to very competent in this area (a score of 4 or 5). Scores regarding the consultant-trainees' perceptions of their assessment skills were significantly lower than scores in the area of designing interventions. In fact, only 33% consultant-trainees rated themselves as fairly to very competent in using these assessment skills. Consultant-trainees rated their problem-solving skills as being significantly more developed than their assessment skills as well. Problem-solving skills and skills in designing interventions were considered more equally developed (58% and 54% consultant-trainees ranked themselves fairly to very competent in these areas respectively).

Paired samples t-tests were also conducted to compare each of the four general areas on the retrospective survey with each other in order to ascertain if the consultant-trainees attributed higher skill development in any area (collaborative communication skills, problem-solving skills, assessment skills, and skills in developing interventions). Significant differences were found with collaborative communication skills rated as the highest again. The percent distribution (See Table 5) showed that 18% of the consultant-trainees rated themselves as fairly to very competent in this area. While this was much lower than the 79% who rated themselves a 4 or higher on the post test, this was much higher than the number who rated their skills equally developed in the other three areas. Communication skills were followed by problem-solving skills, designing interventions, and assessment skills respectively. The percentage of consultant-trainees who rated themselves as fairly to very competent in these areas was 2% or below. See Table 12 for results from the retrospective survey as well as the post survey.

While each of the areas increased and the rank order did not differ from retrospective to post, the amount each area increased did differ. Figure 1 shows a line graph depicting how much each area increased after the consultant-trainee participated in the online program.

Figure 1

Slope of Change in Each Area from Retrospective to Post Score

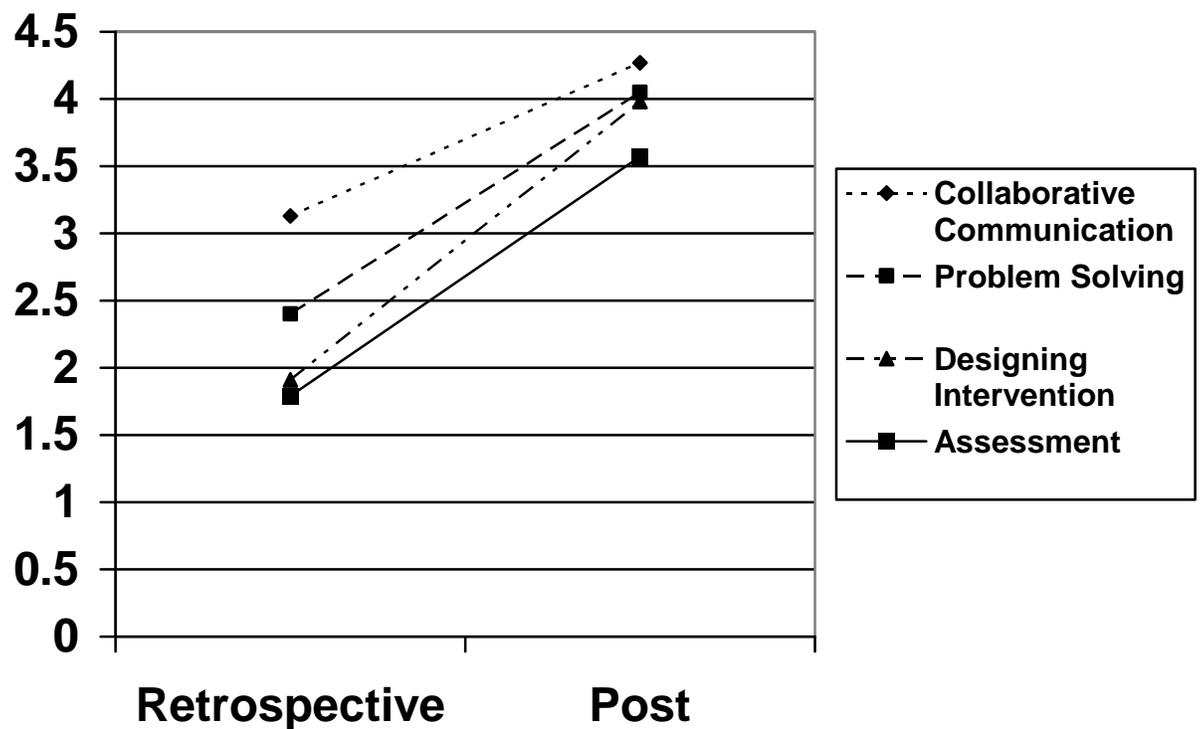


Table 12

Consultant-trainee Perception of Skill Development by Area

Subject		Mean	N	SD	t	p	Effect Size
Pair 1	Collaboration Post	4.27	131	0.479	7.512**	<.001	0.448
	Prob Slvng Post	4.05		0.485			
Pair 2	Collaboration Post	4.27	131	0.479	14.538**	<.001	1.220
	Assessment Post	3.57		0.661			
Pair 3	Collaboration Post	4.27	131	0.479	3.933**	<.001	0.405
	Intervention Post	3.98		0.888			
Pair 4	Prob Slvng Post	4.05	131	0.485	11.443**	<.001	0.831
	Assessment Post	3.57		0.661			
Pair 5	Prob Slvng Post	4.05	131	0.485	1.036	0.302	0.096
	Intervention Post	3.98		0.888			
Pair 6	Assessment Post	3.57	131	0.661	6.335**	<.001	-0.528
	Intervention Post	3.98		0.888			
Pair 7	Collaboration Retro	3.13	130	0.813	11.411**	<.001	0.913
	Prob Slvng Retro	2.40		0.785			
Pair 8	Collaboration Retro	3.12	130	0.813	17.266**	<.001	1.692
	Assessment Retro	1.79		0.761			
Pair 9	Collaboration Retro	3.12	130	0.813	15.415**	<.001	1.580
	Intervention Retro	1.91		0.717			
Pair 10	Prob Slvng Retro	2.39	130	0.782	10.526**	<.001	0.784
	Assessment Retro	1.79		0.758			
Pair 11	Prob Slvng Retro	2.39	130	0.782	7.961**	<.002	0.640
	Intervention Retro	1.91		0.714			
Pair 12	Assessment Retro	1.79	130	0.758	-2.428*	0.017	-0.170
	Intervention Retro	1.91		0.714			

*p<.05. **p<.01

Chapter 5

Discussion

This chapter will summarize the findings and provide some discussion of the results. Also included will be discussion of how the findings from this research support or diverge from previous research, the implications for theory and practice, the limitations associated with the current study, and ideas for future research.

Summary of Findings

The data analyzed in answering the two research questions revealed information about the effectiveness of online coaching as a medium for skill development. The first question asked if consultant-trainees' abilities to apply certain Instructional Consultation (IC) skills would increase after receiving feedback from a coach via e-mail. One hypothesis was that the consultant-trainees would perceive their own skills as having increased. The data showed that the consultant-trainees did indeed believe that their skills had improved in all four of the general IC related skill areas of collaborative communication skills, problem-solving skills, assessment, and designing intervention.

The scale used on the Professional Development Survey stated that a 4 indicated fairly competent skills, while a 5 was very competent. A look at the percent distribution associated with the scores that the consultant-trainees gave themselves both retrospectively and post involvement in the online coaching program indicated that those consultant-trainees viewing themselves as at least fairly competent (4 or 5) rose post coaching. This held true in each of the four areas. The results showed that post coaching 61% more consultant-trainees rated themselves as competent in using

collaborative communication skills, as did pre coaching. These results were consistent in the other areas as well; 56% more in problem-solving; 31% more in assessment; and 53% more in designing interventions. At least 50% of the consultant-trainees gave themselves at least a 4 after online coaching in nine of the ten areas assessed. Only 27% of the consultant-trainees felt they deserved a 4 or 5 in the area of using curriculum-based assessment.

The data used to answer the first question were collected via a self-report survey. In order to ascertain if the consultant-trainees were able realistically to assess their skill development levels, coaches were also asked to rate the consultant-trainees skill development. The second hypothesis related to the first question stated that coaches and consultant-trainees would agree on the level of skill development post coaching. The Rating Scale of Consultant's Skill Development indicated that a score of 4 meant that the consultant-trainee could apply the skill measured, and a 5 showed that the consultant-trainee could coach someone else on using the skill. At least a 4 was expected after participation in the online coaching program. Coaches rated at least 75% of the consultant-trainees as having reached the goal of a 4 in four of the ten areas assessed, including: contracting, maintaining a collaborative stance, collaborative communication skills, and designing appropriate interventions. They rated at least 50% of the consultant-trainees as having earned a 4 in all of the areas measured.

The chi-square results indicated that both raters (i.e., the coach or consultant-trainee) had similar perceptions of the competence levels of the consultees after coaching, i.e., the rating of the consultant-trainees' competence level was independent

of who did the rating (either coach or consultant-trainee). Both coach and consultant-trainee felt that in each area more trainees had achieved a competence level than either of the other two levels individually (not competent and emerging competence). In fact in all areas, with the exception of one, coaches and consultant-trainees rated more trainees in the competent level than the other two levels combined. That exception occurred in the area of consultant-trainees' rating of conducting CBA (not competent = 21.1%, emerging competence = 37.6%, and competent = 41.4%). Coaches and consultant-trainees consistently rated the largest percentage of consultant-trainees as competent in the area of contracting, followed by communication skills and collaborative stance. The biggest difference between percentage of consultant-trainees rated competent and percentage of trainees rated either not competent or emerging competence was also found in these three areas. The areas with the lowest percentage of consultant-trainees rated competent, however, differ between coach and consultant-trainee. Coaches felt that the lowest percentage of competent consultant-trainees was in the area of setting measurable goals. The lowest percentage of consultant-trainees who rated themselves as competent in any area was found in the skill of conducting CBA.

The t-test data also indicated that coaches and consultant-trainees had similar perceptions of the consultant-trainees' level of skill development in some areas but not in others. Using the mean scores rather than grouping the scores into competence levels, indicated some significant differences. Consultant-trainees had a higher perception of their skill level than did coaches in the use of contracting and of collaborative communication skills. In the area of use of curriculum-based

assessment (CBA), however, the coaches rated the consultant-trainees' skill level as higher than did the consultant-trainees themselves.

As a supplementary analysis, the general skill areas were ranked comparing retrospective pre-testing and post-testing. Retrospectively, the consultant-trainees ranked their skills prior to participating in the online coaching as highest in the collaborative communication area. They scored their problem-solving skills as second strongest, with designing intervention and using curriculum-based assessment ranked third and fourth respectively. The skill areas were similarly ranked by the consultant-trainees after the online coaching process. Collaborative communication skills were again seen as the most developed. After online coaching, however, the consultant-trainees felt that their use of problem-solving skills and ability to design interventions were evenly developed. The use of curriculum-based assessment was again ranked as the least developed. However, it was in the area of designing interventions that the consultant-trainees felt that they improved the most. This was followed by assessment, problem-solving, and communication skills respectively.

A second research question dealt with the relationship between skill development and treatment process integrity, as measured by completion of case documentation. The hypothesis was that as level of skill development increased, so would completion of the Student Documentation Form (SDF). The results indicated no strong evidence of a relationship between skill development and increases in treatment process integrity as measured by SDF completion when consultant-trainees were rating their own skill. There is, however, evidence of a significant correlation between coaches' perceptions of consultant-trainee skill development and the

consultant-trainees' level of completion of the SDF, indicating that as coaches' perception of competence rose, so did SDF completion.

Discussion of Findings

Effects on skill development. There has not been a lot of research into the effectiveness of online coaching on skill development. Research on supervision and training has shown that obtaining feedback in practice settings is difficult to obtain (Gravois, Knotek, et al., 2002; Kruger et al., 2001; Kruger & Struzzeiro, 1997), and yet is critical to the transfer of new skills (Gravois, Knotek, et al., 2002; Kruger & Struzzeiro, 1997; Rosenfield, 2002b; Showers & Joyce, 1996). The research indicates that coaching leads to an increase in knowledge and skill, a readiness to transfer new skills to the real life environment, and an ability to apply those skills appropriately (Jenkins et al., 2005; Kruger & Struzziero, 1997; Lam et al., 2002; Mc Loughlin, 2002; Showers & Joyce, 1996; Spitzer & Wedding, 1995; Stoltenberg, 1993; Zins & Murphy, 1996).

In the past, research has shown that participation in consultation training resulted in increases in skill and knowledge (Goodwin et al., 1971; Kruger & Struzziero, 1997). Vail (2004) studied consultant-trainees' perceptions of the on-line coaching component of the IC inservice training program. She found that the trainees perceived an increase in skill development, although the amount of growth depended on the skill measured. The current research also indicates an increase in perception of skill development after participation in the IC online coaching program. The significant difference in the current study between retrospective and post scores do seem to indicate that skill development did occur. The percentage of consultant-

trainees who rated themselves at an acceptable level (a score of 4 or 5 on the survey) seems to indicate growth in all of the areas assessed.

In terms of specific skills, it appears that the consultant-trainees have had high levels of confidence in their communication skills, while exhibiting lower levels of confidence in their ability to conduct CBA. The data from supplemental analysis reveals that when asked to rate their skill levels after participating in the online coaching, both at that time and retrospectively prior to participation, the consultant-trainees always rank collaborative communication skills as highest with use of CBA as the lowest. Vail also found that the amount of skill development depends on the skill measured. In particular, fewer consultants felt they were able to apply skills in the areas of curriculum-based assessment (CBA) and defining behaviors in an observable and measurable way than in some of the other areas.

While a causal relationship can not be determined based on the study and there are confounding factors, the large effect sizes indicate a relationship. It appears likely that skills do develop after participating in the online coaching program in most of the skills practiced. The findings of both the current research and Vail's (2004) are consistent in showing increases in consultant-trainees' perceptions of skill development.

Initially, the coaches' perceptions were measured in order to provide a validation for the consultant-trainees' more subjective self-report. The coaches scores can, however, also be viewed as a separate measure of consultant-trainee skill development. While no specific criteria have been established, it seems reasonable to suggest that a score of at least 4 (indicating an ability to apply the skill

consistently) could be an acceptable criterion on each of the surveys. The distribution of coaches' scores shows that the coaches believed that over half of the consultant-trainees were performing at that level in all of the areas measured. Of the remaining half of consultant-trainees, the majority was rated in the emerging competence level. Only a small percent (ranging from 1.8% to 10.9 % per area) was scored as not competent by the coaches. Over 75% of the consultant-trainees were able to apply skills consistently in the areas of contracting, maintaining a collaborative stance, collaborative communication skills, and designing appropriate interventions. The areas in which the coaches felt that the consultant-trainees were overall not as competent (less than 70% were found to be competent while 7 to 10% were rated not competent) were setting measurable goals, graphing data, creating and observable definition, and conducting CBA.

In order to validate the perceptions of the consultant-trainees, the current research study compared evidence of skill development from the coaches involved in the cases with the trainees' perceptions. The hypothesis that coaches and consultant-trainees would see skill development similarly held true for the most part. However, there were some differences in perception. Consultant-trainees viewed their skills in using collaborative communication skills and contracting as more developed than did the coaches, while coaches rated consultant-trainees' skills in using CBA higher than did the trainees themselves, although the coaches did rate the trainees as less competent in general in this area.

In the current research the coaches rate the consultant-trainees' skill in ability to use CBA higher than did the consultant-trainees themselves. However, the

trainees, similar to the Vail study, also feel that their skills in using CBA are the weakest of all the areas assessed. Not only is there a significant difference between coaches' and consultant-trainees' perceptions of development in using CBA, both the consultant-trainees and the coaches rate this area as weak; for the trainees, it is the weakest of all the skill areas both before and after receiving online coaching. While they feel that their ability to use CBA has increased more in this area than in most of the others (only designing intervention increased more), only 27% of the consultant-trainees feel that they apply the skill consistently, even after being coached through one case.

One possible reason for this discrepancy may be changes in the IC training which has developed more focus on the Instructional Assessment (IA is the current label for the study of the assessment process, which used to be called CBA) processes. In this instance, it might be a case of the consultant-trainees knowing more about a skill set than the coaches. They, therefore, know more about what they do not know than do the coaches. This may result in the coaches perceiving that the consultant-trainees are doing better in conducting CBA, while the consultant-trainees are more accurately rating an area in which there is more room for development.

Another possible explanation for the consultant-trainees rating this area so low may lie in the fact that CBA is more technical and more objective than some of the other areas. The assessment piece of the process deals with collecting data and filling out charts. In other areas, like communication skills, there is no visual evidence of the consultant-trainee having used that skill. It might be, then, that the consultant-trainees are more able to self-evaluate in an area such as use of CBA.

In two other general areas, using collaborative communication skills and conducting a contracting session, the consultant-trainees consider their skills as more developed than did the coaches. There may be a similar reason for both of these results. The consultant-trainees are certainly using their collaborative communication skills and are definitely conducting a contracting session, but their skill level may not be as high as they seem to believe. This researcher has been involved with IC cases for over ten years, as a consultant-trainee, a case manager, a team facilitator, an online coach, and an online coaching coordinator. If there is one thing I have learned about the IC process, it is that the more one learns the more one realizes how much more there is to learn. It may be that when using contracting and communication skills, the consultant-trainees have not experienced or learned how much more they really need to know in order to rate their skill level appropriately. As they continue to practice these skills, they may gain a better perspective from which to rate their initial skill levels.

Consultant-trainees must conduct and tape their contracting session. They are given outlines or guidelines they can use to help conduct this session. It probably seems structured and straight-forward to the consultant-trainee. The contracting session is probably one of the most important aspects of the IC process, as it is where the consultee (usually the teacher who comes to the consultant with a concern) is introduced to the IC process and given the information needed to make an informed decision as to whether or not to proceed with the IC process. Simply following the guideline may not ensure that the consultee understands the consultation process, and any misunderstandings may come back to hurt the process later on. Most of the

coaches have conducted many more contracting sessions and truly understand its importance. It may be that while the consultant-trainee feels good about following the structure, the coaches are in a better position to understand if the contracting session was conducted skillfully.

There may be a similar explanation for why coaches rank consultant-trainees' skill levels in using collaborative communication skills as lower than do the consultant-trainees themselves. After years of attempting to use and to coach others on how to use collaborative communication skills, this researcher still struggles. The more one attempts to use these communication skills, the more one realizes how difficult it really is. The trainees are usually attempting to use collaborative communication skills, but sophisticated use of them is a more complex skill. Development of expert communication skills may not be possible in only one case. .

Another possibility is that, while coaches may have a better understanding of the use of communication skills, they may not be providing enough feedback or are not providing it in a way that is helping the trainee develop these complicated skills. Some skills may need more or different types of coaching. The online coaching process is guided through use of the coaching manual and monitored by an online coaching coordinator, but it is not currently assessed. Many coaches stress completion of the IC steps rather than accuracy. Differences among coaches and coaching styles could impact amount of skill development.

Treatment integrity. Treatment integrity is defined as the degree to which the treatment has been implemented as it was designed, and is central to studies of outcomes related to consultation. The consultative process should include systematic

checks to ensure that consultants are providing consultation services as intended (Levinsohn, 2000). The Instructional Consultation (IC) process in particular uses a form (Student Documentation Form) that consultants fill out as they progress through the process. Very few research projects, however, have assessed if consultants are providing consultation services as intended (Gutkin, 1993; Sheridan, Welch, & Orme, 1996). Sheridan et al. found that actually only 26% of the studies reviewed assessed any form of treatment integrity, and many of these conducted treatment integrity measures of the intervention, not the consultation process itself.

Research has found a relationship between implementation of certain elements of the consultation process and student outcome (Bergan & Tombari, 1976; Flugum & Reschly, 1994; Fuchs et al., 1990; Kovalski et al., 1999; Kratochwill et al., 1995; Levinsohn, 2000; Telzrow et al., 2000). The elements that are most related to student outcome are: problem identification, including a behavioral definition; direct measure of current performance; clearly identified goals; implementation of a systematic intervention plan; graphing of data collected during intervention; and a comparison of post intervention data to baseline data (Flugum & Reschly; Fuchs et al.; Telzrow et al.). These studies measured the level of completion of these critical elements through a study of the documentation associated with the consultation case.

In her study, Levinsohn (2000) also looked at SDF completion in order to assess which areas of the IC process had been completed. She found that consultants had the hardest time completing the parts that dealt with monitoring student progress and collecting/graphing baseline data. There are certainly training implications from studies such as this; those aspects of the SDF that are less often complete may be in

need of more training. Besides simply more training, it may be that some areas need different types of training. For instance, there are certainly some consultation skills that require continued practice with feedback in work settings before the consultant approaches competency.

While previous research studied treatment integrity's effects on student outcomes, this research attempts to connect treatment process integrity with consultant training outcomes. The current research examines the relationship between treatment process integrity, as measured by completion of the SDF, and increases in skill development. The data from this study do not support a relationship between consultant-trainee perceptions of skills development and SDF completion. However, the correlation between the coaches' perceptions of skill development and SDF completion is significant, and may be a better indicator of the relationship between the two. It might be that coaches are better at accurately diagnosing skill development levels of trainees than are the consultant-trainees themselves, and that when rated accurately, there is a relationship between skill development and SDF completion. It could also be that the areas in which coaches and consultant-trainees rated skills differently (communication skills, contracting, and CBA) are related to the difference in the relationship to the SDF.

However, the results may have been affected by the high SDF completion rates. Throughout their IC case the consultant-trainees are coached after each session. They are required to submit their documentation (SDF) to the coaches with each tape. The coaches then include feedback on the completion of the SDF with their overall feedback to the consultant-trainees. The final SDF at the end of the case is a result of

these frequent revisions and corrections. By the time the SDF is scored, the consultant-trainees are more likely to have put at least something in each spot, even if it is not completely accurate. The rating form that was used in this research, however, rates only completion rather than accuracy of the SDF. It does not seem surprising, then, that there is no relationship between consultant-trainee perceptions of skill development and completion of the SDF. Further research is needed to tease out the exact nature of the relationship between SDF completion and skill development. It is possible that the high completion rates affected the relationship with skill development. It is also feasible to think that coaches are more accurately rating skill development and that there is a relationship with SDF completion.

Implications of Findings for Training

The findings of the current research have implications for training school consultants. The literature currently suggests that effective trainings must include presentation of information, modeling or demonstration, practice with feedback, and application of skills in a real setting with some type of coaching or feedback (Gravois, Knotek, et al., 2002; Joyce & Showers, 1980). It is this final step, the application of skills in real life situations that is often overlooked, especially in inservice professional development. These advanced practice skills, however, seem to emerge only when consultants are given the opportunity to practice them in real life settings with continued feedback. The data from the current research suggest that the consultant-trainees' skills did positively develop after participation in the online coaching program that included practice and continued feedback in applied settings.

The practical applications of these results support the inclusion of requiring students to apply their consultation skills even in preservice training programs. While the number of specialist and doctoral training programs offering consultation courses has increased (Anton-LaHart & Rosenfield, 2004; Costenbader & Swartz, 1992), surveys of training programs suggest that consultation training is mostly at the knowledge level. The trainees may leave the course having acquired the skills necessary to conduct a consultation case in a simulated setting, but have not yet been asked to apply those skills in field settings with the kind of feedback that was provided to these professionals. Application of skills with integrity is the general goal of skill development trainings. It seems, therefore, important to include that final step, application of skills in applied situations with continued feedback or supervision, into any consultation training.

There are also implications from these research data in the area of measurement. Vail (2004) used a self-report scale similar to the one used in this study when assessing skill development. One limitation of the self-report scale is its subjective nature. In a different study, McKenna (2005) looked at how perceptive consultants were when assessing their own levels of treatment process integrity when conducting an IC case. Using an objective measure, i.e., an analysis of the taped consultation sessions, she was determined that the consultants and teachers were able to implement most of the component areas with an adequate level of integrity. The consultants' subjective self-report, assessed during an interview, matched the more objective measure of coding the actual consultation session tapes.

In order to provide some support for the consultant-trainees' perceptions of their own skill development, this research included a measure asking coaches to corroborate the trainees' perceptions of their skill development. In seven of the ten general skill areas assessed, coaches and consultant-trainees were in agreement regarding their perceptions of trainee skill development. This provides some support for using self-report as a valid measurement of skill development. However, the differences between the coaches' and consultant-trainees' perceptions suggest some limitations in the consultant-trainees' abilities to measure their own skill development in some areas.

Limitations

Internal and external validity. This study is not a true experimental study as there is neither random assignment nor a control group. While a relationship between participation in the online coaching program and consultant-trainee skill development does exist, it is not possible, however, to state unequivocally that the online coaching caused increases in skill development. There may be other explanations for the relationship between the two variables. However, the most plausible explanation seems to be that the consultant-trainees skill development increases as a result of participation in the online coaching program.

Another limitation is that something about these particular consultant-trainees impacted the results. For instance, only cases that completed all the problem-solving stages are included in this study. The consultant-trainees that complete their cases may have certain similar characteristics that are also associated with skill development. There are not much demographic data available on the consultant-

trainees, other than the states they lived in, gender, and the jobs they held. This lack of demographic information decreases the information that would help to generalize the results.

This study's design does not control for how much each consultant-trainee used the coaching. There are certain guidelines in terms of minimum amount of coaching necessary to be considered a complete case, but more coaching is always available. Consultant-trainees who ask for more guidance may be more invested in developing their skills.

Characteristics of the coach may also have some influence on the relationship between the variables. In this particular situation the coaches are trained via a manual. Each coach receives a written manual with guidelines on how to provide feedback. The coaches have also all participated as a consultant/case manager in a coaching relationship (either online or face-to-face). There is an online coordinator whose job it is to review all e-mails and provide feedback to coaches if necessary. This ensures more uniformity among coaches' feedback. Yet differences in coaching style could impact their views on rating skill development. In addition, the coaches also are responsible for a different number of cases; some may only have one case while others have more. Those coaches who have more cases have more input into this particular study simply because they fill out more surveys (one per case).

Limitations in measurement. One possible limitation associated with the pretest-posttest design is that participation in the intervention will lead subjects to change their internal standards by which they judge their performance. For this study, we attempted to minimize this possible bias by using the retrospective pretest-

posttest design. Research has shown that the retrospective pretest-posttest design is a valid measure of perceived change (Hoogstraten, 1982; Sprangers & Hoogstraten, 1989).

Another possible bias results from the use of the self-report measure. Even though McKenna (2005) found that consultants were capable of correctly perceiving their level of implementation of the IC process (consultant interview results matched those from an analysis of the actual consultation tapes), this study includes another check of consultant-trainees' perception. Consultant-trainees' perceptions were compared to coaches' perceptions of skill development in order to attempt to validate the consultant-trainees' perceptions. Results indicate that overall, the consultant-trainees and coaches perceive skill development similarly, although there are also differences in certain skill areas.

The forms used by the consultant-trainees and coaches to assess skill development are different. The process of comparing the forms was discussed in Chapter 3. There are, however, potential limitations associated with comparing different forms. The combining of items on the Professional Development Survey was completed by the researcher and her advisor using a process of content similarity. The results were combined based on expert judgment of the advisor and the researcher, and not subjected to psychometric analysis. The results must therefore be viewed with caution.

Future Directions

While this study answers some questions about the relationship between coaching and skill development, there are still many areas to explore. Some of the

areas include consultant-trainees' characteristics, coaches' characteristics and coaching styles, as well as considering measures other than the SDF to assess treatment process integrity.

There are questions about the consultant-trainees themselves. First of all, only cases that were completed are used in this study. Although individual circumstances in the field setting have some impact on case completion, there might be personal variables connected to consultant-trainees who complete cases. Consultant-trainees who complete cases may be more motivated or have more developed skills prior to beginning the case. Looking at measures of skill level of all consultant-trainees who were assigned a coach might provide a greater range of skill development. Other relationships to explore include how the consultant-trainees' characteristics (years of experience in position, years since graduation, type of training program attended, motivation, and beginning level of skill) relate to skill development, SDF completion, SDF accuracy, case completion, and treatment process integrity.

Vail (2004) found that consultant-trainees perceived coaching as more beneficial to the development of some skills than others. The current study found that coaches and consultant-trainees disagree about skill development in certain areas. This also may be related to type or amount of coaching received in those areas. A more in-depth study into which skills respond better to coaching and which need more or different types of training would be helpful to those designing consultation training programs.

The differences in perception may also be related to SDF completion. The relationship between coaches' overall perception of skill development is significantly

correlated with SDF completion, used as a measure of treatment process integrity. The relationship between consultant-trainees' perceptions and SDF completion, however, is not. It could be that those areas in which the coaches and consultant-trainees disagree (collaborative communication skills, contracting, and use of CBA) are more or less related to SDF completion. Looking at which, if any, of the consultation skills are more or less related to SDF completion is a possible area for future research.

Also with regards to coaching, future researchers may want to study the relationship between the coaches themselves or their coaching styles and skill development of the consultant-trainees. Vail (2004) also found that different coaching styles and different types of feedback had different impacts upon skill development. For instance, she found that consultants perceived that positive and critical feedback, feedback with examples, support, and suggestions were the most helpful. She also reported that when coaches provided information/suggestions that were followed with positive feedback, the consultants' skills increased. Consultants in her study reported that coaching contributed more to some skills than others. The next step seems to be examining the relationship between the specific styles of coaching and specific skills. For instance, it would be interesting to discover if specific positive feedback is more beneficial at increasing graphing skills or conducting instructional assessments.

One interesting result of the current study was the difference between coaches' and consultant-trainees' perceptions of collaborative communication skill development. The consultant-trainees' seemed to feel that they had done a better job

using these skills than did the coaches. One hypothesis mentioned in this study is that the coaches know more about appropriately using communication skills. A question then is how these coaches are imparting that knowledge to the consultant-trainees during coaching. The manual that is given to each coach includes guidelines on which areas the coaches are to provide feedback. One of those areas is identified as quality of working relationship (Laboratory for Instructional Consultation teams Manual for online coaches, 2005). Coaches are encouraged to give feedback/suggestions on how to improve appropriateness and quality of communication skills. It is up to each coach to decide how to provide that feedback. The use of collaborative communication skills is a very difficult area to learn and to use appropriately, and yet is extremely important when conducting an IC case. Research on how coaches provide feedback in this complicated area would be beneficial to training programs. Of course, it might not be possible to become skilled in this area based on coaching in just one case, so another question is how much experience is needed to develop more sophisticated skills in communication.

The coaches present another possible confounding variable. This study has focused on treatment process integrity as it relates to consultant-trainees appropriately following the IC process. It might also be possible to research the integrity with which the coaching process is followed. Currently the coaching coordinator is responsible for monitoring the e-mails between coach and consultant-trainee and for overseeing the coaches' feedback in the cases used in this study. This oversight and the manual provided to coaches are attempts to ensure the feedback given to each consultant-trainee is similar and appropriate. The coaches, however, still bring their

own experience and characteristics with them to the coaching situation. These variables, such as coach's years of experience as a coach, number of cases coached, and coaching style will undoubtedly have an impact on skill development. Future research could explore these variables on the effectiveness of the coaching progress for trainees.

Another avenue for future exploration lies in attempting to remove the subjectivity with which the quality of the coaching is currently assessed. It might be possible to construct a rubric to evaluate the coaches' feedback. The focus could be not only on completion of the IC steps, but on accuracy as well. This rubric could be helpful in planning training for coaches on how to coach different skills that might require different types of coaching, like communication skills versus charting/graphing data.

The process of trainees developing skills will also change over time. The type of coaching needed to help a novice consultant develop new skills is different from the coaching needed to help a more experienced consultant continue to grow. Currently new coaches are chosen by more experienced coaches who coached them through a case as a consultant-trainee and is based on how the consultant handled managing the case. It might be that coaches need more than to be familiar with the IC process and case management in order to help prepare more skilled consultants. There might be different skills to learn that will help coaches become better at coaching. Certain coaching skills may be required for certain types of coaching, for instance coaching online versus face-to-face. Online coaching may necessitate

different skills due to the lack of visual cues or the time delay between e-mails. Exactly how the process differs needs to be explored.

It might be possible to do longitudinal research to study how coaching needs evolve over time. For example, following consultant-trainees from their first case through several more cases as they receive coaching might provide interesting information. The coaching would not necessarily be provided by the same coach or online. The consultant-trainees could evaluate the coaching they receive as their skill development is monitored. Analyzing the relationship between continued skill development and type of coaching received may help illuminate the specific skills coaches need to coach the more expert consultant.

Completion of the Student Documentation Form (SDF) is used in this study as a measure of treatment process integrity. However, the relationship between SDF completion and skill development is not clear. Consultant-trainee perception in this study was not related, but coach's perception was. As is mentioned above, the study only looks at completed cases. Since coaches are required to provide feedback on the SDF weekly, it is not surprising that completion rates are high in these cases. Looking at all cases (complete and incomplete) might provide a greater range of SDF completion, which may give more information to determine if there is a relationship between SDF completion and skill development. One could also compare the SDF's of those cases that are coached versus cases that are not coached. However, it might be more informative to look at SDF accuracy rather than completion. It could be that accuracy of SDF completion is more of a measure of whether or not the consultant-trainee is appropriately implementing the IC process.

The SDF is a very useful tool already in place that can be used to measure treatment process integrity. Looking only at completion as it relates to the integrity with which the process is implemented does not allow one to use its full potential. For example, there is one specific section of the SDF relating to operationally defining the main concern of the case. Evaluating the SDF for completeness only means that consultant-trainees receive points for writing anything in that space, whether it meets the criteria for an operational definition or not. The point to having an operational definition is to make the concern measurable so that it is possible to compare post intervention student performance with baseline. If the definition is not observable and measurable, then the IC process is not being followed with integrity. A measure of the accuracy of the operational definition is a better measure of process integrity.

Another possibility is that it might be better to use a totally different measure of treatment process integrity. Currently a level of implementation scale (LOI-R), based on interviews with consultant and consultee, is used at the schools with IC teams. The LOI-R is an attempt to measure the integrity with which the IC process is implemented. McKenna (2005) found that the IC process was being implemented with a high degree of integrity and also that the interview process was correctly identifying the behaviors that had occurred during the process. This level of implementation interview is not used with all of the online coaching cases, but might be incorporated into the process in the future.

Since correct implementation of the process is so important in consultation cases, it would be very helpful to find a way to ensure high levels of treatment

process integrity. The training of the consultation skills is essential in correctly implementing them later. Research has already shown that the LOI-R is a valid measure of treatment integrity (McKenna, 2005). Further study of the relationship between treatment process integrity and skill development may be better served using the LOI-R as the measure of integrity.

Conclusion

The results of this research can be helpful in the training of future consultants. Currently, an online coaching program to provide feedback to consultant-trainees who are applying the new IC skills they learned in an applied setting is being used for IC training. The application of skills is essential to becoming proficient in any new area. Information on the usefulness of the online coaching, therefore, could be helpful to other training programs.

There is a relationship between perception of increases in skill development and the online coaching program. Consultant-trainees perceived significant increases in their skill development after receiving feedback from an online coach. The coaches also described the consultant-trainees' skills as improving. Online coaching offers one way to provide the feedback necessary while decreasing time and geographic barriers.

The relationship between skill development and treatment process integrity is in need of further research. There was limited evidence of such a relationship in the current study, which may be related to the measurement indicators used or to the person who is doing the evaluating of skill development. Further research could

provide important information in this area to aid training programs in ensuring that skills are taught and applied with integrity.

Appendix A

Rating of Consultant's Skill Development

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Rating of Consultant's Skill Development
Consultant # _____

Please rate each consultant's level of development in the following consultation skills at the end of the coaching experience. Please rate each skill on a scale of 1 to 5.

- 1 Consultant does not have an understanding of this skill (evidence: consultant was unable to articulate concept or identify when hadn't used skill appropriately)
- 2 Consultant understands this skill but has difficulty using it (evidence: consultant was able to articulate concept and describe appropriate action but had difficulty demonstrating the skill)
- 3 Consultant can demonstrate this skill in some situations (evidence: consultant demonstrated skill inconsistently in consultation with teachers)
- 4 Consultant can apply this skill consistently (evidence: consultant demonstrated skill consistently in consultation with teachers)
- 5 Consultant could coach someone else on this skill (evidence: consultant was able to assess own skill use and demonstrate appropriate action during consultation)

Consultation Skill

Contracting	1 2 3 4 5
Defining concerns in observable terms	1 2 3 4 5
Prioritizing concerns	1 2 3 4 5
Writing a statement of current performance	1 2 3 4 5
Establishing measurable goals	1 2 3 4 5
Conducting Curriculum Based Assessment	1 2 3 4 5
Conducting systematic observation	1 2 3 4 5
Charting/graphing data	1 2 3 4 5
Evaluating student progress using data	1 2 3 4 5
Designing appropriate interventions	1 2 3 4 5
Completing the Student Document Form	1 2 3 4 5
Using collaborative communication skills	1 2 3 4 5
Making joint decisions with consultees	1 2 3 4 5
Maintaining a collaborative stance	1 2 3 4 5
Comments: _____	

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Appendix B

Instructional Consultation Professional Development Survey
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Research # _____

Instructional Consultation Professional Development Survey (retro)

SECTION C
Think back to **BEFORE** you participated in IC Team training. Please rate each item below based on how competent you were in this skill area **PRIOR** to your involvement with the IC Team.

1 = not competent
2 = minimally competent
3 = somewhat competent
4 = fairly competent
5 = as very competent

	<u>Competence</u>				
	1	2	3	4	5
1. Collaborative Communication Skills					
h. Asking relevant questions	1	2	3	4	5
i. Reflecting teacher's feelings	1	2	3	4	5
j. Paraphrasing teacher's concerns	1	2	3	4	5
k. Active/reflective listening	1	2	3	4	5
l. Clarifying teacher's concerns	1	2	3	4	5
m. Summarizing	1	2	3	4	5
n. Offering information	1	2	3	4	5
2. Problem-Solving Skills					
k. Contract setting with a teacher	1	2	3	4	5
l. Creating a shared understanding of the concerns	1	2	3	4	5
m. Defining concerns in observable terms	1	2	3	4	5
n. Collecting baseline data	1	2	3	4	5
o. Establishing measurable goals	1	2	3	4	5
p. Eliciting teacher ideas for strategies	1	2	3	4	5
q. Assessing the student's instructional match	1	2	3	4	5
r. Designing appropriate interventions	1	2	3	4	5
s. Charting and graphing data	1	2	3	4	5
t. Prioritizing concerns	1	2	3	4	5
b. Making joint decisions with teachers	1	2	3	4	5
3. Assessment					
f. Conducting curriculum-based assessment (CBA) in reading	1	2	3	4	5
g. Conducting curriculum-based assessment (CBA) in math	1	2	3	4	5
h. Conducting curriculum-based assessment (CBA) in writing	1	2	3	4	5
i. Evaluating student progress using data	1	2	3	4	5
j. Completing the Student Documentation Form (SDF)	1	2	3	4	5
4. Designing Intervention					
i. Using instructional match in intervention	1	2	3	4	5
j. Incorporating student's prior knowledge into intervention plan	1	2	3	4	5
k. Selecting materials that build on student's skills	1	2	3	4	5
l. Drill sandwich	1	2	3	4	5
m. Word search	1	2	3	4	5
n. Forming questions	1	2	3	4	5
o. Pocket words	1	2	3	4	5
p. Chunking/phrasing	1	2	3	4	5
5. When addressing students' difficulties in school, what percent of time do you spend <u>considering</u> each of the following variables? Please be sure the percentages that you list add to 100%.					
_____ % on instruction		_____ % on student characteristics	_____ % on task and classroom environment	_____ % on task and classroom environment	_____ % on task and classroom environment

Appendix C
Reflection Sheet

(Laboratory for Instructional Consultation Teams Manual for Online Participant
Consultants, 2005)

Reflection on Case Consultation Meeting

Collaborative Problem Solving Process:

What stage(s) of the process did you address in this meeting? Within that stage, what steps did you accomplish in this meeting?

What stage and steps do you plan to focus on next meeting?

(Consider: addressing previous steps that still need to be accomplished, completing current steps, or moving to next steps in the process)

Collaborative Communication Skills:

Which communication skills did you use in this meeting? Did you use reflective communication skills, and for what purpose?

Thinking about the problem-solving stages and steps you plan to focus on next meeting, which reflective communication skills could you use to help accomplish these steps?

Instructional Assessment (IA)/CBA:

What aspect of instructional assessment did you focus on in this meeting? Use the Instructional Assessment Manual in the IC Training Manual to reference the relevant dimensions, procedures, and materials.

What aspect of instructional assessment do you plan to address in your next meeting? Use the Instructional Assessment Manual in the IC Training Manual to reference the relevant dimensions, procedures, and materials.

What questions do you have about problem-solving stages or steps, collaborative communication skills, instructional assessment, the use of the SDF and/or feedback from your coach?

Based on your plans for your next meeting and your questions, what skill would you like to select as a Focus Skill for your next meeting?

Appendix D

Correlations between questions on Professional Development
Survey (PDS) and Rating of Consultant Skill Development (RCSD)

Questions	N	Correlation	p
PDS 2a & RCSD 1	109	-0.051	0.598
PDS 2c & RCSD 2	107	.201*	0.038
PDS 2j & RCSD 3	109	0.087	0.371
PDS 2e & RCSD 5	106	0.116	0.236
PDS CBA & RCSD 6	106	-0.112	0.254
PDS 2i & RCSD 8	105	.274**	0.005
PDS 3d & RCSD 9	104	.219*	0.026
PDS Intervention & RCSD 10	108	0.132	0.173
PDS Collab & RCSD 11	107	0.115	0.237
PDS 2k & RCSD 12	107	0.099	0.308
PDS Total & RCSD Total	109	0.154	0.11

*p<.05. **p<.01

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