

Early Career Teachers Accuracy in Predicting Behavioral Functioning: A Pilot Study of Teacher Skills

Bruce P. Mortenson, Towson University, Karena S. Rush, Millersville University, John Webster and Twila Beck, Towson University

The purpose of this study was to discern the current skill level of novice teachers in identifying the function of problem behaviors and illustrate the continued need for developing data collection skills with this population. Eighty-eight teachers with experience ranging from 1-5 years completed a series of open and forced-choice questions that required the rater to hypothesize the possible maintaining function of the student's behavior (e.g., attention or escape). Results indicated that, in general, teachers' across all levels taught struggled to accurately hypothesize the function of behavior. Novice special education teachers were more accurate on forced-choice questions and general education teachers evidenced greater accuracy on open-ended questions. Across all teachers, elementary and special educators yielded higher scores across all questions. Implications for accurate data collection during school-based consultation are discussed.

To date, an extensive body of research on behavioral consultation and its efficacy exists (Hagermoser-Sanetti & Kratochwill, 2008; Noell, 2007; Sheridan, Welch & Orme, 1996). Student outcomes, treatment acceptability, and treatment integrity are often the focus of the consultation literature, yet an equally important aspect is process integrity. Specifically, are the data presented during consultation a result of systematic and valid problem solving? This question is paramount to successful consultation as our efforts, and ultimately student outcomes, are enhanced or impeded by the data collected.

Effective behavioral consultation models (e.g., behavioral consultation, conjoint behavioral consultation, instructional consultation) are predicated on the assumption that teachers will serve in the roll of data collector as well as collaborative problem-solver (Bartels & Mortenson, 2005; Jones & Lungaro, 2000; Rosenfield 2002). In many instances assumptions are made that teachers possess the necessary data collection skills to serve in a collaborative capacity and are interested in performing these tasks (Ehrhardt, Barnett, Lentz, Stollar & Reifin, 1996; Jones & Lungaro, 2000). Numerous authors have cited the need for clarity in data collection procedures within the consultative model (Hagermoser-Sanetti & Kratochwill, 2008; Noell, 2007; Pakenham, Shute & Reid, 2004). Consequently, behavioral consultants must attend to the validity of the data collected during collaboration with teachers to ensure data used to address student behavior is of value (Bartels & Mortenson, 2005). Thus, the immediate empirical question is, *do teachers have the skills to accurately and reliably identify the function of the student's behavior?* Without knowing the answer to this question, classroom based observations may yield data which are at

best misaligned in terms of behavioral function, and at worst, contrary to the reinforcing contingencies present in the environment resulting in a strengthening of the undesired student response (Pakenham, Shute & Reid, 2004; Roberts, Marshall, Nelson & Albers, 2001; Swinson & Knight, 2007; Symons, McDonald & Wehby, 1998). In addition, if there is little to no confidence in the process of developing the hypothesis upon which a treatment is based, then we run the same risks, lauded by numerous authors; specifically, the validity of the *treatment-outcome* heuristic is suspect (Gresham, Watson & Skinner, 2001; Sugai, Lewis-Palmer & Hagan-Burke, 1999; Wood, Umbreit, Liaupsin & Gresham, 2007).

The Need for Skill Development

In a political and educational climate of accountability and inclusion, general-education teachers are working in closer proximity with students who present with exceptional needs. Reportedly, almost half of students who have an IEP were educated for the majority of the school day within the general educational setting (Cook, Cameron & Tankersley, 2007). Paradoxically, general education teachers have self-endorsed lower skills in educating students with disabilities (Hagermoser & Kratochwill, 2008; Scott, & Nelson, 1999; Shellady & Stichter, 1999). As Rosenfield (2002) noted, data analyses based on classroom-based events fail to be part of the "usual professional culture for teachers" (p. 610). Kratochwill and others noted that pre-service programs at the undergraduate and graduate levels offer a limited scope of evidence-based practices which are sustainable in classroom applications (Kratochwill & Steele-Sherhoff, 2004; Schaughency & Ervin, 2006; Walker, 2004).

Consequences of teacher negative self appraisal and fewer pre-service training experiences may engender errors in problem solving delaying necessary intervention or increasing a loss of instructional time.

Van Acker, Boreson & Gable (2005) conducted a study to determine the degree to which school-based teams identified critical variables in the development of a functional behavior assessment and subsequent behavior intervention plan (FBA/BIP). These researchers noted that the multi-district self-analysis sought to inform the state of practice as well as determine degree of compliance with federal mandates regarding FBA and student discipline procedures. The results of the Van Acker study suggested that while generating operational definitions of student target behaviors were endorsed as an important and necessary step in the process, it was practiced infrequently. In addition, Van Acker et al. (2005) noted that approximately 70% of the received FBA/BIP documents failed to either provide a target behavior or meet acceptable criteria in identifying the target behavior. Teams evidenced equal deficits in the area of hypothesis triangulation or in verifying the initial data for the referral source. In light of the findings in the Van Acker et al. study, the practice of school-based consultation must address the lack of fidelity to process variables if we are to produce meaningful interventions for our students. Without such attention to process variables (e.g., operational definitions, efforts to validate the initial referral), teachers and specialists are faced with the daunting task of maintaining order in the classroom and compliance with federal laws implicated in the education of all children (e.g., No Child Left Behind, Individuals with Disabilities Education Improvement Act of 2004). Legal stipulations for FBA/BIP in the classroom recognize two points in the educational experience when the general education teacher would be called upon to serve in the role of data collector. The first is when the school intends to remove a child with a disability for more than ten days or change the student's placement of record. The second point is when the behavior in question is found to be a manifestation of the child's disability (Eckert, Martens & DiGennaro, 2005; Individuals with Disabilities Education Improvement Act of 2004 § 615(k)(1)(F); von Ravensberg & Tobin, 2006). Given these expectations, teachers may play a greater role in the collaborative problem-solving process involving student problematic

behavior. The recent reauthorization of the IDEA-2004 includes the stipulation that schools have *properly trained individuals* conduct the functional behavioral assessment (Anderson & Hendrickson, 2007; Ryan, Katsiyannis, Peterson & Chmelar, 2007; von Ravensberg & Tobin, 2006). Yet teachers may not have the proper training to contribute effectively to the FBA process.

In a study to determine if teachers consider the functional qualities of student behavior prior to intervention development, Meyers and Holland (2000) found that the majority of teachers, regardless of the classroom designation (general or special), performed poorly at the task of selecting behavioral functions. In this study, 209 teachers reviewed vignettes describing problematic behavior in the classroom where the underlying function was evident. Teachers read the vignette and then answered how best to respond to the student's behavior. Findings indicated teachers performed better at identifying the function of the problem behavior when that function reflected teacher attention versus peer attention or escape (Myers & Holland, 2000).

Central to the Myers and Holland study was the finding that teachers lacked the necessary skills to serve effectively in the role of primary reporter during the FBA process. It is understood that the verbal account of any one individual in the process of identifying something as complex as the functional relationship between student and environment would be corroborated with additional data. However, evolving educational policy necessitates efficient problem-solving from the basis of reliable and accurate data collection early in the intervention process. If teachers present as inaccurate or unreliable reporters of student behavior, the process of meeting their behavioral or instructional needs may unnecessarily be extended.

Early Career Teachers

One group of teachers who may be at greater risk for lacking the skills necessary to conduct an FBA are those educators considered early-career professionals (e.g., 1-5 years direct experience). Research has demonstrated that if a teacher leaves the profession, it is far more likely to occur within the first five years. One of the primary reasons teachers leave the classroom is due to student misbehavior (Hill & Barth, 2004). The status of current teacher attrition rates seems at odds with the development of a functional technology to meet the behavioral needs of all students. FBA

holds promise of identifying environmental contexts which may be altered, resulting in a decrease of undesirable behavior in the classroom (Van Acker et al., 2005, Erwin et al., 2001, Gresham, Watson & Skinner, 2001). As already mentioned, the skills needed to effectively participate or complete the FBA appear not to be explicitly taught in many graduate and undergraduate teacher preparation programs. In addition to the serious practical and legal implications of poorly designed and executed FBA procedures, our nation is losing a critical mass of educators due to behavioral issues in the classroom within a potentially alterable reality. The present study sought to extend the Myers and Holland (2000) study by focusing on early career teachers. Given the emphasis on FBA in recent years, it may be expected that these teachers have had training in FBA. In addition to the analysis of whether or not teachers can appropriately select the function of behavior, this study sought to answer these three questions relative to the sample of early career teachers: How accurate are teachers in conceptualizing and articulating an intervention that may address student behavior (without inadvertently reinforcing the behavior)? Are there differences in early career teachers' self assessment of skills to address problem behaviors? Are there differences in conceptual accuracy across levels of school or designation (e.g., general education or special education)?

Method

Participants

A total of 241 surveys were distributed for this study. Of that total, 169 surveys were returned and deemed correctly completed. From this sample of 169 surveys, a subset of 88 early-career teachers (length of service: $M = 21$ months, $SD = 15$ months) were selected for purposes of the analysis. Early-career teachers represented staff from elementary ($n = 10$), middle ($n = 41$), and high school ($n = 23$), as well as special education ($n = 14$). The average class size for the elementary, middle, high school and special education program was 23, 27, 27 and, 10 respectively.

Early-career teachers represented five suburban counties and one metropolitan area in a state within the mid-Atlantic region. The schools where the teachers worked were not selected randomly but were settings which the first author had

professional contacts and served as a supervisor for school psychology graduate students.

Survey

The instrument used to determine if teachers accurately selected the function of the student's behavior was adapted from the Myers and Holland instrument (2000). The survey consisted of basic professional demographic information (e.g., level taught, years experience, etc) and questions related to skill-based variables (e.g., what type of behavioral issues do you experience in the classroom? How capable are you in dealing with these issues, and how often do these issues occur?). Lastly, teachers completed questions related to post-training professional development in behavioral management techniques.

Of primary interest for this study, three opened ended vignettes, where the function of the student's behavior would be apparent, were developed and presented to the teachers. Teachers read the vignette and then responded in terms of how best to address the behaviors presented. For example,

Nicholas is a sixth-grade student in Ms. Eckert's math class. Nicholas presents average grades and is considered by staff and students' alike to be the class clown. When Ms. Eckert's back is turned to him, Nicholas encourages his peers to play "paper-football" (e.g., when you fold a piece of paper into a triangle and kick it through the thumb and index finger of your peers' hands). Nicholas has been referred to the principal's office for disciplinary actions on several occasions. This intervention has not been effective. ***Given this brief description, how would you best work with Nicholas?***

This scenario implied that the student's behavior was maintained by either peer or teacher attention and that the reinforcing properties of the students' behavior would strengthen if the behavior was either ignored or differentially reinforced during misbehavior. Teachers were also provided with forced choice questions to further assess the teacher's knowledge for understanding the relationship of the student and environment. For example,

Matt is a third-grade student in Mr. Cormier's class. He was retained last year and he is currently exhibiting limited progress in writing skills. Mr. Cormier has modified Matt's work, yet Matt refuses to complete any written assignments. Matt is generally very compliant when prompted to work on other tasks. However, when asked to write

something, Matt will become combative and/or disruptive in class. Matt's response to Mr. Cormier's prompt to complete a writing task may be a function of **(circle one)**

- Matt's intent to gain peer approval
- Matt's intent to avoid or escape the writing task
- Matt's intent to engage in some self-stimulatory task
- None of the above

Whereas the open ended vignette addressed the behavioral function of attention, the forced choice vignette addresses the behavioral function of escape. The remaining vignettes were also based on the behavioral principles of attention-maintained or escape-maintained behavior. Attention and escape functions were included due to the supposition that peer and/or adult attention as well as escape from tasks constitute the majority of behavioral functions evidenced in the general education classroom (Broussard & Northup, 1995; Ervin et al., 2001).

Procedure

Data collection occurred over the course of one academic year, during faculty meetings, professional development meetings, and during individual consultation with the teachers. Following teacher assent to participate, each teacher was provided with a cover letter and one survey. The cover letter reflected the study's purpose, the teacher's rights to participate or withdraw from the study, and directions for completing the survey. Completed documents were placed in a designated location (generally

the school psychologists' mailbox) for later retrieval.

Instrument technical adequacy.

While the validity of the questions were not directly assessed, the open ended questions were modeled after the vignettes used in previous research (Myers, & Holland, 2000), and the closed ended questions were developed for graduate level course work in school psychology. All questions were presented to two cohorts of graduate students in school psychology and resulted in 100% agreement for the supposed function of student behavior. In addition, two of the study authors independently reviewed 26 of the 88 completed surveys (29.5%) to establish inter-rater reliability for teacher accuracy on open-ended questions. The review was completed by each rater determining the appropriateness of the

teacher's response (e.g., statement offered to address the function of the student behavior) and then comparing the outcomes for basic agreement. Agreement was defined as both raters stating that each question was either appropriate or inappropriate across questions for the 26 surveys. Inter-rater reliability was determined by dividing the number of agreements for a particular question by the number of survey's reviewed, resulting in a percent overall agreement. Agreement scores across open ended questions ranged 74% to 87%.

Teacher Accuracy.

The intent of the vignettes was to measure teachers' knowledge for behavioral function by answering a series of questions. The open ended questions required "next steps" in developing an intervention for the student. Teacher responses were coded as accurate if they provided an intervention that would address the implied function. Teacher responses were coded as inaccurate if they provided an intervention that either did not address the implied function or provided an intervention that would inadvertently strengthen the observed problematic behavior. Additional forced-choice questions served to assess whether the teacher's performance would be enhanced when selecting an answer rather than

Table 1
Means for teacher correct responses for forced choice (FC) and Open Ended (OE) questions

	FC-1	FC-2	FC-3	OE-1	OE-2	OE-3
Correct	69.7	83.1	39.3	36.0	43.8	59.6
Incorrect	30.3	16.9	60.7	64.0	56.2	40.4

Table 2, Means and Standard Deviations of Skill self Assessment

	Level			
	SPED	ES	MS	HS
M	3.23	3.20	3.50	3.50
SD	1.02	.62	.6	.77

producing an answer. For the forced choice questions, accuracy was determined by which answer the teacher selected.

Results

The principle interest for this study was whether or not early-career teachers correctly selected the implied function of the student's behavior. Table 1 presents the percentage correct for each of the

questions posed to the teachers. One observation based on the data presented in Table 1 is that early-career teachers expressed better skill at identifying the implied function of student behavior when presented within a forced-choice format versus an open-ended format. However, early-career teachers forced-choice accuracy varied with implied function of behavior. For the first forced-choice question, the implied function of the student's behavior was escape based.

Approximately 69.7% of the teachers sampled answered this question correctly. Interestingly, the same function of behavior (escape) was implied in the third forced choice question, yet far fewer early-career teachers answered this question correctly (39.3%). Teacher responses to the second forced-choice question, which implied attention maintained the student's behavior, reflected 83.1% accuracy.

To further assess conceptual knowledge for functional behavior assessments, teachers were prompted to read a vignette and then supply an answer that would address the implied function of behavior in the form of an intervention or classroom-based strategy. Teacher accuracy, defined as proposing an intervention or strategy that implies an understanding of the behavioral function is summarized in Table 1. Based on the presented data, early-career teachers evidenced less accuracy when prompted to articulate an

vignette, the implied function reflected attention maintained behavior. Only 36.0% of the teachers offered an intervention that would address the student's behavior. The third vignette also required the teacher to offer a strategy to address attention maintained student behavior. Accuracy estimates approached 60% for the teachers surveyed. When the vignette implied that the student's behavior was maintained by escape and consequently an intervention to prevent/alter escape was necessary, early-career teachers supplied an accurate response 43.8% of the time. Taken together, early-career teachers presented as more capable when selecting the maintaining function of the student's behavior (forced-choice accuracy $M = 64%$) rather than considering the function when deciding on a course of action (open-ended vignette accuracy $M = 46%$).

In addition to assessing the accuracy with which a teacher either identifies the function of behavior or presents a functionally equivalent response to alter student behavior, the investigators sought to better understand teacher self-appraisal of skills to address problematic behavior in the classroom. For these analyses a comparison was first made across levels taught (e.g., ES, MS, HS & SPED) to determine if there were differences in early-career teacher self assessment. The results in Table 2 show that the average self-assessment ratings were nearly identical; ANOVA confirms this, $F(3,86) = .86, n.s.$

Table 2

However, the data on accuracy showed early-career special education teachers were significantly more accurate than their general education (GenEd) counterparts ($M_{SPED} = 88.09, SD = 16.57, M_{GENED} = 76.12, SD = 15.86$), $t(86) = 2.57, p < .01$. However, when the four levels are assessed, the results (Table 3)

show that both SPED and ES teachers are significantly more accurate than MS or HS teachers, $F(3, 82) = 4.07, p < .01$. Post-hoc tests (Table 4) confirm this observation.

Table 3

Discussion

Recent legislative and research based efforts have prompted a renewed emphasis on evidence-based or functional assessments in the classroom (Anderson & Hendrickson, 2007; Gresham, Watson

Table 3, Means and Standard Deviations of Accuracy across School Levels

Level	Level			
	SPED	ES	MS	HS
M	88.10	86.67	73.98	75.36
SD	16.57	17.21	14.93	15.78

Table 4, Post-hoc Comparisons of Accuracy across School Level (p levels indicated)

Level	SPED	ES	MS	HS
SPED	_____	n.s.	.01	.02
ES	_____	_____	.02	.06*
MS	_____	_____	_____	n.s.
HS	_____	_____	_____	_____

* Although not significant, it is consistent with the observed trend

acceptable intervention or strategy. For the first

& Skinner, 2001; Noell, 2007; von Ravensberg & Tobin, 2006). The technology that is being developed, and furthered as expected practice, seems to be absent within the general-education settings. The current findings support the work of previous authors and their contention that teachers do not present adequate skills in the areas of functional based assessment and accurate intervention development based on the supposed function of the student's behavior. The current study extends this point by offering similar findings almost a decade later within a cohort of newly trained teachers expected to have received training in FBA. In the current study the contention that teachers are not adequately skilled in the area of FBA was evident. However, a troubling outcome of this study was that early-career teachers tended to overestimate their skills (suggesting a double deficit of skills and self-awareness). A consequence of this overestimation may in part be the high attrition rates for early-career teachers. That is, teachers may assume they are designing appropriate interventions and become frustrated by the minimal progress observed, ultimately leaving the profession. This leads to a second consequence that is directly related to the students; Murnane, Singer and Willett (1989) (as cited in Billingsley, 2004) suggests that our students are educated by a "successive stream of novice teachers..." implying that teacher turnover is disrupting the education of our most critical consumers. As stated previously, a main reason for teacher attrition is student misbehavior (Hill & Barth, 2004). Therefore, ensuring that our teachers understand how to collect accurate data during consultation and FBA/BIP development is essential not only for effectively reducing misbehavior but also for improving our teacher retention rates.

Whereas authors in the past have offered that teacher preparation programs historically have not embraced the theory and practice of FBA (Hagermoser-Sanetti & Kratochwill, 2008; Rosenfield, 2002; Shellady & Stichter, 1999), the current study suggests that early-career teachers present some insight for selecting the hypothesized function of a student's behavior from a bank of possible options. In particular, early-career special education teachers appear to be somewhat more skilled at selecting the perceived function of behavior. While greater accuracy scores indicate a degree of responsiveness to current policy as well as best practices, the individuals who need these

skills (e.g., general education teachers) do not appear to be making gains in understanding the basic premise and utility of FBA in the classroom. There are a number of limitations relevant to this study. First, there were a limited number of questions which teachers answered. The questions, three multiple choice and three open-ended, were designed with the intention of measuring teacher knowledge. Given the complexity of the conceptual knowledge targeted (i.e., the function of student behavior), the survey used would only begin to provide a fraction of the answers needed. To more fully assess the understanding of our teachers' skill base in the area of FBA/BIP direct assessments through consultation and problem-solving would be superior to the present instrument. Another limitation is the disparate numbers of teachers across levels taught. A larger sample size and greater attention to teacher selection would produce a more representative sample of the educational workforce which would add to the validity of the findings reported here. As with other survey research, this study presented few operational definitions for the teachers to work with and received few operationally defined behaviors from the teachers. Survey-based research often works within a framework of balancing number of items and ease of completion. Offering operational definitions may have made the survey cumbersome to complete. Further, there was no opportunity to revisit a question to add clarity in teacher response once the survey was completed.

Future Research

A primary task for future research in this area would be the development of a questionnaire that presented an empirical basis for adequately sampling teacher knowledge. Efforts to quickly and accurately determine which teachers are in need of additional training, prior to the need to engage in the problem-solving process would be of value.

To elaborate on the findings of this study, future directions may entail surveying teachers in private school settings to investigate if they have been trained in FBA at a similar level compared to their general education peers. One may find that there is a different level of demand for FBA in a private school setting when compared to the public school setting. Of equal interest would be the study of differences (if any) in the knowledge base of teachers with classroom-based specialization

(e.g., certification in learning disabilities or emotional disturbance).

The survey that was used in this study consisted of several experience and demographic questions in addition to six direct assessment of skill items. In the future, the survey could be constructed differently by presenting only the necessary questions. A shorter survey may not be as daunting to the teachers, and they may take the time to answer a few questions more accurately versus questions that take more time and require written responses.

In conclusion, this study presents data that supports previous findings from almost a decade ago. With the recent re-emphasis of including children with disabilities in the general education classroom (i.e. mandates by IDEA-2004), it was surprising to see that very limited progress has been made in our general education teachers' ability to identify functions of problem behavior and develop appropriate interventions. Thus, it is hoped that the results of this study, and others like it, will lead to the development of more specific training opportunities for teachers at the start of their career. Ultimately, better trained teachers should be more equipped to collect valid data and assist in the development of student-specific behavioral intervention plans. This outcome should benefit our teachers (e.g., higher job satisfaction and retention rates) and most importantly our students.

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