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Conducting Rigorous Survey Research in the Study of School-Based Consultation

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ABSTRACT

The evidence base for school-based consultation practice and training is limited by a small number of studies, possibly due to unique challenges in researching consultation. For example, there are myriad variables to measure and idiosyncratic cultural and contextual factors to account for when investigating what works, for whom, and in what circumstances. Survey methodology offers one means for conducting consultation research. This article proposes a process for rigorous survey research in school-based consultation training and practice, which addresses some potential concerns regarding survey research. Specifically, issues of survey development, survey validation, sampling, and data collection are addressed. These processes are illustrated through the design and administration of an online survey of 262 early career school psychologists; preliminary data analyses suggested strong scale reliability, minimal item response bias, and population representativeness. Recommendations for future consultation survey research are provided.

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Consultation is a challenging topic to research. Logistics may prohibit observing consultation practice or consultation training in natural contexts, and other measures (e.g., analysis of syllabi; self-reports of time spent consulting) may offer limited information. Furthermore, unlike direct service delivery, consultation includes more than just a psychologist and client. Instead, consultation includes the consulting psychologist, the consultee, and the client; and the client may include an entire system or institution. Survey research can allow researchers to access this wider range of participants in the consultation process and begin to understand complex systems-level issues. For example, in a survey with a stratified sample of 150 school counselors and 150 school psychologists, Choi, Whitney, and Korcuska (2008) found that limited consultation took place between school counselors and school psychologists despite other data trends indicating a partnership approach to serving children. To provide another example, Gonzalez, Nelson, Gutkin, and Shwery (2004) studied teacher resistance to school-based

consultation offered by school psychologists via a survey of 403 elementary school teachers. Data suggested that only the hours that a school psychologist was in the building predicted the reported number of consultations and that other expected interpersonal and administrator support variables were non-significant in quantity of consultations that occurred.

High-quality survey research can be achieved through thoughtful research design, the use of valid and reliable measures, sampling procedures that increase generalizability of findings, and methods to improve response rates. The purpose of this article is to outline a process for applying best practices in survey design to consultation research—in particular, to study school-based consultation practice and training. To that end, we will (a) briefly review the literature on school-based consultation and school-based consultation training, (b) describe best practices in survey research applied to the study of school-based consultation, (c) illustrate the process of rigorous survey design via the composition of a survey of early career school psychologists about their consultation training and practice, and (d) provide recommendations for future consultation survey research.

Research in school-based consultation and school-based consultation training

The current research base for school-based consultation has been characterized as “promising, emerging, and developing” (Erchul & Sheridan, 2014, p. 3). As indicated by Erchul and Sheridan, empirical evidence influencing the practice of school-based consultation appears to have progressed through three chronological waves: (1) accumulating knowledge (e.g., literature reviews, empirical studies, and meta-analyses); (2) orienting knowledge toward research on evidence-based practice and interventions (e.g., incorporating evidence-based interventions as part of consultation); and (3) evaluating knowledge through randomized control trials. This progression signifies the growing rigor of school-based consultation research and increases confidence in claims regarding the effectiveness of school-based consultation.

Indeed, we can make a number of substantiated assertions about the effectiveness of school-based consultation. For example, the implementation of school-based consultation results in improved outcomes for consultees and clients more often than not (Erchul & Sheridan, 2014), and a number of consultation models have demonstrated effectiveness in consultation process, outcomes, or both (Lopez & Nastasi, 2014). Despite the progress made in researching school-based consultation over the past several decades, much work remains to be done. Researchers still need to pursue a nuanced understanding of school-based consultation to answer the question of what works for whom and under what conditions (Sheridan & Erchul, 2014). These same questions apply for school-based consultation training research, which is

limited by a small number of studies, small sample sizes, lack of replication across specific training models, and few experimental designs (Newell & Newman, 2014).

Best practices in survey methods applied to consultation research

Surveys have great utility for consultants. For example, trial consultants use surveys to understand characteristics that might indicate a potential jury member's biases (Wingrove, Korpas, & Belli, 2011), and school consultants gather student perspectives on classroom environments through surveys (Doll, Brehm, & Zucker, 2014; Doll, Spies, et al., 2014). In the research of consultation, a number of studies over the past several years have used surveys as a primary tool to build knowledge of consultation and consultation training. Examples of empirical school-based consultation survey studies are provided in Table 1. Notably, each of these studies has been cited multiple times, providing one indicator of the study's importance in laying a foundation for future research.

Prior to engaging in survey development, it is important to determine whether survey research is the appropriate methodology to fulfill the purpose of the study and to answer the research question(s). Survey research does not allow researchers to draw conclusions regarding causality; however, it is well suited for understanding participants' thoughts or feelings about particular issues and for widely gauging particular practices. Survey methodology offers the ability to examine patterns or trends across several areas or groups and sample a large number of participants (Desimone & Le Floch, 2013). Survey research has been identified as a valuable approach to "advance the frontiers of education and learning; develop and refine theory and methodology; and provide fundamental knowledge about teaching and/or learning ... without [necessarily] establishing an explicit link to education outcomes" (IES, USDE, & NSF, 2013, p. 12). As school-based consultation research is still developing or refining consultation theories (Sheridan & Erchul, 2014), survey research could be helpful in identifying patterns that could subsequently be investigated in more depth with other methodologies.

Although survey research has limitations, as does any methodology, some of these challenges can be addressed through careful survey design and administration (Desimone & Le Floch, 2013; Fowler, 2014). Organizational researchers have identified six stages in the survey research process: (1) identifying the purpose and scope of the survey, (2) constructing the instrument, (3) administering the survey, (4) analyzing the data, (5) reporting results to key constituents, and (6) taking action (Rogelberg, Church, Waclawski, & Stanton, 2008). This article focuses on the first three stages, as the last three stages are what are most commonly reported in the literature. In Stage 1, the purpose (or intended use of the information) should

Table 1. Examples of Consultation Survey Research Studies by Area and Number of Citations.

Specific area studied	Article citation	Focus	Number of times cited ^a
Consultation practice	Sheridan, S. M., & Steck, C. M. (1995). Acceptability of conjoint behavioral consultation: A national survey of school psychologists. <i>School Psychology Review</i> , 24, 633–647.	School psychologists' perceptions of conjoint behavioral consultation as an acceptable method of service delivery	49
	Gonzalez, J. E., Nelson, J. R., Gutkin, T. B., & Shwery, C. S. (2004). Teacher resistance to school-based consultation with school psychologists: A survey of teacher perceptions. <i>Journal of Emotional and Behavioral Disorders</i> , 12, 30–37.	Teacher resistance to real-world school-based consultation services delivered by school psychologists	48
	Doll, B., Haack, K., Kosse, S., Osterloh, M., Siemers, E., & Pray, B. (2005). The dilemma of pragmatics: Why schools don't use quality team consultation practices. <i>Journal of Educational and Psychological Consultation</i> , 16, 127–155.	Prereferral consultation teams' adherence to quality consultation procedures; compatibility between research-recommended procedures and actual team practices	28
	Wilczynski, S. M., Mandal, R. L., & Fusillier, I. (2000). Bridges and barriers in behavioral consultation. <i>Psychology in the Schools</i> , 37, 495–504.	School psychologists' perceptions of barriers to behavioral consultation and sources of support for implementation	24
	Costenbader, V., Swartz, J., & Petrix, L. (1992). Consultation in the schools: The relationship between preservice training, perception of consultative skills, and actual time spent in consultation. <i>School Psychology Review</i> , 21, 95–108.	School psychologists' consultation training, consultation practices, perceptions of their consultation skills, and real and ideal levels of involvement in consultation	74
Consultation training	Anton-LaHart, J., & Rosenfield, S. (2004). A survey of preservice consultation training in school psychology programs. <i>Journal of Educational and Psychological Consultation</i> , 15, 41–62.	The state of preservice consultation training and supervision in school psychology graduate programs	42
	Meyers, J., Wurtz, R., & Flanagan, O. (1981). A national survey investigating consultation training occurring in school psychology programs. <i>Psychology in the Schools</i> , 18, 297–302.	School psychology training programs' approaches to consultation training	25
	Shriver, M. D., & Watson, T. S. (1999). A survey of behavior analysis and behavioral consultation courses in school psychology: Implications for training school psychologists. <i>Journal of Behavioral Education</i> , 9, 211–221.	School psychology training programs' coursework in behavioral consultation and behavior analysis	11

^aAs indicated by Google Scholar in April, 2015. Google Scholar citations include books, book chapters, and dissertations in addition to peer-reviewed journal articles.

determine the survey's scope (number and type of respondents, content areas, logistical considerations, and timing of administration). The construction of the instrument (Stage 2) is also driven by the purpose of the research; whether an existing or new instrument is used, the quality of the data collected will be dependent on the quality of the instructions, items, and response scales. Survey administration (Stage 3; also referred to as data collection) requires close attention to details such as tracking response rates and organizing data collection systems. Following is a review of survey design considerations applied to school-based consultation: survey development, sampling plan, and data collection.

Survey development

The first and most critical step in survey development is establishing a theory-based definition of the phenomenon (DeVellis, 2012). For surveys intended to measure phenomena that cannot be directly observed (e.g., attitudes), there are no tangible criteria to which the respondents' answers can be compared. Therefore, an articulated theory is necessary to define what is and is not an aspect of the construct of interest (Desimone & Le Floch, 2013; DeVellis, 2012). When an area of investigation is absent applicable theories, constructs of the phenomena help to define the parameters of what should be considered. This is particularly true when terms have different definitions. For example, *consultation* means different things to different people (Gutkin & Curtis, 2009) and is a more specific practice when referenced within the psychology and education literature versus when referenced in the popular press or by a layperson.

For school-based consultation research, there is not a clearly articulated theory that fully defines the parameters of the interest area, and even the underlying constructs are under dispute. Scholars have divergent perspectives on the objectives of consultation, resulting in consultation models that differ with respect to variables such as (1) level of intervention (e.g., individual, group, or system), (2) communicative approach (e.g., collaborative, coercive, directive, nondirective; Gutkin, 1999), and (3) the primary focus of problem solving (e.g., behavior, instruction, mental health). Because of the breadth of perspectives on consultation, it is difficult to assess whether all critical constructs have been addressed, major ideas have been omitted or misinterpreted, and spurious aspects have been included. Therefore, it is incumbent on the researcher(s) to articulate a definition of consultation and the constructs within their study. A literature review should help the survey designers define their construct(s) and identify existing measures of the construct that may be helpful models (Gehlbach & Brinkworth, 2011). At the same time that the constructs are defined, the population of interest also needs to be defined. Identifying the population

of interest early in the research process allows the researchers to further define what aspects of or perspectives on the phenomena will be able to be captured by the survey.

Refining the scope of the survey through focus groups

Once the purpose(s) of the survey, boundaries of the constructs, and persons who have insight into the constructs have been defined, individuals from the defined population, as well as experts, may be sampled to participate in focus groups regarding the survey's development. This typically occurs before any survey items have been designed. Focus groups with experts can be useful in further refining the phenomena boundaries and understanding any limits to possible findings (Fowler, 1995). Interviews or focus groups with individuals who resemble the population of interest can elucidate how participants conceptualize the construct, as well as probe for agreement with how the construct is presented in the literature (Gehlbach & Brinkworth, 2011). As school-based consultation is a complex phenomenon, focus groups and interviews can be invaluable for assisting the researcher(s) in considering the scope of the survey research.

Initial development of survey and items

With a defined phenomenon and target population, the possible items and means of scoring the items can be considered (for a discussion of this process, see DeVellis, 2012; Fowler, 1995). The goal is to develop items that synthesize the researchers' definition of the constructs, drawn from the literature review, with the interview and focus group data (Gehlbach & Brinkworth, 2011). Content validity is the extent to which items sufficiently and comprehensively cover the entire construct (Royse, Thyer, Padgett, & Logan, 2006). The researchers need to create possible items to address all constructs of interest and, within each construct, items that address that construct fully (Levenson, 2014). At the same time as items are designed to address the construct, the researchers need to decide on the item response format. Although efforts to decrease survey completion time are important, closed-ended items can be complemented by a small number of open-ended items as open-ended items allow participants to respond from their own perspective (Levenson, 2014).

Increasing validity through expert review

One means to increase the survey's construct and content validity is to ask consultation experts to review the survey draft (Gehlbach & Brinkworth, 2011). Similar to the Delphi method, in which experts in a particular field are repeatedly asked to give opinions regarding the definition of a phenomenon until consensus is achieved (or discrepancies defined), a consultation survey draft can be sent to content experts to solicit feedback on the scope of the survey as well as individual

items (e.g., see Oroviogicoechea, Watson, Beortegui, & Ramirez, 2010; Thomson et al., 2009). Ideally, the experts represent a broad perspective on the consultation phenomenon under investigation and are asked for both global and specific feedback. The survey designers then compile the expert feedback and determine how they will respond, thus more clearly articulating for themselves the content parameters of the survey. Integrating the feedback may result in revisions to survey content, organization, and items.

Cognitive interviews

After completing the previous steps, the researchers have a full draft of their survey. However, the consultation researchers who designed the survey and the experts who reviewed the survey will usually vary from the intended survey participants in important ways with respect to survey validation. First, while researchers are experts in the content area of the survey, participants may not be (Nathan, Koedinger, & Alibali, 2001). Content expertise may influence how questions and response choices are interpreted. For example, the way a question is worded or the order of response choices, which is logical to the researchers, may not be clear to respondents. Second, the researchers will have more familiarity with the survey than will participants (Nathan et al., 2001). The researchers may have a conceptualization of what survey items are probing that is different from the interpretation of the participants, or some items may be wholly unclear to participants.

Survey validity can be compromised when respondents “misanswer” items. Items can be misanswered intentionally (purposely misrepresenting one’s self, such as giving socially desirable responses or exerting noncompliance) or because of item misinterpretation (Fowler, 1995). According to Desimone and Le Floch (2013), four steps are required to answer an item accurately: (1) comprehending the item, (2) knowing and retrieving relevant information, (3) making a judgment based on this recall, and (4) mapping the knowledge onto the reporting system. At any one of these steps, the validity of the response can be jeopardized. The survey designer can address steps (1) and (4) through attention to item response formats and content. Steps (2) and (3) require the participant to accurately remember information; both under- and overreporting are areas of concern (Fowler, 1995). The more distant the event, the greater the probability of recall bias.

To assess the ability of participants to accurately answer the survey items, it is valuable to conduct cognitive interviews (CIs) with persons from the population for whom the survey is intended, or individuals who approximate that population (Desimone & LeFloch, 2013; Fowler, 1995; Gehlbach & Brinkworth, 2011). During CIs, respondents are asked to “think aloud” as they read, interpret, and answer items. As interviewees read and respond to the survey aloud, they are probed by trained interviewers about item interpretations and processes of response decision making. The researchers

compile data on how respondents interpreted and selected answers to each survey item. Then, the CI data are analyzed for the match between what the developers intended the item to probe and the respondents' interpretations of the item. Items are revised, eliminated, or added as needed to increase the match between the aspects of the phenomena the researchers wished to probe and the respondents' interpretation of the survey items. After completing this step, the researchers have a final survey that is ready to be piloted.

Sampling plan

Best practice in survey design is to pilot an instrument before its initial administration. The goal of pilot testing is to test how items function within a scale and to determine how the scale functions relative to other measures; this requires administering the survey to a portion of the participant population (Gehlbach & Brinkworth, 2011). Historically, researchers assumed pilot samples needed to be large (300 or more participants) to control for sampling bias and allow for extensive statistical analyses (Nunnally, 1978). There are two assumptions implicit in this approach to survey refinement: (1) Multiple items have been developed that possibly measure a construct, and statistical analysis is the best method to determine the most useful items; and (2) there is a large, accessible population that can be repeatedly sampled. Often with targeted populations or hard-to-reach populations, large-scale instrument piloting may not be feasible. Although a pilot administration is ideal, following the aforementioned steps of survey development can eliminate the need for a huge bank of items that need extensive pruning. Furthermore, the prior steps help assure that critical aspects of the construct have not been overlooked during the design of the instrument, for which piloting cannot assess (Gehlbach & Brinkworth, 2011).

A survey is usually administered to a subset of the total population (i.e., a sample). The goals of sampling are to maximize the participants' representativeness of the entire population and to ensure the sample size is large enough to have sufficient power to detect significant relationships between the variables of interest. Sample representativeness indicates the answers of the sample can describe the target population (Fowler, 2014). Although there is always the possibility of random sampling error (i.e., the selected participants differ from the total population), bias is of greater concern. Bias can be introduced into a sample through three means: incorrect sample frame, nonrandom selection, or nonresponse bias.

Incorrect sample frame

An incorrect sample frame occurs when those who have a chance of being selected excludes population members or includes people outside of the population. For example, this may occur when the research

question examines school-based consultation practices of all school psychologists in the United States, but the sampling plan targets all psychologists (i.e., clinical, counseling, and school psychologists) in one geographic region, perhaps through a professional psychology conference. In this example, school psychologists practicing in other parts of the country have been excluded, and members outside the population of interest (clinical and counseling psychologists) have been included. To guard against an incorrect sample frame, it is useful for the research team to define inclusionary and exclusionary criteria for participation in the study. For example, the researchers could review the literature to determine whether geographic region of the country may affect consultation practices and decide from this information how important it is to purposefully sample from various geographic regions. Then, in the survey, screening items can be included to assure that respondents come from the targeted population. For example, including a screening item that asks respondents to identify their specialty in psychology would be useful if the sampling frame only includes school psychologists but there is a possibility of non-school psychologists answering the survey.

Nonprobability sampling

Nonprobability sampling occurs when members of the population have unequal chances of being selected to participate in the survey. Nonprobability sampling introduces bias if the individuals who are chosen to participate in the survey differ from those who do not participate in characteristics related to the phenomena (Shadish, Cook, & Campbell, 2002). For example, in studying school-based consultation training, selection bias may occur if participants invited to take the survey were recruited from a professional organization in which the members were more highly trained in consultation than the total population of practitioners. Probability sampling or random sampling is often impractical and unrealistic. The degree to which individuals approached for participation in nonprobability sampling differ from those who are not approached on the phenomenon of interest determines the bias level. Although nonprobability sampling bias cannot be calculated, it is an important potential limitation to consider when interpreting results.

Responder bias

Responder bias occurs when those who responded to the survey and those who did not respond differ in some way related to the phenomena, leading to bias in interpreting responses as representative of the whole population (Rogelberg & Luong, 1998). Responder bias is often confused with response rate. Low (or high) response rate is not necessarily an indicator of level of responder bias. However, as it is often difficult to

directly measure how responders and nonresponders differ, response rate is often used as a proxy for responder bias.

People who do not respond to a survey may be unable or unwilling to participate (Fowler, 2014; Rogelberg & Luong, 1998). Two main participant characteristics lead to increased nonresponse rates: lower educational levels and lack of interest in the topic (Rogelberg & Luong, 1998). Participants who do not respond due to inability or inaccessibility versus participants who do not respond due to unwillingness represent potentially different biases about the phenomenon under study. For example, parents who did not answer an online survey about consultation because they did not have easy access or facility with the technology may have different attitudes about consultation than parents who did not see answering the survey as a good use of their time. For surveys of educators and psychologists, education levels will be high and should not be of concern; however, for consultation surveys of families and community members, it will be important to consider whether there is responder bias due to education level. Response rates may be increased by explaining the importance of the survey and how the results will be used (Rogelberg, Fisher, Maynard, Hakel, & Horvath, 2001), as well as being sponsored by a reputable individual or institution (Fox, Crask, & Kim, 1988).

Survey fatigue (being surveyed frequently and seeing little change occur as a result of the survey) has been credited for increasingly low survey response rates (Rogelberg, et al., 2014). Survey research in professional psychology (e.g., clinical and counseling psychology) has a response rate of approximately 50% (Van Horn, Green, & Martinussen, 2009). A recent national survey of school psychologists had a response rate of 46% for mail and 38% for e-mail invitations (Castillo, Curtis, Brundage, March, & Stockslager, 2014).

To increase response rate, an incentive plan for participation, modes of data collection, and other factors of importance to the population should be carefully considered. Incentives have been shown to positively increase survey response rates (Church, 1993; Fowler, 2014; Fox et al., 1988). When creating an incentive plan, it is important to propose something that is not coercive, but motivating and culturally appropriate for the population (Fowler, 2014). In mail surveys, a small cash incentive included in the survey was found to be more effective than receiving a reward after submitting the survey (Church, 1993). For electronic surveys, finding a means of providing an immediate reinforcer, as well as the potential for a deferred reinforcer, may increase response rates. In addition, participation may increase by communicating the importance of participation (e.g., explaining what will happen if the person does or does not participate; Fowler, 2014). For school-based consultation surveys, consideration of the school calendar and how that may affect willingness to participate is also relevant.

Data collection

The mode of data collection will have an effect on response rate, survey form, data quality, and cost (Fowler, 2014). Data collection methods should be driven by how the sample can best be accessed and how to get a high response rate. Although mail surveys have historically resulted in higher response rates than Internet surveys (Messer & Dillman, 2011), a recent survey to the National Association of School Psychologists (NASP) membership showed a statistically significant, but low magnitude (.08 effect size), difference between the two approaches and did not find differences in respondents' demographics (Castillo et al., 2014). Paper and electronic surveys have been shown to result in similar answer patterns (Jansen, Corley, & Jansen, 2007), but with less missing data through electronic administration (Stanton, 1998). The cost-efficiency analysis of the NASP survey found that the mailed surveys cost \$15.79 per completed survey compared to \$3.14 per completed Internet survey (Castillo et al., 2014).

The cost efficiency of electronic surveying may affect the ability to conduct the research, to sample a larger frame, or to offer incentives to potential participants in order to increase response rates. In addition, electronic surveys allow researchers to better access hard-to-reach populations, customize questions according to prior answers, include audio and video material, and reduce time between participant response and data utilization (Rogelberg et al., 2001). Ideally, if a survey is to be administered electronically, it is best to design the survey in that format from the ground up to maximize the benefits (Reynolds, Woods, & Baker, 2007; Vehovar, Petrovic, & Slavec, 2014). However, many electronic sampling frames are "opportunistic participant-gathering techniques" (Rogelberg et al., 2001, p. 146) where participants are solicited through electronic mailing lists or websites, with no means of assessing response rates, little control over who is sampled, and an inability to assess response bias.

Preliminary analysis

Once data have been collected, the scales can be analyzed for their reliability. Ideally, all scales would have high reliability; however, the standards for reliability levels rest on how the results will be used. For individual assessments, where important decisions will be made from the results, standards should be exceedingly high. DeVellis (2012) recommends that coefficient alphas be above .90 for scales used to make critical decisions about placements for individuals. However, for scales that will be used to understand group attitudes, he suggests that coefficient alphas in the .70 to .90 range are adequate; for an attitudinal survey with a coefficient alpha above .90, it might be best to shorten the survey. Nunnally (1978) also suggests that coefficient alphas of .70 are adequate. For surveys designed to build knowledge in an

understudied area such as consultation, developing easy-to-administer and brief measures that encourage higher response rates may be of greater relevance than longer scales with extremely high scale reliability but lower response rates for interpreting results.

An example of rigorous survey development

To illustrate these principles of rigorous survey research in school-based consultation, we will describe an example of application in a survey study that included (1) preplanning to determine the purpose and form of the measure; (2) defining the population; (3) drafting the survey using a theory-based definition of the phenomena (i.e., consultation training and practice); (4) soliciting expert feedback to validate the theoretically based definition of consultation training and practice and revising the survey accordingly; (5) conducting CIs to assess variation in interpretation between the researchers and the population and revising the survey accordingly; (6) determining a sampling plan, including strategies to maximize participation; (7) finalizing the survey, distributing the survey, and conducting preliminary data analyses of validity and reliability (Newman, Barrett, & Hazel, 2015).

Preplanning phase

Building on existing school-based consultation research, we developed the following research questions: (1) How does preservice-level consultation training affect current school-based consultation practices, if at all? (2) How are early career school psychologists *trained* and *supervised* in consultation at the preservice level? (3) How is consultation training, including supervision, of early career school psychologists related to *frequency of consultation* and *confidence to consult*? (4) How is early career school psychologists' consultation training related to perceived capacity to *achieve client, consultee, and systems-level change*? Because these research questions examine overarching patterns and effect of training, rather than being an in-depth look at "how" training is conducted or "why" training affects consultation practice (research questions better suited for other methods), survey research was deemed an appropriate methodological choice (Desimone & Le Floch, 2004). We made the decision to administer the survey electronically due to convenience and benefits of electronic administration (Castillo et al., 2014; Rogelberg et al., 2001).

Defining the population

Because we were interested in self-assessment and beliefs such as confidence to consult and perceived ability to achieve change via consultation, we knew

we would want to design a survey for consultants rather than consultees or clients. Much of the literature on school consultation training and practice has been conducted with advanced graduate students, leading to the critique that it is not yet fully understood how consultation training translates into practice postgraduation (Newell & Newman, 2014). Therefore, we decided to survey school psychology practitioners rather than students, despite potential challenges in accessing this population.

We determined an “early career” school psychologist population in the United States would be preferred for this study as we assumed individuals less removed from graduate training would have greater capacity for recall of training practices. *Early career* is defined by professional psychology organizations as within the first 5 or 7 years of one’s psychology career (e.g., NASP and the American Psychological Association, respectively). With our belief that fewer years removed from training may allow for enhanced recall capacity, we defined *early career* as 5 years or less since graduation. We decided to limit the population to the United States to control for variations in training and practice across countries and cultures.

Theory-based definition of consultation training and practice

Initially, we drafted broad areas of inquiry based on our research questions, with consideration given to (a) extant school-based consultation research, (b) prevalent models of school-based consultation training and practice, and (c) consulting competency guidelines from the American Psychological Association (2007) and the school psychology practice model from the National Association of School Psychologists (2010). Next, using different dimensions of consultation practice (e.g., communicative approach, level of intervention, focus of problem solving), we developed hypothesized models of predictor and outcome variables. Finally, we drafted items, looking for guidance to prior survey protocols and other research from the field of consultation training (e.g., Anton-LaHart & Rosenfield, 2004; Hazel, Laviolette, & Linemann, 2010) that measured our predictor and outcome variables.

Expert feedback and revisions

Four experts in school consultation research were contacted and asked to provide feedback on a preliminary survey draft, which they accessed online. The experts were purposefully selected because they had expertise in different models of consultation (i.e., behavioral/problem-solving consultation; conjoint behavioral consultation; instructional consultation; organizational consultation), allowing for broad feedback. The experts provided extensive feedback on the survey, which fell into the following categories: survey content,

organization, and item revisions. In several instances, feedback aligned across multiple experts. Examples of expert feedback and resulting survey changes for one survey item are illustrated in Table 2. The expert feedback helped refine the survey, thereby increasing its content and face validity. From the expert feedback, changes were made to survey content, organization, and item structure.

Survey content

The experts provided substantive feedback about content to ensure that the survey was comprehensive and aligned with theory and practice. Many of the experts suggested establishing the definition of *consultation* early in the survey by either having the respondents choose among possible definitions or providing them with a set definition to use as they completed the survey. Providing a common definition of consultation helped ensure that the survey was measuring what it was intended to measure consistently across all participants. We provided a broad, accessible definition of school consultation (Sheridan, Richard, & Smoot, 2000) prior to survey items that asked about consultation practice and training.

In addition, the experts suggested clarifying unclear terminology (e.g., the difference between *school-wide student issues* and *organization/systems issues*), adding response categories we had neglected (e.g., additional consultation models), and adding items about aspects of practice that we had overlooked (e.g., barriers to participants' consultation practice). Finally, the experts pointed out some embedded assumptions in our questions that we subsequently addressed (e.g., training leads to confidence when confidence may in fact come from prior experience, so we needed to assess for participants' prior experiences). Expert feedback also helped us to remain within the boundaries of our phenomena by suggesting some items could be eliminated as they were not precisely about consultation practice or training (e.g., we eliminated one item about advocacy).

Survey organization

Expert feedback on the survey's organizational structure helped reduce the length of the survey and simultaneously increased clarity by eliminating redundancies across items, switching the order of items, and incorporating or improving upon survey "skip logic." For example, if respondents did not take any consultation courses, then they should be allowed to skip items related to the content of those courses.

Survey item revisions

Revision to items following feedback made the survey more coherent. Item revisions included being consistent in terminology (e.g., *training* vs. *course-work* vs. *supervision*), ensuring response options were appropriate (e.g., adjusting options for ratio of school psychologists to students by providing

Table 2. Example of Survey Item Revision Based on Expert Feedback.

Item on original draft	Expert feedback	Revised item	Summary of revisions
In your current work, HOW OFTEN do you do the following: Consulting with teachers Consulting with administrators Consulting with parents Consulting with other staff members Consulting within a team Facilitating a team Options: Not at all To a little extent To a moderate extent To a large extent	Reviewer 1: Asks "how often" but the responses are worded as "to what extent"; these do not align very well Reviewer 2: You list parent consultation—that is often interpreted as consultation about assessment. Will you have any way to check on that? Review 3: I struggled a bit with "how often" (a temporal term) being used as the stem about individuals serving as consultees ... Is the concern about who serves as consultee most frequently? Who is their representative consultee? I'm not sure there is a better way to ask the question but it caused me to pause. ... You might consider changing the stem to read: 'In your consultation work, how often...' and then change the items to "Consult with..." rather than "Consulting with..."	In your current work, HOW OFTEN do you do the following: Consult with teachers Consult with administrators Consult with parents Consult with other staff members Consult within a team Facilitate a team Options: Never Monthly 2 to 3 times per month Weekly Multiple times per week Daily	• "Consulting" changed to "consult" • Options changed to reflect temporal nature of question • In addition, definition of consultation provided prior to asking questions on current consultation practices

an increased ratio), using Census categories for race, using identical stems for items, ensuring response options aligned with item stems (e.g., item asks “how often” but response options are worded as “to what extent”), ensuring clarity of items (e.g., “worked on” vs. “completed”), and expanding response options from dichotomous yes/no to a Likert scale or continuum.

Revised survey draft

After the survey had been revised to incorporate the feedback from the experts, we reconsidered the survey in total including page-by-page layout, response format consistency, order of questions, and wording of items. Our goal was to create a survey that was as easy to complete as possible, while still comprehensively probing our areas of inquiry, so that participants would be inclined to complete the survey, and to do so accurately.

Cognitive interviews

Next, we conducted CIs to solicit feedback regarding how participants understood and responded to survey items (Desimone & Le Floch, 2004; Oroviogoicoechea et al., 2010). The CI process further documented the face validity and content validity of the survey.

To increase objectivity of the CIs, graduate research assistants (GRAs), not members of the research team, conducted the CIs with six school psychology interns. First, we trained the GRAs on how to conduct the CIs by (1) explaining the purpose of the research study, (2) explaining the purpose of the CIs, (3) sharing the link to the survey, (4) asking them to read and discuss an article by Desimone and Le Floch (2004) about the purpose of CIs, and (5) explaining the CI process step by step:

- (1) Explain the purpose of the research study.
- (2) Explain that the purpose of a CI was to understand how the respondent came to his or her answer on each item, rather than the answer selected.
- (3) Explain to the participant that he or she was invited to the CI because she or he would not be a possible respondent (not an early career school psychologist) but that he or she was similar to the target population (i.e., a school psychology intern).
- (4) Present and explain the rubric used to document responses, and provide a copy to the interviewee.
- (5) Have the interviewee complete the survey while speaking in a running narrative regarding question/thought process/response, with probes if the interviewee did not explain how she or he was selecting an answer.

Q#	Comp		Ret		Judge		Map		Comments
	Y	N	Y	N	Y	N	Y	N	
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Comprehension: Does the respondent understand the question?
Retrieval: Can the respondent recall information needed to answer the question?

Judgment: Can the respondent determine/decide how to answer the question?
Map: Can the respondent fit their answer into the response options provided?

Figure 1. Example rubric for question analysis during cognitive interviews.

- (6) Complete the rubric, including taking notes on specific items (e.g., what changes might be needed on an item; did anything have to be clarified.
- (7) Ask the interviewee whether anything should be added or removed from the survey.

We created a rubric consistent with Desimone and Le Floch’s (2004) recommendations for question analysis during the CI (see Figure 1). The rubric included the following domains: (1) comprehension (e.g., does the respondent understand the question?), (2) retrieval (e.g., can the respondent recall information needed to answer the question?), (3) judgment (e.g., can the respondent determine/decide how to answer the question?), and (4) map (e.g., can the respondent fit the answer into the response options provided?).

The CIs resulted in feedback on items and vocabulary, including how to define *client* and *counseling* (e.g., do walk-ins count for counseling?), how many students make up a “group” (e.g., is one classroom equal to one group?), and what does *ecological framework* mean? Examples of changes in survey language resulting from the CIs are illustrated in Table 3. In contrast to the experts, who provided much feedback on content, the CIs were most helpful in refining and clarifying survey wording.

Determining a sampling plan

The population for this study was school psychologists practicing in the United States for 5 years or less. As this is a relatively small and difficult-to-

Table 3. Examples of Language Changes to Survey Based on Cognitive Interviews.

Language on survey draft (following expert feedback)	CI interviewee feedback (problem area in thought process)	Problem answering the question (Desimone & Le Floch, 2004)	Language revision
What do you estimate is the RATIO of SCHOOL PSYCHOLOGISTS to STUDENTS where you PRACTICE ?	Which setting? School or district? This could be different for each school psychologist in a district.	Judgment	What do you estimate is the RATIO of SCHOOL PSYCHOLOGISTS to STUDENTS in your SCHOOL DISTRICT?
Please provide the following information about your ASSESSMENT and COUNSELING WORK in the following settings over the course of ONE ACADEMIC YEAR :	Does a classroom count as a group in number of groups?	Judgment	No revision, only problem in one CI
Options: Number of schools Average hours per week at setting Number of initial psychoeducational evaluations completed regarding special education eligibility Number of special education reevaluations	Do walk-ins count for counseling?	Judgment	Number of students counseled individually, including walk-ins and ongoing (not sessions; if more than one school, indicate combined total)
Number of Section 504 plans that you assisted in developing Number of students counseled individually (not sessions) Number of student groups conducted (not sessions) for academic skills/ issues, behavior, and/or mental health	If there is more than one school psychologist in the building do you count all evaluations or just your own?	Comprehension	Bolded "YOUR" in addition to "OWN ASSESSMENT"

(Continued)

Table 3. (Continued).

Language on survey draft (following expert feedback)	CI interviewee feedback (problem area in thought process)	Problem answering the question (Desimone & Le Floch, 2004)	Language revision
Which of the following SUPERVISION FORMATS were included in your graduate level CONSULTATION TRAINING (Check ALL that apply)? Options: Field supervisor (i.e., a school-based practitioner) University supervisor Advanced graduate student supervisor Peer supervisor Not included in training	How is <i>advanced graduate supervisor</i> defined? How is <i>peer supervisor</i> defined? What counts as peer supervision? Is a peer supervisor a peer in my class? Does a colleague at my site also count as a peer supervisor? What constitutes graduate level consultation training?	Comprehension Judgment Judgment and/or Map Judgment and/or Map Comprehension Comprehension	Advanced graduate student supervisors (i.e., student with more consultation knowledge/skill than you, such as a GA or TA) Peer Supervisors (i.e., student with similar consultation knowledge/skill to you, such as a classmate) No revision, problem only in one CI

Note. Comprehension = Does the respondent understand the question? Retrieval = Can the respondent recall information needed to answer the question? Judgment = Can the respondent determine/decide how to answer the question? Map = Can the respondent fit the answer into the response options provided?

access population, we did not plan a pilot administration of the survey; for this reason, our prior work to refine our survey protocol was more important. We approached the two largest professional organizations in the field (the NASP and the School Psychology Division [Division 16] of the APA) but were unable to gain access to their membership lists. Therefore, we contacted state school psychology professional organizations, requesting they distribute the survey link via e-mail to their membership lists. If possible, they were asked to send the link only to members in their first 5 years of practice; skip logic was built into the survey to filter out inappropriate respondents (e.g., graduate students or practitioners with more than 5 years of experience).

Our sampling plan was both purposeful and convenient. We targeted early career school psychologists given their recent proximity to training, both to limit recall bias and to be able to make stronger linkages between graduate training and practice. Through this sampling decision, we hoped the sample would be representative of early career school psychologists in the United States but would not generalize to those who have been practicing for more than 5 years. It was a sample of convenience in that large numbers of school psychologists could be reached systematically, rather than individually, via e-mails through state school psychology organizations. However, it is also true that school psychologists can practice without being members of their state professional organization, meaning that there was the possibility of inappropriately excluding some members of the population from the sample.

Selection bias may have been introduced if school psychologists who elected to be members of their state professional organization and chose to participate received different consultation training or engaged in different consultation practices than school psychologists who were not members of their state professional organization or chose not to participate. However, we did not believe that consultation training or practice, specifically, would greatly affect one's choice to join their state professional organization or vice versa. Furthermore, research is frequently subject to logistical constraints and, in this case, a more rigorous sampling plan was not possible.

After determining a sampling plan, it was important to consider the timing of survey administration as this may increase or decrease response rates and bias. Since the population was practicing school psychologists in the United States, the population's work schedule likely aligned with the K-12 academic year (i.e., late August/early September to June). Therefore, we decided to distribute the survey in mid- to late-August to increase the likelihood participants would be on contract and checking their e-mail, but before many of the job responsibilities of school psychologists (e.g., psychoeducational assessments) had intensified.

Define a culturally appropriate incentive plan

We decided to donate \$1 per participant to the NASP Minority Scholarship Fund. Therefore, every possible participant would know that his or her participation was important in increasing our donation to a socially worthy and relevant cause. We also included an optional raffle for two sets of the just-released *Best Practices in School Psychology* (Harrison & Thomas, 2014) as prizes. As our target population was early career practicing school psychologists, we thought that resources for practice would be desirable. Finally, as a part of recruitment materials, we explained the importance of participating in the research study, indicating that consultation is an important facet of school psychology but that limited research supports the connection between consultation training and consultation practice.

Conducting preliminary data analyses of reliability, bias, and sample representativeness

Despite steps taken to enhance the validity of the survey during development, preliminary analyses may be used to (1) examine reliability of survey items, (2) understand sources of bias within sample, and (3) document representativeness of the sample to the population of interest. Presented here are our preliminary data analyses to address these three concerns.

Reliability of survey items

Reliability of the scales was assessed through Cronbach's alpha and item-level statistics (e.g., the mean and standard deviation of each item, the correlation of each item with the total score, and the reliability of the proposed scale if the item were deleted). For our first analysis of the data, we were interested in items intended to measure five constructs: (1) the frequency of consultation practice (6 items, $\alpha = 0.84$), (2) confidence in current consultation practice (12 items, $\alpha = 0.88$), and (3) perceived ability to achieve change in clients (3 items, $\alpha = 0.86$), (4) consultees (4 items, $\alpha = 0.90$), and (5) systems (2 items; Authors, in press), all of which had sufficient reliability. Alpha was not calculated for the fifth scale because it only had two items. The four other scales had alpha levels above .70, suggesting that each item did contribute to a unified construct (Nunnally, 1978). Further, all five scales were within the suggested range of .70 to .90 (DeVellis, 2012), suggesting that we had struck the right balance between including enough items to develop reliable scales and being as brief as possible to increase participation rates.

Bias of responses

Although we had conducted CIs to refine our items to enhance respondents' ability to answer items accurately, this can never be fully assured. One method of analyzing response bias is to assess whether the answers seem plausible. For example, in this sample, 47% of respondents said that they had one course in graduate school regarding consultation, and 50% reported using the behavioral or problem-solving model in their current practice of consultation. These data are consistent with prior research in this area (see, for example, Hazel et al., 2010; Newell & Newman, 2014) and suggest that there was little recall bias. We also assessed the number of missing answers to the voluntary items (i.e., all items except those used to assure that the participant met our sample criteria). Aside from participants who answered no voluntary items (discussed next), only five respondents, at most, left any individual item blank. In other words, 0% to 2% of respondents with usable surveys did not answer any given item, with no discernable pattern or attrition. This suggests nonresponses were minimal and occurred at random, and there was not an item-specific response bias.

Representativeness of sample

Finally, we documented the representativeness of the sample compared to our population of interest to assess our ability to generalize our findings. Thirty-seven states across all four census regions allowed for survey dissemination and had more than 20 early career members belonging to NASP. A total of 541 school psychologists responded to the survey, with 262 meeting inclusionary criteria. Of those who met our inclusionary criteria, 44 participants (17%) answered no voluntary items. This left 218 participant responses for most analyses.

Because demographic data regarding early career school psychologists were unavailable, demographics of the participants were compared to the most recent NASP member survey data (Curtis, Castillo, & Gelley, 2013). Chi-square tests indicated there were more females in our sample compared to the general NASP membership in 2010 ($\chi^2 = 13.77$, $p < .001$), but there were no significant differences in regard to ethnicity or work setting (i.e., public vs. private school). Participants from the South were also overrepresented, while participants from the Midwest and Northeast were underrepresented ($\chi^2 = 95.13$, $p < .001$).

Our sampling frame was early career school psychologists in the United States. Gaining access to only 37 state associations' members and the overrepresentation of participants from the South, as compared to the general NASP membership, suggests there may have been an incorrect sample frame. However, the representation from all four census regions allows for national interpretations of the data. Our sample also included more female participants than the NASP membership demographics; this could be indicative of

nonprobability sampling or may accurately reflect that early career school psychologists are more likely than the total school psychology population to be female. This interpretation is feasible, given the documented increasing feminization of school psychology (Castillo, Curtis, & Gelley, 2013). Our incentives were designed to encourage all early career practitioners to participate (i.e., they were not particularly desirable incentives for practitioners who espoused consultation practices), and we were encouraged by a sample size of 262 participants who met the inclusionary criteria. It is difficult to interpret why 17% of qualifying participants did not answer any survey items, as we have no additional information about them, but does suggest that there may have been some responder bias (i.e., participants who did not answer the survey may have been less interested in school-based consultation).

Implications for validity of survey findings

Our analysis of the data suggests our survey provides a valid representation of early career school psychology practitioners' graduate consultation training and current consultation practices. Our scales are sufficiently reliable for the intended use; responses suggest there was minimal bias in the sample's responses to the survey items; and the sample appears representative, on the whole, of U.S. early career school psychology practitioners. The preliminary analyses suggest that our extensive work in survey design and administration has resulted in meaningful data that can provide insights into the linkages between consultation training and practices of early career school psychologists.

Suggestions for future consultation survey research

This article has documented a rigorous process to develop a survey of early career school psychologists' consultation training and practice. In total, the study referenced took over 18 months from survey inception to administration. With this sizable investment of time and effort, we offer the following guiding considerations to researchers wishing to incorporate rigorous survey methods in the study of consultation: (1) Accept responsibility in the conduct of high-quality survey research; (2) collaborate; (3) prioritize the sampling plan; and (4) plan ahead to make effective use of high-quality survey data.

Accept responsibility for maintaining high standards in survey research

We suggest that if individuals are to engage in survey research, they do so conscientiously. Given electronic survey resources, and unfiltered availability of potential participants' contact information, it is easier than ever before to quickly disseminate a survey to a broad population. Haphazard surveying may result in participant survey fatigue and indiscriminate discounting of surveys by "third parties" who are asked to distribute surveys to group

members (e.g., training program directors; leaders in professional organizations) or by the potential participants. Yet, as demonstrated in this article, well-conceptualized and well-designed survey research has much to offer the advancement of knowledge in a given field.

Collaborate for high-quality consultation survey research

We encourage researchers using survey methodology to work collaboratively. Our survey was strengthened by having a diverse research team, in regard to gender, race/ethnicity, training and educational background, career stage, and research interests and expertise. Furthermore, collaboration with experts, GRAs, and interns ensured that the survey was more easily understood and applicable to a wide range of professionals. Our collaboration efforts prolonged the survey design process, but it has also led to data with much richer and broader implications.

Prioritize the sampling plan

Researchers should make the sampling plan a priority, as it is critical that the population can be reached. The current study was supported by a small grant from the Society of Consulting Psychology/Division 13 of the APA, which allowed us to offer incentives and pay access fees; this increased response rate and sample size. However, we distributed our survey through school psychology state organizations, with several implications for sampling. Most states' administrative or research committees needed to approve the survey prior to distribution, rather than providing us with contact information for its members to allow us distribute the survey directly. This firewall serves an important protective function for organization members. Therefore, we needed to demonstrate to the "third parties" that the research was of high quality and worthy of members' time. This process delayed the distribution of our survey, for longer than anticipated, and may have increased bias through the sampling frame or response rate.

Plan ahead

Long-term planning can help the research team take advantage of the additional time and effort needed to conduct high-quality survey research. For this administration, we included various items so that multiple analyses could be conducted (i.e., training-to-practice link, detailed description of consultation training, and detailed description of consultation practice). Further, we are exploring how we might expand the sampling frame in the future. For example, after developing a rigorous survey, repeated administrations might be considered to examine changes over time, or the survey might be translated into other languages (Lau & Blatchley, 2009) to understand a related

population's perspective on the phenomena, such as international school psychologists' use of consultation.

Conclusion

This article documents best practices in survey research and is intended to provide a road map for researchers who will employ survey research to further our understanding of consultation training and practice. Through rigorous approaches to survey research, we can begin to sharpen the edges of our consultation knowledge base. In conjunction with other methodologies and methods, a more nuanced understanding of school-based consultation can be achieved, guiding the way for future research.

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