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AN EXAMINATION OF TEACHER INSTRUCTION AND STUDENT
ENGAGEMENT INVOLVING ADOLESCENTS WITH AND WITHOUT
CHALLENGING BEHAVIOR

By

Regina Gilkey Him
B.A., University of Kentucky, 1991
M.A., Bellarmine University, 2000

A Dissertation
Submitted to the Faculty of the
College of Education and Human Development of the University of Louisville
In Partial Fulfillment of the Requirements
for the Degree of

Doctor of Philosophy

Department of Teaching and Learning
University of Louisville
Louisville, Kentucky

December, 2011

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A Dissertation Approved on

October 17, 2011

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DEDICATION

This dissertation is dedicated to my family

Paul

Thomas

Oliver

and

Caroline

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I begin this acknowledgement with sincere thanks to my dissertation committee members. Completion of this program would not have been realized without your continued support and encouragement. I am grateful to Dr. Terry Scott for his advising and mentorship throughout each phase of my doctoral program. The guidance and opportunities for professional growth you have provided have challenged me to improve my abilities. I would like to thank Dr. Amy Lingo and Dr. Karen Karp for their passion and focus with my learning including their thoughtful reminders of the possibilities ahead. Many thanks are also expressed to Dr. Nicole Fenty and Dr. Andy Frey for providing me with a welcomed perspective and acknowledgment of my successes along the way. Together each of you provided a positive learning environment for pursuit of my goals.

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ABSTRACT

AN EXAMINATION OF TEACHER INSTRUCTION AND STUDENT ENGAGEMENT INVOLVING ADOLESCENTS WITH AND WITHOUT CHALLENGING BEHAVIOR

Regina Gilkey Hirn

October 17, 2011

The interactions between teachers and students provide a venue for instructional delivery and ultimately student achievement in the school setting. However, not all students experience positive interactions with teachers in the typical classroom setting, especially those students exhibiting behavioral challenges. These students are observed with greater off task behavior and increased classroom disruptions when compared with their peers. This dissertation examined teacher and student behavior observed in a typical high school classroom exemplifying these interactions. Direct observations of students and teachers were conducted to answer several research questions addressing teacher behaviors: classroom instruction, opportunities to respond, and feedback to students and student behaviors: academic engagement within the classroom and rate of disruption during classroom instruction. Through analyses of observation findings, results are described, including a comparison within the context of previous research regarding teacher and student behaviors. Additionally, observations were considered for students identified with or without

challenging behaviors. Findings revealed differences in teacher and student behaviors when students with challenging behaviors were compared with students without challenging behaviors. Study limitations and areas for future research are discussed.

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CHAPTER 1

INTRODUCTION

Formal Education as a Predictor of Student Success

Student participation in educational systems has consistently provided successful long-term outcomes. Students earning a high school degree are more likely to make higher salaries and are eligible to apply for a greater variety of jobs than students without a high school diploma (Day & Newburger, 2002). Students furthering their education after high school to include college or technical school make higher salaries and are able to apply for positions affording them greater income and benefits.

Public education provides instruction for approximately 49 million students (Aud, Fox & Kewal Ramani, 2010); however, public education is not without its challenges. Our legal system acknowledges this issue as jails and prisons continue to be occupied by those with limited education or opportunity for advancement due to a lack of educational experiences (Lochner & Moretti, 2001). Student performance reveals deficits in the core subject areas of mathematics and reading. Indicators from *The Condition of Education 2010*, an annual report describing indicators of development in United States education, noted more than 65% of students in the 8th grade performed at the basic or below basic level in reading and mathematics (Aud, Hassar, et al., 2010). The basic

performance descriptors used in this study indicate that students only partially master skills at the fundamental level of instruction.

An international study, the Program for International Student Assessment (PISA), indicates that average scores for adolescents in United States high schools continue to fall behind peers in other developing countries: surpassing only five other countries in mathematics, 14 other countries in reading literacy and nine other countries in science literacy (Provasnik, Gonzales, & Miller, 2009). Predictions of student performance in 2010 and 2011 following the next administration of assessments for PISA are approached with cautious optimism and reflect the continued concern with the general academic progress of students in United States public schools. Improvements to the current educational system remain in the forefront of political and educational discussions with emphasis on enhancement of student academic progress in United States public schools.

Student Characteristics Impacting Student Success

Although instructional efforts are resulting in achievement for some students, not all students are experiencing similar levels of success. Student characteristics are attributed to student success or failure. For example, academic difficulty is of greater likelihood for students identified with learning and behavioral disabilities, students from poverty environments, specific race/ethnic backgrounds, and adolescents (Aud, Fox, et al., 2010; Aud, Hassar, et al., 2010). In addition, specific subgroups of students can be further identified as being most at risk for academic failure including students from low income areas, high

poverty areas, exhibiting past academic failure, and behavior concerns (Gregory, Skiba, & Noguera, 2010; Pellerin, 2000) requiring intense intervention effort as their performance based achievement gap is more pronounced.

Students with disabilities. One group of students experiencing difficulty with educational success is students identified under the Individuals with Disabilities Education Act (IDEA) and receiving special education services (Individuals with Disabilities Act [IDEA], 2004). The percentage of students identified with disabilities has increased since the mid 1970s to about 13% of all enrolled students three to 21 years of age; recent counts reflect nearly 6.6 million students eligible for and receiving services to address disabling conditions (Aud, Hussar, et al., 2010). Students with disabilities are identified in one or more categories of disability, as defined through IDEA (2004), including a variety of disabilities impacting learning: cognitive issues, specific learning problems, health concerns, speech, hearing, vision or behavioral deficits. Overall achievement of students with disabilities averages around the 25th percentile, with older students described as further behind than younger students (Coutinho, 1986).

Students identified under IDEA with an emotional or behavioral disability evidence achievement deficits most significantly in mathematics and spelling (Kauffman, 2001; Kauffman, Cullinan, & Epstein, 1987; Reid, Gonzalez, Nordness, Trout, & Epstein, 2004). Further, an adolescent student with an emotional or behavioral disability may exhibit academic deficits that can severely impact the content areas of reading, writing and mathematics (Gunter & Reed,

1996). Students identified with emotional/behavioral disorders have been found to exhibit poor academic achievement, a lack of task completion and engagement with the curriculum, and deficits in skills and knowledge specific to the area of mathematics (Templeton, Neel, & Blood, 2008).

Race/Ethnicity. Within the public school system, students with disabilities represent a collage of race and ethnic groups with dispersion unique among states, cities and towns. Minority students represent over 40% of the public school populations and over 40% of all students identified with a disability (Aud, Hussar, et al., 2010). Race/ethnicity as an identifying characteristic of a student further predicts those students more likely to be identified with behavioral problems. For example, students with challenging behaviors are disproportionately represented under IDEA (2004) as compared with the general population by males (USDOE, 2010) and especially African American males (USDOE, 2010; Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005). According to Child Count (2006), a census of students receiving special education services in public schools, 11% of African American students identified under IDEA received services for an emotional disturbance, impacting their behavior, representing the greatest race/ethnic representation of identified students. In fact, using data from the fall of 2004 in the Annual Report to Congress (USDOE, 2006) it was found that Black, non Hispanic students were 2.24 times more likely to receive special education services under IDEA than similar age peers from other race/ethnicity groups.

Not all students with challenging behaviors are formally identified as students with a disability, yet exhibit similar difficulties with educational success. Students with challenging behavior have been informally identified through teacher referral and disciplinary status. Students with challenging behaviors, identified using office discipline referrals as an indicator, also reveal differences based on race/ethnicity. For example, African American students were found with a greater number of office referrals than other student ethnicity groups (Kaufman et al., 2010), the highest percentage of suspensions and expulsions, the highest percentage of grade level retentions, and the lowest percentage of freshman graduates when compared with other race/ethnicity groups (Aud, Fox, et al., 2010),

Socioeconomic status. Socioeconomic status refers to aspects of social and economic factors. One economic indicator of socioeconomic status used in education is the eligibility of a student for free or reduced lunch. The indicator is based on factors including the household income for the student. More than 16,000 schools in the United States were identified as high-poverty schools during the 2007-2008 school year, indicating a great number of students eligible for free/reduced lunch (Aud, Hussar, et al., 2010). A high poverty school is one in which 76% to 100% of students are eligible for free or reduced lunch as defined by the National Free or Reduced Price (FRPL) program. This program denotes income indicators for a family of four recognizing eligibility as either free or reduced lunch status (USD OA, 2008). Connections between high-poverty schools and student achievement of graduation objectives are also evident as

fewer students graduated with a diploma in high-poverty schools, and fewer students attended a 4-year college following graduation from high poverty school during the 2007-2008 school year (Aud, Hussar, et al., 2010).

Large urban public schools were found with disproportionately higher rates of students eligible for free or reduced lunch programs, an identifying characteristic of poverty (Sable, Plotts, & Mitchell, 2010). Large public school districts in the U.S. vary in size; during the 2006-2007 school year districts ranged in size from about 47,000 students to over 980,000 students (Sable et al., 2010). These large urban public school districts represent less than 1% of all public school districts in the United States; yet, serve approximately 22% of all elementary, middle and high school students.

Race/ethnicity characteristics are distinct in large public school districts with 63% of students attending large school districts identified as Hispanic or Black, non-Hispanic. This combined percentage is greater than the percentage of this same student population (38%) across all school districts (Sable et al., 2010). In addition, large public schools are typically found in densely populated cities; these cities exhibit a greater tendency for high-poverty schools at the elementary and secondary school levels (Aud, Hussar, et al., 2010).

Wagner et al., (2005) found that students with emotional and behavioral concerns are statistically more likely to live in poverty as compared to both the general population and other students with disabilities at the elementary, middle and secondary grade levels using results from the Special Education Elementary Longitudinal Study (SEELS) and the National Longitudinal Transition Study – 2

(NLTS2). Information was compiled from multiple sources including student records. In addition to poverty levels, results indicated other economic stressors for students identified with behavioral challenges including household characteristics of single parent status, parents with limited education, and parent unemployment (Wagner et al., 2005).

Adolescents. Compounding poor academic outcomes among adolescent students at the high school level are problems that include drop-out, involvement in juvenile justice or correctional facilities, and a poor likelihood of graduation. For example, students institutionalized in either correctional or health facilities revealed a greater drop-out rate than their non-institutionalized peers, and students identified as Black are institutionalized at a rate nearly double that of White students (Aud, Fox, et al., 2010). Perhaps as a result of these factors, a study of post-secondary attendance found 13.9 % of Black male students enrolled in an undergraduate degree-granting institution compared with 63.3 % White male students (Aud, Fox, et al., 2010).

Students identified with emotional/behavior disabilities, exhibiting challenging behaviors in the school setting, continue the bleak post high school outlook for adolescents exhibiting poor academic records. They reflect the lowest percentage of students graduating high school with a regular diploma, and the greatest percentage of students dropping out of school when compared with all other disability categories (USDOE, 2010). High school students, toward the end of the K-12 educational experience, afford teachers a limited amount of time to remediate and respond to learning and behavioral concerns prior to the end of

high school. High schools typically allow four years for the completion of the required coursework yielding a regular diploma. In large public schools, including a student majority of African/American 9th grade students, those entering school with academic deficits were at risk of failing at least one course their 9th grade year. These course failures were further explained by failure to attend school, complete work, and achieve on assessments (Roderick & Camburn, 1999). The academic deficits exhibited by students with challenging behaviors prior to entering high school place those students well behind their peers resulting in a steep climb toward meeting academic requisites.

The challenges associated with students exhibiting challenging behaviors warrant further attention to identify areas for intervention in the classroom setting, addressing and ultimately preventing the negative outcomes. Academic achievement remains an area of concern for many students and especially those students with challenging behaviors or the potential for academic failure. Students with challenging behaviors present an even greater challenge as their at-risk behaviors are strongly connected to negative educational performance. However, using predictive characteristics indicative of potential student failure, teachers may be able to affect student likelihood of success despite the deficit identifiers. Teachers interact with students daily in the classroom providing the instructional content necessary to complete graduation requirements. The teacher/student interactions throughout the school day and within the classroom provide a palette of opportunities for which intense academic and behavior instruction can be designed to address the needs of students.

Teacher Impact on Student Performance

Teachers providing effective instruction in the classroom positively impact student performance (Conroy, Sutherland, Snyder, & Marsh, 2008; Nye, Konstantopoulos, & Hedges, 2004). For example, Hanushek (1992) found that “the difference in student performance in a single academic year from having a good as opposed to a bad teacher can be more than one full year of standardized achievement” (p. 113). Debate continues on the definition of an effective teacher using definitions including “highly qualified” (No Child Left Behind Act of 2001 [NCLB], 2008), performance indicators (Cabrera, Colbeck, & Terenzini, 2001), and compensation for effective teachers based on instruction and student performance (Eberts, Hollenbeck, & Stone, 2002). Though the debate continues regarding the definition of effective teachers, research describing effective instruction provides strategies and methodologies that, together, lend definition to effective instruction.

Teacher Instruction and Classroom Support

Educational issues confronting students exhibiting behavior challenges include deficit test scores, poor academic performance in reading, writing, and mathematics, increased course failure rates, increased drop-out rates and decreased graduation rates (Kauffman, 2001; Trout, Nordness, Pierce, & Epstein, 2003; Wagner et al., 2005). Recommendations for teacher instruction yielding positive student outcomes are described within the components of effective instruction for students with disabilities. Gunter, Hummel, and Venn (1998) reviewed research on effective instructional strategies with students

identified with behavior challenges, concluding that there is a need for effective instruction with this population of student learners. Students with learning difficulties bring to the classroom unique learning characteristics requiring adjustments in teacher behavior. Bulgren and Carta (1992) identified three factors when considering the type of classroom dynamics needed to increase achievement of students with learning concerns including (a) identification of teaching practices addressing the learning needs of students, (b) the diversity within classroom environments, and (c) student characteristics impacting learning.

Effective instruction. Definitions of effective teaching are plentiful and include a wide range of methodology. Classroom environments are increasingly diverse as students identified with behavior concerns, are more frequently provided instruction in the regular classroom setting (USDOE, 2010). When working with adolescents in the classroom environment, effective instruction includes components of classroom organization, management strategies, identified rules, general classroom procedures, and specified instructional plans for lesson implementation (Emmer, Evertson, & Worsham, 2006). Components of the instructional sequence are further specified. Gunter, Denny, Jack, Shores and Nelson (1993) recommend a teaching instructional sequence for students identified with behavioral concerns including presentation of information, questions or action requests, feedback including corrective feedback if the student provides an inaccurate response, and active engagement throughout the sequence. Although in great need of strong academic instruction, the use of

effective instruction practices occurs less with students exhibiting behavior concerns (Shores, Gunter, & Jack, 1993; Wehby, Symons, Canale, & Go, 1998). Further, teachers of students with behavior concerns were found to interact with students less during the instructional sequence, providing decreased levels of positive and negative feedback (Gunter, Denny, et al., 1993).

Students identified with behavior concerns, whether receiving instruction in the regular classroom setting or elsewhere within the continuum of placement options, receive that instruction from a teacher. Teachers providing instruction to students identified with behavior concerns have the opportunity to impact student performance with their choice of instructional delivery and teaching behaviors in the classroom.

Teacher behaviors. Teachers exhibit a variety of behaviors in the classroom within the scope of content instruction, classroom behavior management, classrooms rules and routines, and general interactions with students and the school community. Teacher behaviors occur prior to engagement with students and during the course of the school day. Prior to student instruction, teachers design lessons and activities for the course or class, arrange the environment, and create the organizational structure around which students will interact (Emmer et al., 2006; Scott, Anderson, & Alter, 2012). When students enter the classroom, teachers provide directions, deliver instruction of planned content, and respond to individual, classroom and school events that occur throughout the day. During lessons and activities, teachers engage with students as they ask questions, provide responses to questions, model tasks,

address errors, and provide paths for assignment completion or peer interactions.

This ongoing juggling act of classroom behaviors exhibited by teachers can be difficult to maintain when instructing students with challenging behavior. When asked to identify reasons for teacher movement from current teaching positions, 15% of secondary teachers, representing public and private schools, reported discipline problems as very or extremely important in their decision (USDOE, 2011b). The behavior of the teacher impacts the performance of the students (Bracey, 2009; Pianta & Hamre, 2009).

Student behaviors. Within the school, students' exhibit behaviors through interactions with peers and staff before, during and after school hours as they are transported to the school building, engage in course content, and participate in after school activities whether this includes sports or clubs or general interactions with peers. Within the classroom, students are exposed to directions, questioning, instructional delivery, and feedback provided by the teacher. Students may or may not choose to engage with the teacher and the instruction (Skinner, Pappas, & Davis, 2005). In addition, the student may choose an off-task or disruptive behavior in lieu of academic engagement. Students can choose to complete the assigned task, engage in the activity, or choose to close their book and disengage with the content.

Students with behavioral concerns are at greater risk for off-task and disruptive behavior, thus a decrease in academic engagement, in the classroom when compared with peers (Alberto & Troutman, 2009; Kauffman, 2001).

Student engagement with the teacher and content was found to occur less often with elementary students with challenging behaviors when compared with students exhibiting average behavioral abilities (Baker, Clark, Maier, & Viger, 2008). Passive engagement, time spent looking at the teacher but not reading, writing or speaking, has been reported about 42% of the observed time for elementary students with and without identified disabilities (Greenwood, Horton, & Utley, 2002). Additionally, Montague and Rinaldi (2001) noted significantly less engagement with academic material in elementary students at risk for learning and behavior concerns when compared to typically performing peers.

On task behavior as engagement. Student engagement with the curriculum is identified as a strong predictor of student achievement (Greenwood et al., 2002; Tucker et al., 2002). As teachers plan instruction and design activities, efforts should incorporate best practices for actively involving students with the curriculum resulting in high rates of on task behavior. Strategies for increasing student on task/engaged behavior with the teacher and content include the use of specific instructional tasks and instructional groupings. Tasks recommended for increasing student engaged behavior include the use of paper/pencil products, computer activities, and reading materials; in addition, instructional groupings involving independent work and one-on-one instruction with the teacher resulted in increased student engagement (Greenwood et al., 2002). Greenwood and colleagues (2002) also noted instructional activities least indicative of student engaged behavior as transition between activities and lecture formats.

Unfortunately, students with behavior concerns and students at risk for behavior problems exhibit lower rates of on task behavior when compared with students without behavior concerns (Baker et al., 2008; Kauffman, 2001; Montague & Rinaldi, 2001). Baker et al. (2008) considered the percent of on task behavior for students with and without behavior challenges at the elementary level given differing instructional contexts; students with behavior challenges revealed a mean on task percentage between 3% and 45% lower for students with behavior challenges. The most significant difference in on task behavior occurred for students with challenging behaviors during direct instruction activities (45%), the least difference during small group instruction (3%). Acknowledging this finding of a lower rate of on task behavior is an important teacher consideration when planning for the instructional needs of students with behavior challenges in the classroom and identifies a need for instructional strategies to increase the rate of engagement for these students. Teachers should consider strategies for increasing student engagement through classroom structure, organization, management strategies, instructional tasks and instructional groupings (Baker et al., 2008; Emmer et al., 2006; Scott et al., 2012).

Discipline and resolutions. Student classroom behavior may result in a teacher initiated discipline referral. Office discipline referrals reflect a violation of a set of rules identified by the school or governing system. Office discipline referrals typically result in a teacher or administrator assigned resolution which may include detention, parent conferencing, removal from the classroom, or for

some infractions, removal from the school in the form of suspension. In one school year, over 18,000 students identified with emotional or behavioral concerns under IDEA were suspended from school for more than 10 instructional days (USDOE, 2010). Removal from the classroom and the school are of great instructional concern as these resolution types remove the student from access to instruction.

Purpose of the Study

Teachers and students interact daily within the school setting and exhibit a unique array of specific behaviors. Student engagement is impacted by the interactions between teachers/students and teacher instruction (Baker et al., 2008). Understanding the dynamics of this dyadic relationship is important when responding to the needs of students with identified behavioral concerns in the classroom setting. Measuring and describing the factors involved in this teacher/student interaction in a more formal manner will allow for exploration of this relationship.

Research regarding the etiology of teacher/student interactions, the probability of those interactions, and explanations surrounding the interactions warrants additional research. Current examples include samples of students of varying ages, observation sessions and repetitions per students. These observations consider student or teacher behaviors and the interactions between the students and the teachers. Although many student and teacher variables are considered, samples including students with behavioral concerns are limited. A targeted look at subgroups of individuals warrants consideration as research

continues a quest to identify factors contributing to increases in student engagement and, ultimately, student achievement.

With limits to research and analyses of student/teacher interactions, questions remain regarding relationships between and among teacher and student variables within this interaction. These questions include teacher/student interactions with adolescents at the high school level and between and among students identified with and without challenging behaviors. The purpose of this study is to extend the research on teacher and adolescent student interactions through exploration of naturally occurring rates of teacher behaviors in the classroom and corresponding student success as measured through levels of student engagement.

The next chapter describes specifics of teacher practices, as facilitators of instruction, including the discrete behaviors resulting in increased student engagement. Teacher instruction is reviewed with specific focus on those practices implemented with adolescent students at the high school level. Emphasis on those teacher practices designed to impact student levels of engagement are highlighted with descriptors of limitations in the current body of research.

CHAPTER 2

LITERATURE REVIEW

Teacher and Student Classroom Interactions

This chapter explains the framework of teacher and student classroom interaction. The literature review includes a review of research related to teacher and student interactions within the framework including (a) classroom organization, (b) instructional support and (c) emotional support. Components of effective instruction associated with the framework are described including a review of rates and percentages reported in the research regarding (a) student engagement, (b) provision of opportunities for student response, and (c) teacher provided feedback. Finally, research questions formulated from this review are presented.

Teaching is a challenging job at every grade level, especially at the secondary level. At the high school level, students present to the school as a diverse group resulting from varied community, educational, and life experiences, with unique individual goals for the future. Schools respond to this diversity through varied instructional and managerial strategies, creating an opportunity for students to be successful and earn the credits required for graduation. Given the short time frame of the high school experience (typically four years), teachers must address instruction with purposeful intent, and this task can be daunting.

One challenge for the high school teacher is the implementation of effective responses to student academic and social failure. In general, teachers identify classroom behavior management as one of the most difficult parts of the teaching position. Teacher survey responses support the identification of this challenge as 40% of secondary teachers described misbehavior in their school as impeding delivery of instruction (USDOE, 2011b). Dealing with chronic student failure in both the academic and social realm greatly impacts the teacher's selection of strategies. Much of the strategy selection is implemented within the scope of general management of classroom activities, responses to frequent and disruptive behaviors that occur during the delivery of instruction.

Teachers may not be receiving the support required to address the needs of students exhibiting challenging behaviors in the classroom. The Schools and Staffing Survey (SASS), completed by teachers in both private and public schools, identified only 68% of secondary level teachers reporting agreement with the statement "I am given the support I need to teach students with special needs"; this includes students with behavior challenges (USDOE, 2011a). Responding to the challenges involved with developing effective classroom management can often be difficult for even experienced teachers and may explain teacher movement of positions. When asked to identify reasons for movement of teaching position, 15% of secondary teachers reported discipline problems as very or extremely important in their decision (USDOE, 2011b). For many teachers, the only agreeable solution for such problems is to move the student to another classroom or segregated setting. When asked about the

training in place to address the diversity of student behavior in the classroom, 63% of teachers in classrooms described a lack of or inadequate placement options for addressing students with disruptive behaviors (USDOE, 2000).

Problem behaviors including classroom disruption are associated with failure in the classroom and failure in school (Algozzine, Wang, & Violette, 2011; Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008). Further, failure in school is predictive of students who ultimately drop out (Block et al., 1978; Kauffman, 2001; Reschly & Christenson, 2006) with over 20,000 students with identified behavioral challenges dropping out of school every year (Snyder & Dillow, 2010). Academic and social failures affect the teacher/student relationship, further increasing failure with both. When students fail, school becomes aversive and, often, students' disruptive behaviors may be displayed as an avoidance of the academic tasks presented in the classroom environment (Carr, Taylor, & Robinson, 1991). Under such conditions problem behaviors tend to deter student interaction, resulting in limited engagement with the teacher and instruction (Gunter et al., 1994; Gunter, Denny, et al., 1993; Tice, 1990).

Not all students engage in the same problem behaviors, and students who do exhibit problem behaviors do not do so with the same frequency or intensity. Student behaviors at the high school level are unique in type and prevalence when compared with middle or elementary grades. As many as 21% of high school students receive two or more office discipline referrals in a school year with defiance, truancy and tardiness explaining the majority of infractions (Spaulding et al., 2010). Kaufman and colleagues (2010) found referrals from

grades 9-12 to be significantly different from those at the elementary or middle school level with high school demonstrating greater challenges with attendance issues and an overall higher number of discipline referrals. In addition, national data show male students to receive more referrals than females, and African American students more office referrals than other student ethnicity groups (Kaufman et al., 2010). Greater than 64% of the discipline referrals at the high school level originate in the classroom (Spaulding et al., 2010). Further, students identified with special needs were found to have higher rates of suspension, with some states reporting nearly double the rate of suspension when compared to nondisabled peers (Fiore & Reynolds, 1996). A consequence of many discipline referrals involves the removal of the student from the classroom, resulting in removal from instruction and opportunities to engage with academic content.

Instruction as an effective teacher intervention for students with academic failure is a well established means by which to address the vicious circle of academic and social failures leading to damaged relationships between the teacher and student. Teacher intervention for students with identified behavior challenges must impact both student academic achievement and behavioral performance. Because failure is likely in the absence of effective teacher intervention, the common factor in intervention is the teacher. The remainder of this chapter identifies important teacher practices, within a teacher/student interaction framework, that affect change in student behavior. Factors describing the intersection of teacher's instructional delivery and student engagement will be addressed.

Conceptual Framework

Teacher behavior is an important variable in the instructional intervention process. In defining teacher instruction, volumes of published books and research studies provide input on teaching and instructional techniques. Teachers are confronted with a wide range of strategies, methods, interventions, and general teaching activities to instruct in the various content areas. However, not all suggestions are accompanied by strong research supporting their effectiveness. When considering instruction to facilitate student achievement, especially among those with behavior challenges, practices with the greatest evidence of effective outcomes should be considered first and foremost to increase the probability of student success.

For students with challenging behaviors, effective practices for increasing positive teacher/student interaction are described within the context of effective instruction. In fact, the identification of effective teaching practices is one of the key components for consideration when addressing the learning needs of students experiencing difficulties (Bulgren & Carta, 1993). Effective teacher practices include those with evidence supporting the promotion of student engagement. Effective practices for students with challenging behaviors include management, organization, and instruction (Conroy, Sutherland, Haydon, Stormont, & Harmon, 2009; Gunter, Coutinho, & Cade, 2002). Virtually everything that occurs in an instructional context can be defined in terms of the interaction between a teacher and student. Further, these interactions can be described as a relationship due to this interactive reciprocating nature.

Pianta and colleagues describe teacher/student relationships beginning in early childhood and consider implications of this relationship later in the student's education (Pianta & Stuhlman, 2004). This reciprocal interaction theory describes the joint relationship between the teacher/student interactions and connects social learning to interactions occurring within instructional sequences and classroom setting (Patterson & Reid, 1970). Teacher/student interaction is considered an extension of the parent child relationship stemming from reciprocal interactions occurring throughout childhood (Murray & Pianta, 2007; Patterson & Reid, 1970).

Teacher/student relationships are developed within the school setting as an adult/adolescent relationship. Due to the time devoted by students within the school setting, this environment is a natural place for this relationship development (Pianta, Stuhlman, & Hamre, 2002). This relationship is observed through communicative behaviors exhibited by the teacher and student occurring throughout the school day and during instruction. Examples of this interaction include exchange of content information and verbal or non-verbal responses to students (teacher feedback).

The teacher/student relationship is especially important for students with challenging behaviors as these students with typically exhibit difficulty establishing and maintaining relationships with peers and adults (IDEA, 2004). The teacher/student relationship is similar to relationships between children and parents and adolescents and adults; the adult offers the adolescent guidance through support, modeling of desired behavior, and provision of information

(Murray & Pianta, 2007; Pianta et al., 2002). Similar to the teaching interaction between a parent and a child, a relationship of importance becomes that of the teacher/student; the classroom teacher is one adult with multiple opportunities for interaction with adolescents in the classroom.

Students with challenging behaviors encounter greater strains in their relationships with teachers, affirming a need for teachers to identify strategies to improve the relationship. This is stated concisely by Murray and Pianta (2007).

Within schools, teachers are the central and most powerful force in the lives of young people. Teacher beliefs, actions, and practices are the foundation of positive teacher-student relationships and these relationships can have powerful and lasting effects on the lives of youth with high-incidence disabilities (Murray & Pianta, 2007, p. 110).

Pianta et al. (2002) describe the relationship of teachers and students as one of information exchange involving getting attention and receiving feedback, affected by general teacher attentiveness and responses to student behavior. Thus relationship factors constitute a reciprocal interaction wherein teacher behaviors influence student behaviors and student behaviors in turn influence teacher behaviors.

Pianta and Hamre (2009) propose a model (the CLASS: Classroom Scoring Assessment System) describing teacher and classroom dynamics affecting student learner outcomes in which the quality of teacher/student interaction involves emotional support, instruction, and classroom organization –

each of which impact the engagement of students. CLASS, designed around components supporting youth development, is based on a premise of increasing positive interactions between adults and youth. The CLASS framework considers teacher/student interactions within three areas: classroom organization, instructional support, and emotional support (Pianta & Hamre, 2009). Figure 1-1 is a graphic depiction of the conceptual framework developed to describe connections between the three categories within the CLASS framework, while incorporating effective instruction components of teacher behaviors (opportunities to respond and feedback) and student level of engagement. This model differs from the original model as it reflects two specific teacher behaviors, opportunities to respond and feedback, as key indicators within the three instructional components. It is worthy of note that Pianta's view of the relationship puts the responsibility on the adult to create a positive interaction (Pianta & Hamre, 2009).

Figure 1-1.

Conceptual Model of Teacher Facilitated Instruction Components Within a Teacher Student Interaction Model

Note. Adapted from Pianta & Hamre (2009), p. 35. Conceptual model of classroom settings.

In an effort to adapt these components for a more operationalized definition of effective teacher instruction, emotional support, classroom organization, and instructional support are addressed through teacher behaviors within instructional format and classroom management, while emotional support is defined through positive feedback for students, see Figure 1-1. Emotional support involves development of a positive climate for teacher/student interactions; positive feedback, affirmative statements of accuracy or acceptability, approaches this building of the positive climate. Classroom organization involves teacher provided instruction and consideration to the format

of learning. Teacher provided opportunities to respond are specific to this component of the teacher student interaction model as these opportunities to respond provide the student with the chance to interact with the teacher during instruction, and further provide the antecedent for potential positive feedback. Instructional support involves interactions between the teacher and student regarding content understanding and feedback quality. Teacher behavior including opportunities to respond and feedback further define this component of the model and address the potential for quality feedback through teacher provided response opportunities. Opportunities to respond and feedback provide specific teacher behaviors for measurement in the classroom setting as indicators of the framework components necessary to support teacher/student interactions.

The connection between the components of effective instruction including opportunities to respond and impact on student behaviors, both academic and social, supports a need to further identify and explain dynamics of the teacher/student relationship. Gunter and Denny (1998) summarized their position following a review of research addressing instruction with students identified with challenging behaviors; “Our position is simple: Emotional and behavioral disturbances may be exacerbated by ineffective instruction” (Gunter & Denny, 1998, p. 49). The following sections describe effective teacher practices related to instructional activities and feedback within the framework of emotional support, classroom organization, and instructional support.

Emotional Support

Emotional support is the third component of the framework and related to the development of a positive climate for teacher/student interaction leading to student engagement. Positive reinforcement is a type of feedback provided to students; a response to student behavior indicating approval and/or acceptance of the behavior. In general, feedback has been utilized in the classroom setting as a tool to increase learner outcomes (Belfiore, Skinner, & Ferkis, 1995); and has been recommended as a strategy to increase desired behaviors when used as a reinforcer to increase the likelihood that a behavior will continue (Emmer et al., 2006; Kern & Clemens, 2007; Scott et al., 2012).

Teacher provided positive feedback to students can be observed as a measurement of this component of the framework. Positive feedback, also referred to as praise, is perceived by students as supportive from teachers (Brophy & Good, 1986), and identified as a key aspect of the emotional support necessary in teacher/student interaction. The use of positive feedback is found to increase student achievement, increase desired behaviors, and increase student on task behaviors (Gunter et al., 2002; Kern & Clemens, 2007; Partin, Robertson, Maggin, Oliver, & Wehby, 2010).

Classroom Organization

Classroom organization includes management and instructional activities developed, planned, and delivered by the teacher within the classroom environment. These activities include both the organizational structures within the

classroom and the specific instructional procedures that make up an instructional sequence.

Organizational practices. Teacher instruction is delivered within the organization of the classroom. Those organizational practices developed for the student and by the teacher provide a mechanism for increasing student engagement with materials, other students, and the teacher. Organization involves the creation of an environment conducive to instruction through procedures and the arrangement of activities and materials.

The organization and management of the general classroom learning environment involves connecting teacher instruction and classroom management. Rather than a separate but associated consideration, classroom management is regarded a key component of the instructional sequence (Brophy, 1983). To manage instruction, teachers employ a variety of strategies to both engage students in learning and evoke outcomes such as student verbal and/or product responses, teacher/student interactions, and student/student interactions. Further, descriptions of classroom management include a range of teacher-developed activities in the classroom, resulting in increased student engagement (Emmer et al., 2006). Teachers strategically choose arrangements in the classroom, processes for classroom interactions, and provide management in response to student behavior (Scott et al., 2012.) Brophy (1983) described this connection with teacher strategies as successful classroom management, which he connected directly to academic engaged time, which in turn allowed for opportunities for academic achievement.

A well organized classroom is described as one with structures in place to allow questioning techniques that are aimed at maintaining student attention and accountability for content presented (Brophy, 1983; Emmer et al., 2006). In addition, basic classroom organizational techniques such as scheduling, strategies for student and materials arrangement, and the use of teacher proximity promote student on task behavior (Guardino & Fullerton, 2010).

Scheduling procedures involve the designation of both time allotment and content for specific activities within the classroom. Such procedures are especially important as they govern classroom movement following a schedule. In addition, these procedures provide predictability for students as they respond to teacher directives. Scheduling decisions may include consideration of the best time to deliver expectations, the path to take in traveling through a hallway, or whether to move the reading time during the school day. Specific procedures used when following the daily schedule may be different across schools, classrooms, content areas and within designated areas of the classroom. However, well organized classrooms provide students with those expectations (Emmer et al., 2006).

Classroom organization includes configurations, arrangements and use of materials providing students access to information and resources. Classrooms can be organized in a variety of configurations to provide access to frequently used items, create a smooth traffic flow for the teacher and students, or maximize the student work environment with carefully chosen placement of objects and furniture. Classroom arrangements allow for use of the available

space in the most productive manner possible. Emmer and colleagues (2006) describe activities allowing for access to materials including clear visual lines between the student and the teacher ease of movement throughout the room, and emphasis on unique needs of the instructional task as considerations for arranging the classroom environment.

Classroom organization provides opportunities for use of proximity during instruction. Proximity is defined as the physical distance between two things. Within the classroom context, proximity is the distance between the teacher and student and recommended about three feet from the student (Gunter, Shores, Jack, Rasmussen, & Flowers, 1995). The teacher uses physical spacing to ensure the student's awareness of his or her presence in the classroom. Generally, proximity is considered an effective practice in that students are more likely to be engaged when teachers are nearby. Proximity can also be described as a social reinforcer when used to increase student likelihood of a desired response (Alberto & Troutman, 2009). In summary, organizational practices lend support to the creation of a positive climate setting, allowing for access to materials, instruction and resources.

Instructional Supports

Instructional supports include interactions acknowledging content understanding and feedback for students. Curricular content is typically specified for the teacher and is related to skills and content acquisition. The specific curricular and instructional procedures for content areas are established through national, state and local content guides. Student success then is promoted by

engagement with the content and evidenced by student achievement of skills within the content- the primary outcome sought through effective teacher instruction.

Access to curricula is a starting point for the promotion of student achievement, although how teachers develop and deliver a lesson may differ with the curricula, context, and students. Differences in curricula presented to students with and without learning concerns have been noted. For example, Kurz, Elliott, Wehby, and Smithson (2010) found a limited correlation when comparing the implemented curricula delivered by regular education teachers and special education teachers, finding stronger correlations between alignment and achievement, but limited correlation between the alignment of curricular instruction by teachers of students with and without disabilities. In the authors' words, "This raises the question of adequate opportunity to learn for general and special education students ..." (Kurz et al., 2010, p. 143). The teacher must take responsibility for considering whether instructional procedures are sufficient to produce academic achievement with a given curriculum, in a given context, and with specific students.

Instruction is developed and delivered in accordance with the skills and concepts being taught. Specific recommendations are based on a review of research studies providing evidence of effective teacher practices. For example, in the area of mathematics, recommendations developed by the National Council of Teachers of Mathematics (NCTM, 2000) and National Mathematics Advisory Panel (NMAP, 2008) for students struggling in the area of mathematics include

the regular use of modeling, practice, verbal explanation, and feedback. This type of instruction is defined as explicit or systematic instruction (NMAP, 2008; Gersten & Clarke, 2007). Van de Walle et al. (2010) described explicit instruction as teacher initiated instruction through the use of models, and further defined a specific type of explicit/systematic instruction, direct instruction, for use with strategy intervention. Direct instruction includes similar components of modeling with explanation, guided practice, feedback, independent practice, reinforcement, and movement toward transfer of the content to other areas (Van de Walle, Karp, & Bay-Williams, 2010). Similar documents are available in other content areas and provide direction for strategic instruction including a sequence of teacher behaviors during instructional delivery.

Opportunities to respond and feedback are components of an effective instructional sequence. An effective instructional sequence defines a series of teacher actions of which teacher presentation and feedback directly correspond to teacher/student interactions. Direct instruction is a model for the delivery of an instructional sequence. It is the teacher's role to modify and adapt the instructional sequence to increase the likelihood of student engagement. Gunter, Denny et al. (1993) recommend that an instructional sequence for students identified with behavioral concerns should include presentation of information, questions or action requests, positive feedback in response to success, corrective feedback in response to errors, and active engagement throughout the sequence. Findings from research on the interactions between teachers and students with behavior concerns indicate typically low rates of both positive and

negative teacher engagement with students identified with behavioral concerns, and limited teacher presentation of information that result in additional teacher directives (Shores, Jack, et al., 1993). Decreased interaction with teachers in conjunction with academic deficits and need for increased systematic instruction is an ineffective recipe for facilitation of student achievement.

Teacher/Student Interactions

As the framework models, teacher/student interactions, as described through classroom organization, instructional support and emotional support and measured through teacher opportunities to respond and feedback, provide the mechanics for the outcome of student engagement. The probability of student success with content converges at the intersection between effective teaching practices and student engagement. The teacher's role is to include those practices that increase the probability of the student engagement with the curriculum and ultimately success. However, the characteristics of students in present day high school classrooms provide a challenge for the development of instructional strategies that are simple to deliver and highly effective in engaging a diverse classroom population.

Provision of opportunities to respond to questions and specific feedback on student performance in the classroom are two specific teacher practices that are associated with increased student engagement. Research supports the application of these teacher behaviors as associated with both increased student engagement and decreased rates of student challenging behaviors (Haydon et al., 2010; Haydon, Mancil, & Van Loan, 2009; Partin et al., 2010; Stichter et al.,

2009). The literature on effective instructional practices is well-established and key features of an effective instructional sequence have been identified (Baker et al., 2008; Brophy & Good, 1986; Christenson, Ysseldyke, & Thurlow, 1989; Greenwood et al., 2002; Gunter, Shores, Jack, & Denny, 1994; Raphael, Pressley, & Mohan, 2008). The following section reviews teaching practices and procedures that are widely cited to be related to student engagement.

Teaching for Student Engagement

Teachers are the instructional leader in the classroom setting. They provide the path for which students learn content, practice content and demonstrate understanding of the content. One way to increase the likelihood that students will express content understanding is with engagement with the curriculum. Student engagement is defined with variation and includes a range of student behaviors. The types of behaviors exhibit a range from broad definitions incorporating many student behaviors to definitions of discrete verbalized responses.

According to Greenwood, Horton and Utley (2002) engagement is defined as student behaviors that promote academic achievement. These behaviors may include reading, writing, speaking or other tasks involving student interaction with the content. Greenwood and colleagues (2002) further divide engagement into positive, neutral, and negative based on the correlation of the each with student learning outcomes. Positive behaviors included active interactions such as reading, writing, speaking; neutral behaviors involved passive listening or looking toward the teacher; and negative behaviors are those off task or

disruptive behaviors negatively correlated with student learner outcomes (Greenwood et al., 2002).

Student engagement is clearly associated with characteristics of students and student outcomes. Student engagement variables of disability status, social economic status and race/ethnicity further describe the differences in student engagement (Baker et al., 2008; Tucker et al., 2002). In addition, engagement is associated with positive student outcomes across learning environments.

Greenwood et al. (2002) considered results of inner city schools and social economic status, noting findings of accumulated hours of missing instruction based on the percentages of academic engagement differences for students. Findings revealed that students at risk for learning or behavioral problems at the elementary level were academically engaged (defined as on task behavior with an academic activity) significantly less than students not identified at risk for learning or behavior problems. In a similar study Montague and Rinaldi (2001) noted these additional concerns: (a) few interactions occurred between students, (b) data reflected interactions only in the classroom environment, (c) elementary grades lacked teacher/student interaction data due to scheduling issues, and (d) analysis did not consider differences between gender, ethnicity of the student, matched gender, or ethnicity interactions between the students and the teachers.

Academic engagement was found to differ between instructional activities. Hayling, Cook, Gresham, State and Kern (2008) considered student behavior within differing instructional activities with students identified with an emotional behavioral disorder (EBD); 27 of the 90 students represented high school

students. Using momentary time sampling, two 30-minute observations were recorded during a school year for targeted students, including the type of instructional activity and level of student engagement (on task or off task behavior). Results of this exploratory study indicated a mean percent engagement of 77% for all schools; students were involved in instructional activities within whole group 35.9%, small group 5.6%, cooperative learning groups 5.8%, independent seat work 41.6% and one-on-one groupings 5.4% for all schools at varying rates (Hayling, Cook, Gresham, State, & Kern, 2008).

Hayling et al. (2008) further considered the interactions between instructional activities within the school day and the student behaviors during the activity configuration. Teacher behaviors exhibited during the instructional activities were not included and were recommended for future research along with student gender, race or cultural factors that may have affected the students' behavior response. An association was noted between one-on-one instruction and lower rates of student engagement and higher rates of destructive behavior. A possible explanation for this association is that the students were using negative behaviors in an attempt to remove themselves from the situation.

Engagement also varies given student race/ethnicity. In a study including 117 African American students attending an after school academic program and representing grades one through twelve, 59% reflecting adolescent aged participants, students responded to questions regarding teacher behavior, self-systems and student engagement (Tucker et al., 2002). Students self-rated their overall engagement including components of emotional engagement, effort,

school, and questions addressing learning beyond expectations while teachers were rated on support, involvement and structure topics (Tucker, et al., 2002). Student reports indicated significant correlations between their rating of engagement and all three areas of teacher involvement; in addition, teacher involvement was identified by both elementary and 7th through 12th students as a significant predictor of student engagement. These findings support teacher behaviors involving encouragement, demonstration of care and support, and classroom structure characterized by clear expectation and feedback as strong predictors of student self-rating of engagement (Tucker, et al., 2002).

The percentage of student engagement typically found in the classroom varies within the research. Hayling et al. (2008) noted a mean percent of engagement at 77%, while Hollowood, Salisbury, Rainforth, and Palombara (1994) recorded means between 70% and 82%. These averages, described as general engagement, are inflated when compared with percentages reflecting only active engagement. For example, when considering activities throughout an entire school day, active engagement in instructional tasks was found to be between 36% and 45% for elementary students with and without identified disabilities (Hollowood, Salisbury, Rainforth, & Palombara, 1994).

The provision of opportunities to respond and teacher feedback are specific strategies that have been found to be associated with high rates of student engagement. Teacher facilitated instructional components of opportunities to respond and specific feedback show promise for increasing student engagement and are further associated with increases in student

success. Optimal rates of these teacher behaviors have been explored as both naturally occurring events and implemented within treatments. Rates of teacher provided opportunities to respond and feedback are described following a review of research from which rates were reported or could be calculated. This literature review focuses on research that specifically addresses the question of rates of teacher behavior and student outcomes specific to engagement. A search for studies was conducted using combinations of the following search terms: “opportunity to respond”, “feedback”, “behavior disorders” and “challenging behaviors” using ERIC, PsycINFO, and EBSCOhost databases. Over 300 research studies were then applied to the inclusion criteria. In addition, further searches by author and review of references lists for additional research studies meeting the inclusion criteria were conducted.

The criteria for inclusion in the review involved studies that included (1) measures of the teacher and student interaction involving the use of a teacher opportunity to respond and/or teacher feedback, (2) participants who were identified as a student with challenging behaviors (at risk), (3) participants who attended high school (defined as grade nine to grade 12), and (4) provision of or allowance for the calculation of a rate of teacher opportunities to respond or teacher feedback. The studies were then sorted into two groups by teacher behavior. One research study met the criteria regarding teacher provided opportunities to respond and three studies met the criteria regarding teacher provided feedback. Four research studies were located referencing rates of teacher provided opportunities to respond and feedback at the high school level.

The search was amended and allowed for studies spanning K-12 and included students with or at risk of exhibiting challenging behaviors for discussion purposes resulting in 15 studies addressing rates of opportunities to respond and 14 addressing rates of teacher feedback; see Table 2-1 and Table 2-2.

Opportunities to Respond

Teacher provided opportunities to respond are teacher initiated events that provide students with an occasion to both engage with the teacher and with the curricula content. Increased opportunities to respond provided by the teacher have been connected with improved academic performance, increased task engagement and decreased levels of disruption with students exhibiting challenging behaviors (Kern & Clemens, 2007). General components of opportunities to respond include prompting for a response, presentation of information with allowance for maximum accuracy with responses, repetition of prompts, use of wait time, checking for understanding, and responding with feedback (Conroy et al., 2008). Opportunities to respond are considered a component of effective instruction and can be found within steps, sequences, and general recommendations for instruction of students with challenging behaviors. For example, Christenson, Ysseldyke and Thurlow (1989) describe the steps for implementing an effective lesson (graphically presented by Gunter et al., 2000), to include (1) gaining student attention, (2) review of information, (3) goal presentation, (4) task demonstration, (5) guided and independent student practice, and (6) feedback. The opportunities for student response are located within the guided and independent student practice and feedback components of

the sequence. Teachers should guide students through questioning allowing for student engagement with content, ending with feedback regarding accuracy of the response.

Reflecting on teacher behaviors as the beginning of the reciprocal interaction with students, one method used to precipitate student response involves questioning strategies. Research has established consistent recommendations to provide students frequent opportunities to actively respond in the classroom (Deno, 1998; Gunter & Coutinho, 1997; Gunter & Denny, 1998). However, teachers of students with behavior disorders have been found to use fewer questioning strategy practices within instructional sequences and provide, generally, less instruction with this student population (Carr et al., 1991; Wehby et al., 1998). Further, the use of effective teaching practices occurred infrequently with students identified with behavior disorders (Shores, Gunter, et al., 1993; Walker, Severson, Feil, Stiller, & Golly, 1998; Wehby et al. 1998). In addition to use with academic content, provision of opportunities to respond has also resulted in changes in student classroom behavior. Increasing student opportunity to respond is identified as an example of an effective teaching strategy to respond to classroom behavior concerns and described within six basic interventions to address effective classroom instruction: supervision, classroom rules, praise, opportunities to respond, feedback, and group contingency (Conroy et al., 2008).

Teachers can provide a variety of opportunities for student response including opportunities open to a group and those targeted at specific individuals.

Group opportunities include open-ended questions such as “Who can tell me...?” or “What is the answer to ...?” This type of questioning may solicit hand raising which gives students the possibility of being chosen for response. A targeted opportunity to respond is one directed at an individual such as “John, what is the ...?” or pointing to a student as the question is asked. Increasing the frequency of opportunities to respond has been linked to increased engagement with the instruction and content delivered (Carnine, 1976; Carnine & Fink, 1978; Haydon, et al., 2010; Haydon, et al., 2009).

Teacher Provided Opportunity to Respond Rates

Fifteen studies addressed teacher provided opportunities to respond allowing for calculation of rates. Optimal rates of opportunities to respond were cited in a Council for Exceptional Children (1987) document and further identified as a component of effective teaching practices. Specifically, if new content was presented during instruction, four to six opportunities per minute with an accuracy response rate of 80% or greater were optimal, and if practice or drill of content, eight to twelve opportunities per minute with an accuracy response rate of 90% or greater were recommended. The optimal rate of opportunities to respond has been considered in a variety of contexts including content area and classroom setting.

Researchers have considered this recommendation and natural rates of occurrence among grade levels, student types, and disability categories; however, limited research has been conducted specifically addressing adolescent students exhibiting challenging behavior. Eleven studies included

students in kindergarten to 3rd grade (primary), six studies included students in 4th to 5th grade (upper primary), four studies included students grades 6th to 8th grade (middle grades), and one study specifically targeted students at the secondary level, 9th to 12th grade. Rates are discussed within the grade level groupings.

Gunter and Coutinho (1997) summarized research recommendations for students exhibiting behavioral concerns and describe the provision of high rates of positive teacher information, prompting for responses following information provision, increasing proximity between teacher and student, and increasing the frequency of easy tasks within difficult tasks. Montague and Rinaldi (2001) revisited analysis of teacher and student interactions with direct observation in elementary classrooms. Noting the influence of general school outcomes on teacher and student interactions, the differences between number and type of teacher-student interaction and percent of academic engaged time was analyzed for students at risk of learning and behavior problems and students not at risk (Montague & Rinaldi, 2001). This study involved students followed from grade two to grade three or grade three to grade four, male and female students, and included ethnic representation from African-American and Hispanic identification. Trained observers collected 15 minutes of direct observation from each targeted student on two occasions assessing teacher response, student opportunities to respond, and student initiated behaviors (Montague & Rinaldi, 2001). Social interactions between students were also observed using 15 minutes sessions

and two collection times. Student engagement was measured as percent of the observation on task with an academic activity noting a rate of 0.208 per minute.

To further describe the specific interactions between opportunities to respond and student levels of engagement, Sutherland, Alder, and Gunter (2003) increased teacher provision of opportunities to respond from 1.7 per minute to 3.5 per minute finding an association with increased task engagement and lesser undesired behaviors. In addition, increasing opportunities to respond was found beneficial to groups of individuals identified with intellectual concerns and within minority populations. For example, Sutherland and Wehby (2001) considered findings from six research studies addressing opportunities to respond noting behavioral and academic improvement with increased rates of response opportunities; however, also finding generally low rates of opportunities to respond for students with behavioral concerns.

Researchers have isolated rates of teacher/student interaction in various grade groupings as both a naturally occurring rate and within use as a treatment. Gunter et al. (2002) described interactions between teachers and elementary aged students with emotional and behavioral disorders in a special school setting. Six hours of observation over three days identified teacher student interactions rates. These observations, described as using most of the best practices identified for instruction with students having emotional and behavioral disorders, note rates of solicited responses at 4.6 per minute with 100% student accuracy, rates falling within the suggested 4 to 6 responses per minute with 80% accuracy (Gunter et al., 2002). In addition, opportunities to respond within

student groupings for instruction between one and three students were considered. Independent student work was supervised by teachers during completion, and reflected a greater than recommended completion rate of 8.1 correct responses per minute (Gunter, Jack, et al., 1993). This strength in response opportunity rates seem the exception as only one other research study was able to approach this rate at 4.1 per minute during a review of previous instruction including students without disabilities (Gunter et al., 2004). Other similar rates were obtained as a part of the treatment condition between 4.5 per minute and 5.0 per minute (Haydon, et al., 2010).

Opportunities to respond can be located within the demonstration, practice and feedback components of effective instruction. The portion of instructional time spent on these components includes teacher talk. In effective classrooms, about 50% of the instructional time is spent on guided practice and demonstration (Stichter et al., 2009). Roberson, Woolsey, Seabrooks and Williams (2004) found that teachers engaged in instructional talk among students with and without disabilities at about 43% of the time observed. Wallace, Anderson, Bartholomay and Hupp (2002) conducted observations at the high school level finding that teachers engaged in academic talk about 40% of the observed time. Stichter et al. (2009) identified an optimal percent of instruction time including academic talk as 50%, including 3.5 opportunities to respond per minute during active instruction. This percentage and rate of teacher academic talk were required to increase student levels of engagement and achievement.

Other research addressed an observed rate of teacher provided

opportunities to respond. Van Acker, Grant and Henry (1996) conducted research with students at risk for behavior problems; students were observed for 80 minutes per student noting a mean rate of opportunities to respond for students between 0.020 per minute and 0.025 per minute. Additionally, Wehby et al. (1995) used a direct observation technique in 14 classrooms with two different student levels finding rates between 0.156 opportunities per minute and 0.163 per minute for academic commands, 0.190 per minute to 0.270 per minute for behavioral commands.

Gunter, Reffel, Barnett, Lee, and Patrick (2004) conducted a series of 5 minute observations, 111 total observations, with elementary school students to identify rates of correct student responses per minute given lessons directed toward initial learning or practice of skills. Following more than 9 hours of observation, the elementary students were offered response opportunities at a rate of 2.8 per minute during initial instruction and 4.1 per minute during review of instruction; however, the participants were not identified with disabilities (Gunter et al., 2004).

West and Sloane (1986) investigated student disruption in response to variations in the rate of teacher response opportunities finding a decrease in disruption given faster presentation rates. Working with elementary students with behavior challenges, students were presented with a response opportunity at a fast pace, every 20 seconds, and a slow pace, every 60 seconds noting decreased disruption with increased response opportunities (West & Sloane, 1986).

Elementary. Rates for opportunities to respond at the elementary level were categorized by grade. Primary grades, kindergarten to grade five, included twelve research studies. Rates referenced in the studies were used for discussion; however, in some instances, the rate per minute was not identified and therefore was converted using the information provided in the research study. Table 2-1 identifies this conversion to rate per minute with an asterisk. Of the thirteen research studies addressing teacher provided rates of opportunities to respond, rates ranged between 0.019 per minute to 5.0 per minute during treatment conditions. An average of all available rates as mean rate of findings or during baseline conditions was 0.875 per minute with a range between 0.019 and 4.1 opportunities per minute. Four studies using opportunities to respond as a treatment condition average a rate of 3.40 per minute. In addition, academic and behavioral response opportunities were identified in research studies with a mean for behavior at 0.148 per minute and academic 0.992 per minute. Of note is one research study referencing an academic opportunity to respond rate of 4.6 per minute. With this one exceptionally high rate removed, the average for academic response opportunities adjusts to 0.09 per minute.

With variability noted in rates of teacher provided opportunities to respond, characteristics of the studies offered additional contributing factors to the rates. Observation time and number of student participants varied between multiple sessions of 8 minute observations to approximately 480 total hours of observational time. In addition, participant numbers ranged from one student with emotional and behavioral disorders, one student at risk of a behavior

disorder, and 224 students of which seven were identified with emotional and behavioral disorder. Observation settings were primarily general education classrooms (seven studies), self contained classrooms (three classrooms), one special education self-contained classroom and one study including playground, hallway, gym and cafeteria environments. Limited information was provided regarding race ethnicity, but for those studies where it was included, six studies identified African American participants. Classrooms were identified for observation, with specific content areas including mathematics, reading, social studies, science, or language arts highlighted for three of the studies.

Middle school. Four studies were located involving participants in 6th to 8th grade and representing the middle school aged students. Of the four research studies addressing teacher provided rates of opportunities to respond, rates ranged between 0.156 per minute to 4.6 per minute. An average of all available rates as mean rate findings or during baseline conditions was 1.22 per minute with a range between 0.156 and 4.6 opportunities per minute. Two studies using opportunities to respond as a treatment condition average a rate of 3.44 per minute. In addition, academic and behavioral response opportunities were identified in research with a mean for behavior at 0.173 per minute and academic 0.160 per minute. Of note is one research study referencing an academic opportunity to respond rate of 4.6 per minute. With this single exceptionally high rate removed, the average for academic response opportunities adjusts to 0.740 per minute.

Again, variability is noted in rates of teacher provision of opportunities to respond, and the defining characteristics of the study offer additional understanding of the contributions of other factors to the rates. Observation time and number of student participants varied between multiple sessions of 10 minute observations to approximately 250 total hours of observational time. In addition, participant numbers ranged from two students with behavior challenges to 216 students of which a portion was identified with behavior challenges. Observation settings included two self contained classrooms, one special education self-contained classroom and one study in a special education classroom within a special school and two studies identified African American participants. Classrooms were identified by specific content areas including mathematics, reading, social studies, science, or language arts highlighted for two of the studies.

High school. One research study was located involving participants in high school grades 9th to 12th. This research study involved 199 student participants at different schools. The percent of the student population identified with behavioral challenges was between 3% and 18% of the student population. Student race/ethnicity representing African American participants was between 1% and 53% of the participating schools. Twenty minute observations were recorded in various classroom groupings and across content areas including English, science, social studies, mathematics and 'other' classes. A rate of opportunity to respond could not be calculated; however, findings indicate that

teachers used academic questioning in the classroom 12.99% of observations (Wallace, Anderson, Bartholomay, & Hupp, 2002).

As interactions with students provide the critical instructional component prompting student response and subsequent engagement with curricula, and research findings note critical omissions of those opportunities, a need emerges to further identify rates of opportunity to respond as it relates to teacher/student interactions with students exhibiting challenging behaviors at the secondary (high school) level.

Feedback

Feedback is information provided in response to a student behavior and may include a verbal, written, gestural or other response type indicating accuracy, approval, disapproval, direction or general information. Feedback has been used with students as an instructional tool to increase student learner outcomes. The nature of feedback can be positive or negative. A type of positive feedback frequently offered by teachers is praise. The use of praise by teachers has strong empirical research supporting use with varying age groups, disability identification, academic areas and social behaviors (Kern & Clemens, 2007; Partin et al., 2010; Sutherland, 2000).

Positive feedback. “Correct academic responses may be the pivotal behavior of effective instruction because of the link between correct responses and teacher praise” (Gunter et al., 2000, p. 7). Unfortunately, for students with challenging behaviors, this critical element of instruction is not readily observed in instructional settings. Gunter et al. (2000) described the amount of student

praise received by students with behavior disorders; “It is likely that they could attend school all day without positive attention in the form of praise from the teacher for correct academic responding” (p. 7).

As a component of instruction, praise is found to increase student levels of engagement during instruction. Kern and Clemens (2007) noted praise statements delivered by teachers increased the probability of continued student engagement with appropriate behaviors. However, praise is observed with limited use in regular education classrooms and with students exhibiting challenging behaviors (Kern & Clemens, 2007). Findings suggest that praise does not occur with the frequency suggested to support positive teacher/student interactions.

A correct response to teacher questioning provides the occasion for positive feedback to the student, thus fosters the positive reciprocal interaction between students and teachers. This perception of support by students was identified though student response to questionnaires, related a perceived support from teachers, and was further related to social goal pursuit (Brophy & Good, 1986) wherein student perceived support from teachers further encouraged the development and pursuit of increased positive interactions with the teacher and students. Thus, increased opportunities to respond resulting in correct responses offers increased opportunity for student praise by teachers.

Frequency of positive feedback is recommended within a ratio of positive to negative feedback events. Positive feedback statements are recommended at a ratio between 3:1 and 4:1, three or four positive statements to every one

negative statement (Scott et al., 2012; Stichter et al., 2009). Variable rates have been recorded and will be discussed with specificity under teacher rates of behavior.

Even with the research supporting the use of positive feedback as a strategy for improving student outcomes (Belfiore et al., 1995; Partin et al., 2010; Sutherland, 2000), opposing views of the use of praise or positive feedback are available representing the idea that praise statements can manipulate student behavior, creating evaluative statements of their actions (Kohn, 2001). In contrast to the use of positive feedback and praise statements to increase desired student behavior, Kohn (2001) recommends using non-evaluative statements, refraining from any response or the use of questioning to explore student behaviors. Opponents of this view recall research supporting the continued use of positive feedback and praise to support student outcomes noting similarities between questioning strategies and the use of praise immediately following a behavior, fading procedures and research supporting increased use of praise, modeling through use of praise especially at younger ages, and evidence supporting the use of praise as an effective teaching strategy (Strain & Joseph, 2004).

Negative feedback. Similar to positive feedback, negative feedback is in response to a student behavior but is different in that it expresses disapproval of the observed student action or product. Teachers typically express negative feedback in the form of negative statements, negative comments, gestures, or questions that relate disapproval to students. Students may receive this

disapproval individually, and by name, or collectively as a member of a group. In either situation, the teacher communicates disapproval of the student's behavior.

Disapproving or negative feedback from teachers has been researched and differences found across student instructional activities (Hayling et al., 2008), based on student levels of aggression (Gunter & Coutinho, 1997; Wehby et al., 1998), and when comparing students with, without, and at-risk of behavioral problems (Montague & Rinaldi, 2001). Slate and Saudargas (1986) found that "...teachers provided the boys with disabilities with a disproportionate amount of attention when these boys were engaged in an activity other than the prescribed academic assignment" (p. 185). This finding was noted regardless of the amount of inappropriate behavior displayed (Slate & Saudargas, 1986).

Negative feedback powering avoidance. Teacher/student interaction incorporating the use of negative feedback can result in the development of unintended avoidance of interactions when the aversive behaviors are displayed by either student or teacher. For example, teachers may engage in the use of negative feedback solely as a strategy for avoiding student behavior that is found to be aversive (Conroy et al., 2008; Gunter, Denny, et al., 1993; Gunter et al., 1994). Results from over 5,000 minutes of classroom observation noted findings approximating 20% of the interaction time between teachers and students with behavioral concerns was negative in nature (Gunter & Coutinho, 1997).

Further, of the interactions among students identified with challenging behaviors, as much as 80% of the teacher/student negative interaction time was student initiated. This relationship was explained as a cyclical negative

interaction; “Students learned that demonstrating undesirable behaviors allow them to avoid or escape instruction. Teachers may have learned to avoid or escape the undesirable student behaviors by limiting the instructional demands of the children who act inappropriately” (Gunter & Coutinho, 1997, p. 254). Thus, student misbehavior may be used to avoid aversive tasks. Data indicate significant differences between students identified as at risk for learning or behavior problems and those not identified regarding negative treatment, neutral responses and nonacademic response from their teachers (Montague & Rinaldi, 2001).

Due to the aversive nature of behaviors exhibited by students identified with challenging behaviors or behavioral disorders, teacher avoidance was observed, including a reduction in the proximity to the identified student (Gunter et al., 1995). By definition, students identified with challenging behavior are more likely to engage in disruptive behavior than the typical student. Subsequently, teachers interact less with the students or use less effective learning strategies within the classroom setting (Gunter et al., 1998). As a result, general interactions with students exhibiting challenging behaviors are lower in frequency as teachers identified the student’s aggression with a greater severity (Carr et al., 1991; Wehby et al., 1998). Students may engage in undesired behaviors to avoid interaction with the teacher and engagement with the instructional content. In turn, student use of undesired behaviors may result in a decrease in engagement with the curriculum. Gunter and colleagues (1993) considered this aspect of escape and avoidance in their review of teacher interactions with

students identified with serious emotional disturbances. They suggest that the interactions between the teacher and student, within presentation of academic content, may serve as the aversive stimuli resulting in undesired behaviors like escape or avoidance of teacher interaction by students exhibiting challenging behaviors (Gunter, Denny, et al., 1993).

A limited number of studies and limited number of students at the high school level received attention in research addressing this potential relationship between teacher and student behavior resulting from the aversive relationship. Research supports limited interaction at the elementary level. For example, Slate and Saudergas (1986) collected information on elementary students with emotional and behavioral disorders four to six times for 20 minutes over four to six school days. Using a paper and pencil observation system (State-Event Classroom Observation System (SECOS), data were recorded every 15 seconds using a momentary time sampling method (Slate & Saudergas, 1986). Using lag sequential analysis, it was noted that teachers responded to the behavior of students identified with disabilities by refraining from interaction when working and responding when off task behavior was observed (Slate & Saudergas, 1986).

Schumaker, Wildgen and Sherman (1982) expanded the research as they analyzed frequency and duration of teacher and student interactions at the middle school level (junior high school) with students identified as having learning disabilities and students without learning disabilities. Using interval recording techniques, sixty-five student behaviors were observed within three categories: study behavior, social behavior and classroom behavior (Schumaker, Wildgen, &

Sherman, 1982). Each student identified with a learning disability was observed for a 5-minute interval, alternating with a student nominated by the teacher as a “model” student, without a disability. Observations were collected for a minimum of 40 minutes and interval frequencies calculated. Along with general findings that teacher and student interactions in the regular education setting were limited, students without identified learning disabilities were noted to attend to teacher stated facts nearly twice as often, converse with the teacher nearly twice as long, and receive fewer feedback statements (positive or negative) than the students identified with learning disabilities (Schumaker et al., 1982). Findings indicated greater similarity than difference in the limited teacher interactions among students with and without identified learning disabilities. The student pairs reflected 35 male and 12 female combinations observed in a variety of content areas within regular classroom settings. Although addressing differences between students with and without learning disabilities, this study did not address potential considerations for students with and without challenging behaviors specifically.

Teacher Provided Feedback Rates

Student opportunity to respond to teacher questions allows teachers the occasion to provide the student with feedback. Feedback provided verbally or non-verbally furthers the relationship between teacher and student within the instructional sequence. Research studies previously discussed regarding teacher provided response opportunities are addressed here regarding feedback rates with a few exceptions.

Fourteen research studies were located regarding direct observation of students with behavioral concerns and the use of teacher positive statements or praise at the elementary (eleven studies), middle school (six studies) and high school (three studies). Rates of positive feedback referenced in the research were used for discussion; however, in some instances, the rate per minute was not identified and therefore was converted using the information provided in the research study. Table 2-2 identifies this conversion to rate per minute with an asterisk. Of the 14 research studies addressing teacher positive feedback, rates ranged between 0.02 per minute to 4.1 per minute during treatment conditions. An average of all available rates as mean rate of findings or during baseline conditions was 0.81 per minute with a range between 0.02 and 4.1 statements per minute. Two studies using feedback to respond as a treatment condition average a rate of 0.415 per minute. In addition, initial instruction and review instruction revealed means of 2.8 per minute and 4.1 per minute respectively.

Elementary. With variability noted in rates of teacher positive feedback, characteristics of the research offer additional understanding of the contributions of other factors to the rates. Observation time and number of student participants varied between multiple sessions of 15 minute observations to approximately 480 total hours of observational time. In addition, participant numbers ranged from one student with emotional and behavioral disorders and 28 students identified with emotional and behavioral disorder. Observation settings were primarily general education classrooms (five studies), self contained classrooms (three classrooms), one special education self-contained

classroom and one study including playground, hallway, gym and cafeteria environments. Three studies identified African American participants.

Classrooms were identified by specific content areas including mathematics, reading, social studies, science, or language arts for three of the studies.

Middle school. Middle school rates were collected of participants in 6th to 8th grade in a designated middle school or of the middle school age. Observation time and number of student participants varied between multiple sessions of 15 minute observations to approximately 270 total hours of observational time. In addition, participant numbers ranged from one student with emotional and behavioral disorders and 28 students identified with emotional and behavioral disorder. Of the six studies reviewed, observation settings were primarily general education classrooms (two studies), self contained classrooms (two classrooms), one special education self-contained classroom, and one special education setting. Limited information was provided regarding race ethnicity with two studies identifying African American participants. Classrooms were identified by content areas including mathematics, reading, social studies, science, health, speech, or language arts observed for three of the studies.

High school. The original search criteria included only rates of teacher praise for students at the secondary (high school) level and for participants identified with or at risk of exhibiting challenging behavior. Three research studies included participants at the high school level. Observation time and number of student participants varied between multiple sessions of 20 minute observations to approximately 25 total hours of observational time. In addition,

participant numbers ranged from 13 rooms of students including students with behavioral disorders, 47 pairs of students with only learning disabilities and 199 students of which 3% to 13% of the sample population included students with behavior challenges. Of the three studies reviewed, observation settings were general education classrooms (two studies) and one special education setting. One study provided information regarding race/ethnicity, between 1% and 53% of the participants were identified as African American. Classrooms were observed, including the content areas of mathematics, reading, social studies, science, health, speech, or English.

The combination of teacher and student variables specific to students with challenging behaviors has received limited attention at the high school level. This is an important area for consideration as students identified with behavioral concerns at the high school level experience academic content that continues to escalate in difficulty. As such, student expectations for content understanding are heightened as they work toward the completion of graduation requirements. Research addressing this relationship with adolescent students is limited in the literature and warrants further analysis of specific variables interacting with and maintaining this adverse teacher/student interaction.

As the number of students with behavioral concerns continues to rise, and the probability that the student exhibiting behavioral challenges will be included in the regular education classroom, it is critical to identify and understand the type of environment that students will experience at the high school level. Research describes a variable rate of teacher behaviors, opportunities to respond and

feedback, previously identified to increase student engagement with the curriculum. Educators continue to request assistance with students exhibiting challenging behaviors and for the types of classroom instruction most likely to increase student engagement. Researchers continue to uncover the relationships evident within teacher/student interactions through direct observation data collection and analyses. Teacher/student interaction, a critical component of the instructional sequence, requires further research attention to explore the specific variables attributable to sustaining high levels of teacher prompting and feedback for students to maintain high levels of student engagement during instruction.

Research Questions

This study explores the behaviors of the high school teacher and adolescent learner by further identifying rates of teacher provided opportunities to respond and feedback and student levels of engagement and disruption. Questions remain regarding the relationships between teacher and student interactions at the high school level and between and among students identified with challenging behaviors. This study extends research on teacher/student interactions through exploration of naturally occurring rates of teacher provided opportunities to respond to academic instruction and feedback, and student levels of engagement and disruption for students identified with and without challenging behaviors at the high school level. Identifying and addressing differences in teacher behavior toward students with challenging behavior is critical, and future research should focus on understanding the complexity of

teacher and student interactions and classroom dynamics as Montague and Rinaldi (2001) have so persuasively noted,

Most likely, teachers are not cognizant of their differential treatment of students and are unaware of the enormous impact negative treatment has on student's future school and life experiences. Understanding how negative behavior exacerbates rather than ameliorates student's academic, social, and emotional problems is crucial if we expect teachers to change their behavior (p. 82).

In the early 1980's Brophy (1983) described classroom management principles impacting student opportunity to engage in course content and stated, "In general, it seems important for teachers of any background and in any setting to be open-minded and tolerant in dealing with students who come from very different social or cultural backgrounds" (p. 281). He continues, "The overall goals of classroom management for various categories of special students will be the same as they are for more typical students, although the specific methods used to accomplish these goals may differ somewhat" (Brophy, 1983, p. 282). Pianta and Hamre (2009) repeat the importance of classroom management in their teacher/student interaction model, highlighting classroom organization and instructional support within their components supporting student engagement.

But how are these classroom management principles described by Brophy (1983) and Pianta and Hamre (2009) currently implemented in the diverse classroom environments at the high school level more than 25 years later and how are the specific methods used within interactions between teacher and

students with challenging behaviors at the high school currently implemented? Further, how are teachers engaging students in regular classrooms with and without challenging behaviors? These questions form the basis from which this study is framed. The following research questions are addressed through analyses of direct observations conducted in natural classroom environments of teacher/student interactions with students identified with and without challenging behaviors.

Question One

What are the naturally occurring rates of teacher behavior (opportunities to respond and feedback) and student engagement (active engagement, passive engagement and both active and passive engagement) and disruption for students at the high school level? How do these findings relate to existing research findings or recommendations?

Question Two

Given research supporting differences in rates of teacher behavior in regular education classrooms (opportunities to respond and feedback) and levels of student engagement for students exhibiting challenging behavior, it is hypothesized that there would be differences in teacher behaviors and levels of student engagement for students with and without challenging behaviors. What, if any, differences in teacher and student behavior are evident in the high school regular education classroom for students with and without challenging behaviors? In the following chapter, hypotheses will be described including a methodology for studying these questions.

Table 2-1.

Teacher Rate of Opportunities to Respond (Academic and Behavioral Requests)

Author (year)	# Hrs.	Age Grade Disability	Ethnicity	Academic Content	Class Setting	Analyses	Rate
Greenwood et al. (2002)	224 135 hr	NA K-5 7/224 EBD	NA	NA	Science Computer Technology School	Quant	mean 46% acad responding *resp to prompt
²⁹ Gunter, Coutinho, et al. (2002)	2 6 hr	11 yrs NA EBD	Caucasian	NA	SC Special School	Descrip	4.6/min
Gunter, Reffel et al. (2004)	111 9.25 hr	NA K-2 nd None	NA	NA	General	Quant	Initial instr. 2.8/min Review instr. 4.1/min
Haydon, Conroy et al. (2010)	6 8 min obs	NA 2 nd At Risk	83% AA	Reading	General	SSRD	4.5/min to 5.0/min during treatment condition

Haydon, Mancil et al. (2009)	1 10 min obs	NA 5 th At Risk	AA Female	Science	General	SSRD	1.15/min to 3.35/min
Lago-DeLello (1998)	26 39 hr	NA K-1 st At Risk	NA	NA	General	Quant	At Risk mean .54 per 15 min session * .036 per min
Montague & Rinaldi (2001)	20-32 15 min obs	NA 2 nd 3 rd At Risk	63% AA	NA	General	Quant	At Risk mean 3.13 per 15 min session * .208 per min
Stichter et al. (2009)	26 rooms 5 hr	NA K-5 Spec Ed 14%-39%	NA	NA	Classrooms	Quant	OTR Prompts mean 2.61/min
Sutherland, Alder et al. (2003)	9 15 min obs	8-12 yrs. NA EBD	89% AA	Mathematics	SC	SSRD	1.68/min to 3.52/min
Sutherland, Wehby et al. (2002)	216 15 min obs	NA K-8 th EBD, LD MR	NA	Mathematics Reading Social Studies Science Language Arts	SC	Quant	1.566/min
Thompson, et al. (1982)	129 480 hr	NA 3 rd LD BD	NA	NA	SC	Quant	.046/min

Van Acker & Grant (1996)	206 80 min/ student 274 hr	NA 2 nd , 3 rd , 5 th At Risk	56% AA	NA	Classroom, Playground, Hallway, Café Gymnasium	Quant	Academic .019 to .025/min Behavior .058 to .074/min
Wallace et al. (2002)	199 20 min obs	NA secondary EBD 3-18%	1-53% AA	English Science Social Studies Mathematics Other	Classrooms various groupings	Quant	Academic question 12.99% occurrence
⌘ Wehby et al. (1995)	28 8-10 hr/ student 224-280 hr	6-12 yrs NA EBD	21% AA	NA	SC special educ	Quant	Behavior command .190/min to .270/min Academic command .156/min to .163/min
West & Sloane (1986)	5 10 min sessions	7-8 yrs NA 4 EBD MD	NA	Reading Mathematics Func Skills	SC EBD	SSRD	Fast every 20 sec 3 per minute Slow every 60 sec 1 per minute

Note. NA refers to information not available, SC refers to self-contained classroom settings, EBD – emotional and behavioral disorder, LD – learning disability, MR and MD – mental disability, and AA – African American.

Table 2-2.

Teacher Rate of Feedback

Author (year)		Age Grade Disability	Ethnicity	Academic Content	Class Setting	Analyses	Rate	
28	Gunter, Jack et al. (1993)	1 30 min session	6 NA SBD	NA	NA	General	SSRD	Positive .02/min baseline .38/min treatment
	Gunter, Jack et al. (1993)	1 30 min session	11 NA SBD	NA	NA	General	SSRD	Positive .089/min baseline .569/min treatment
	Gunter, Reffel et al. (2004)	111 9.24 hr	NA K-2 nd None	NA	NA	General	Quan	Initial instr. 2.8/min Review instr. 4.1/min * sequence Included positive acknowledgment
	Lago-DeLello (1998)	26 39 hr	NA K-1 st At Risk	NA	NA	General	Quant	Positive mean 2.08 per 15 min session Negative mean 2.15 per 15 min session * Positive .138/min Negative .143/min

Montague & Rinaldi (2001)	20-32 15 min obs	NA 2 nd 3 rd At Risk	63% AA	NA	General	Quant	Positive mean 2.38 per 15 min session Negative mean 1.06 Per 15 min session * Positive .158/min Negative .070/min
Roberson et al. (2004)	13 rooms 24.7 hr	NA K-12 With disab	NA	NA	Special Ed Setting	Descrip	1480 min. observed Approval 11% Disapproval 4%
Schumaker et al. (1982)	47 pairs 40 min/ student	12-16 yrs. Junior High LD	NA	Social Studies English Science Health Spanish Speech	General	10 sec intervals	* Positive .006/min * Negative .009/min
Stichter et al. (2009)	26 rooms 5 hr	NA K-5 Spec Ed 14%-39%	NA	NA	General Classrooms	Quant	Positive/Negative ratio mean 4.5:1
Sutherland, Alder et al. (2003)	9 15 min obs	8-12 yrs. NA EBD	89% AA	Mathematics	SC	SSRD	Positive .16/min to .45/min

Sutherland, Wehby et al. (2002)	216 15 min obs	NA K-8 th EBD, LD MD		Mathematics Reading Social Studies Science Language Arts	SC	Quant	Positive .646/min Negative .399/min
Thompson, et al. (1982)	129 480 hr	NA 3 rd LD BD	NA	NA	SC	Quant	Academic Positive BD 13% Academic Negative BD 5% Behavior Positive BD 5% Behavior Negative BD 8%
Wallace et al. (2002)	199 20 min obs	NA secondary EBD 3-18%	1-53% AA	English Science Social Studies Mathematics Other	Classrooms various groupings	Quant	Approval 1.55% occurrence Disapproval 1.27% occurrence
Wehby et al. (1995)	28 8-10 hr/ student	6-12 yrs NA EBD	21% AA	NA	SC special educ	Quant	Praise .023/min to .039/min Disapproval .004/min to .010/min

Van Acker & Grant (1996)	206 80 min/ student	NA 2 nd , 3 rd , 5 th At Risk	NA	NA	Classroom, Playground, Hallway, Café Gymnasium	Quant	Positive .024/min Negative .047/min
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Note. NA refers to information not available, SC refers to self-contained classroom settings, EBD – emotional and behavioral disorder, LD – learning disability, and MR – mental disability.

CHAPTER 3

METHODOLOGY

The purpose of this study is to examine potential differences among student academic engagement and teacher provided opportunities for response and feedback for students with and without challenging behaviors through direct observation of teacher/student interactions. Two research questions were considered.

Question One

What are the naturally occurring rates of teacher behavior (opportunities to respond and feedback) and student engagement (active engagement, passive engagement and both active and passive engagement) and disruption for students at the high school level? How do these findings relate to existing research findings or recommendations?

The following hypotheses were considered to compare the findings from the direct classroom observations to findings or recommendations from research previously described in Chapter 2. The observations for students with challenging behavior are denoted as “E”, experimental, and the observations for students without challenging behavior are denoted as “C”, control.

Hypothesis 1: Teacher rate of opportunities to respond. Research recommends a rate of opportunity to respond at four to six events per minute for

new information and eight to 12 events for practice of previously introduced information (CEC, 1987; See discussion of opportunities to respond).

$H_0: \mu = 4.0$ per minute The average rate of opportunities to respond by teachers of adolescents in a regular education classroom is 4.0 per minute, the recommended rate of opportunities to respond per minute for new information.

$H_1: \mu \neq 4.0$ per minute The average rate of opportunities to respond by teachers of adolescents in a regular education classroom is not 4.0 per minute, the recommended rate of opportunities to respond for new information.

Hypothesis 2: Teacher rate of positive feedback. Research recommends a ratio of four positive feedback statements to one negative feedback statement (Scott et al., 2012; See discussion under positive feedback).

$H_0: \mu = 4 : 1$ The ratio of positive to negative feedback by teachers of adolescents in a regular education classroom is 4 positive to 1 negative.

$H_1: \mu \neq 4 : 1$ The ratio of positive to negative feedback by teachers of adolescents in a regular education classroom is not 4 positive to 1 negative.

Hypothesis 3: Student level of active engagement. Research findings describe a percentage of student active engagement between 70% - 80% for students (Baker et al., 2008; Hayling et al., 2008; Hollowood et al., 1994).

$H_0: \mu = 70\%$ The average percent of student engagement by adolescents in a regular education classroom is 70%.

$H_1: \mu \neq 70\%$ The average percent of student engagement by adolescents in a regular education classroom is not 70%.

Question Two

Given research supporting differences in rates of teacher behavior in regular education classrooms (opportunities to respond and feedback) and levels of student engagement for students exhibiting challenging behaviors, it is hypothesized that there would be differences in teacher behaviors and levels of student engagement for students with and without challenging behaviors.

Hypothesis 1: Teacher rate of opportunities to respond. Research recommends a rate of opportunity to respond at four to six events per minute for new information and eight to 12 events for practice of previously introduced information (CEC, 1987; See discussion of opportunities to respond).

$H_0: \mu_E = \mu_C$ The mean rate of opportunities to respond for the two groups, students with and without challenging behaviors, is equal.

$H_1: \mu_E \neq \mu_C$ The mean rate of opportunities to respond for the two groups, students with and without challenging behaviors, is not equal.

Hypothesis 2: Teacher rate of positive feedback. Research recommends a ratio of four positive feedback statements to one negative feedback statement (Scott et al., 2012; See discussion of positive feedback).

$H_0: \mu_E = \mu_C$ The ratio of positive to negative feedback for the two groups, students with and without challenging behaviors, is equal.

$H_1: \mu_E \neq \mu_C$ The ratio of positive to negative feedback for the two groups, students with and without challenging behaviors, is not equal.

Hypothesis 3: Student level of active engagement. Research reports a percentage of student active engagement between 70% - 80% for students

(Baker et al., 2008; Hayling et al., 2008; Hollowood et al., 1994; See discussion of student engagement).

$H_0: \mu_E = \mu_C$ The mean percentage of active engagement for students with and without challenging behaviors is equal.

$H_1: \mu_E \neq \mu_C$ The mean percentage of active engagement for students with and without challenging behaviors is not equal.

Hypotheses 4: Student level of disruption. Research suggests rates of disruption for students with challenging behavior greater than the rate of disruption for students without challenging behavior (Baker et al., 2008; Kauffman, 2001; Montague & Rinaldi, 2001).

$H_0: \mu_E = \mu_C$ The mean rate of disruption for students with challenging behaviors is equal to the mean for students without challenging behaviors.

$H_1: \mu_E > \mu_C$ The mean rate of disruption for students with challenging behavior is greater than the mean for students without challenging behaviors.

Research Design

This chapter describes the methodology for examining the potential differences between teacher instructional behaviors and student engagement and disruption for students with and without challenging behaviors including the proposed setting and participants, data collection procedures, and data analysis. An existing data set provides the data for use in examination of the teacher/student interactions. Appropriate submissions to the Internal Review Board (IRB) were completed for use of the previously collected data set, IRB

Tracking Number 11.0361. Specifics of the data are described including the setting and participants, procedures used for collection of data, and reliability.

To determine rates of teacher behavior and student engagement, a collection of direct observations of teachers and adolescent students were used. Two groups of student observations were considered: observations of students with challenging behaviors and observations of students without challenging behaviors. Rates of teacher opportunities to respond and feedback, rates of student disruption, and percentage of student engagement were calculated from the observations. Given results of statistical analyses, decisions were made regarding the acceptance or rejection of null and alternative hypotheses.

Setting and Participants

Setting

Data were collected during classroom observations at a high school located in a large public school district, greater than 98,000 students, in the United States. This school instructs 9th to 12th grade students with an enrollment of approximately 1,470 students. Student ethnicity is 53% white students, 41% African American students and 6% identified as 'Other'. Over half the students, 54%, are eligible for free or reduced lunch. The pupil/teacher ratio is 17 students to one teacher.

Direct observations of teacher and student interactions were collected during the school day and within the school calendar year at the high school. Observations were collected between January and May, September and December of 2010, on each of the five weekdays, and in morning and afternoon

classes. In addition, observations were collected in differing content classes of mathematics, English, social studies and science with greater emphasis on English and mathematics courses.

Participants

Teachers. The principal of the high school agreed to participate in the study. Teachers were provided an overview of the data to be collected at a faculty meeting and offered the option of opting out of the study. All teachers chose to participate. Teachers taught in a general education classroom and were observed if they had a student identified with challenging behaviors in their class.

Students. Participants were enrolled in the high school, grades nine through 12, and attended scheduled classes. Two groups were identified: students with challenging behaviors and students without challenging behaviors. Students with challenging behaviors were identified through recommendation from school administrators, identified as a student with challenging behaviors, and participated in regular education classes for two or more courses per school day. A student was identified as one with a challenging behavior by administrators given that he or she (1) had more than three office discipline referrals during the academic year, (2) was a frequent offender of school rules and not responsive to typical discipline procedures, and (3) exhibited problem behaviors in classroom settings. Students without challenging behaviors were chosen randomly by the individuals coding the observations. Although chosen randomly from students participating in the same instructional environment as the

targeted student with challenging behaviors, the group described without challenging behaviors may have included students with challenging behaviors; however, they were not nominated by the administration as a student meeting the criteria of a student with challenging behaviors.

Direct observations of student/teacher interactions were collected in 15-minute intervals for the two groups of students. Seventeen students with challenging behaviors participated in the study and observations were collected across multiple days and courses. Personally identifiable information was limited during the data collection process to gender, race/ethnicity and disability status. Students were assigned a numerical code if identified with a disability from information provided by the administrator. The students without challenging behaviors were only identified by gender and race/ethnicity. For that reason, the exact number of different students observed could not be determined. Student schedules were obtained from the administration for use in scheduling direct observation of students with challenging behaviors. The schedules provided times, room assignments, and title of the course. Observations of the randomly chosen student were taken from the same scheduled courses, and the classroom included the students identified with the challenging behaviors. Table 3-1 provides a description of teacher and student demographics for participants including teacher and student gender and race/ethnicity. Further, the demographics are delineated by their identification as an observation of a student with or without a challenging behavior.

Table 3-1.

Participants: Teacher and Student Demographics

	With Challenging Behaviors n = 390		Without Challenging Behaviors n = 437	
	#	%	#	%
<u>Teacher</u>				
Gender				
Male	182	47	250	55
Female	208	53	197	45
Race/Ethnicity				
Minority	47	12	94	22
Non-minority	343	88	343	78
<u>Student</u>				
Gender				
Male	321	82	273	62
Female	69	18	164	38
Race/Ethnicity				
Minority	354	91	265	61
Non-minority	36	9	172	39

Note. Number refers to the number of observations.

Teacher and Student Variables

Teacher and student behaviors were recorded using definitions of discrete, observable actions. The following definitions were used to reliably record the teacher/student interactions during classroom observations. A summary of codes is provided in Table 3-2.

Table 3-2.

Teacher and Student Direct Observation Codes

	Code	Description
Teacher	TI	Teaching: model, explain, demonstrate
	TD	Not teaching
	OG	Opportunity to respond, group
	OI	Opportunity to respond, individual
	PF	Positive feedback
	NF	Negative feedback
Student	DR	Disruption
	OT	Off Task
	OF	Passive engagement
	AE	Active engagement

Teacher Behaviors

Teacher behaviors were recorded in real time using a handheld device. The duration of teaching behavior was recorded while frequency counts were collected for teacher provided opportunities for response to the group or the target student, and positive and negative feedback. Following are definitions with explanation of the teacher behaviors recorded.

Teaching and not teaching. The duration of teaching behavior included the total amount of time spent on an activity related specifically to academic content. Teaching was defined as the explanation of a concept or topic, demonstration of a procedure, or modeling of a skill or component of an activity. Teaching included active supervision of a classroom where the teacher is walking among and interacting (academically) with students. Behaviors similar in nature, but not related to instructional content, were not recorded as “teaching” behaviors and instead recorded as “not teaching”.

“Not teaching” was defined as a lack of engagement with any student or the absence of teaching behavior. This included discussions other than academic topics, working on an alternate activity, or other situations in which the teacher was not interacting with students. Down-time was recorded separate from “not teaching” as a time in which the teacher had not provided the target student with discernable directions or expectations as observed by the coder. This included situations where the teacher was completing an administrative task, and students were not provided directions while the task was completed.

Opportunities to respond. Opportunities to respond were recorded as they were directed to the group, including the target student, or to the target student individually. The frequency of opportunities to respond presented to the group was coded when the teacher presented a prompt requiring the student to respond either verbally, with a gesture, or by demonstrating a skill. This did not include questions unrelated to academic content, corrective questions, or directions. Teacher feedback, positive and negative, was recorded as a separate

teacher behavior. The frequency of opportunities to respond presented to the individual target student was coded when the teacher presented the target individual with a prompt that required the student to respond either verbally, with a gesture, or by demonstrating a skill. Similarly, this did not include questions unrelated to academic content, corrective questions, or general directions.

Positive feedback. The frequency with which the teacher provided feedback to the targeted student with regard to a specific positive behavior or academic response was recorded as positive feedback. This occurrence was recorded as it was directed to an individual student or to the group where the target student was a member. An example of positive feedback to the student individually, “Yes, John, the answer is $Y = 43.6$ ”, or to the group that includes the student, “Thanks to all of you for having your books open.” Feedback provided to those other than the target student was not recorded unless that group included the target student. In addition, should the teacher provide multiple formats of a single positive feedback statement (e.g., “Excellent, fantastic, that is exactly what I was looking for John”); it was coded as a single event of positive feedback.

Negative feedback. The frequency with which the teacher provided feedback to the targeted student with regard to a specific negative behavior or incorrect academic response was recorded as negative feedback. This can occur to the student individually, “No, John, the answer is not $Y = 43.6$ ”, or to the group that includes the student, “I’m disappointed that none of you have your books open.” Feedback provided to students other than the target was not recorded unless that group included the target student. In addition, should the

teacher provide multiple formats of a single negative feedback statement (e.g., “No, that’s wrong, that is not what I want to see.”); it was coded as a single event of negative feedback. Gestures such as teacher rolling of eyes, shaking of head to indicate no, or ignoring the incorrect answer and moving to another student also constituted a negative feedback response.

Student Behaviors

Student behaviors were recorded using the handheld device and include the duration coding of off task behavior, passive engagement, and active engagement, and the frequency coding of disruption.

Disruption. The frequency with which the student engages in behaviors that disrupt or have the potential to disrupt the classroom and/or teacher were recorded as disruption. These behaviors included negative verbal remarks, noises, threatening comments, or physical actions that caused the focus of at least one other student to leave instruction. Disruption was coded even if the teacher did not notice or respond to the negative student behavior. For example, if the coder observed John hitting a classmate while the teacher was working with an individual on the other side of the room and did not respond, this instance was recorded as a disruption.

Off task. Student duration of off task behavior was recorded to indicate the total amount of time in which the student is not following the teacher’s academic directions or otherwise not giving attention to the required task. This included the student looking away from the teacher during lecture, not engaging

in work, sleeping, or working on a task other than what was expected. The off task behavior was not necessarily disruptive in nature.

Passive engagement. The duration of passive engagement was recorded as the total amount of time in which the student was simply oriented toward (i.e., listening/attending) the teacher or other speaker. Passive engagement did not include time spent talking, writing, responding or directly engaging in an activity.

Active engagement. The duration of active engagement is recorded as the total amount of time in which the student is reading, writing, responding to academic problem solving, reacting to academic prompts, or otherwise completing academic tasks.

Materials and Procedures

Materials

The materials, training, reliability, and validity of this direct observation procedure are described. Data were collected through direct observations of teacher and student interactions using a software program designed for collection of information through direct classroom observation. The Multiple Option Observation System for Experimental Studies Version 3 (MOOSES™) (Tapp & Wehby, 1995) software program was used for creation of unique codes and provided data analysis capabilities including computation of pooled frequency and duration of teacher and student behaviors and interobserver reliability. An element of the MOOSES program, “Minimoose™”, was used to develop a code file that was uploaded to the handheld devices. A handheld

device, HP iPAQ 111 Classic Handheld, was used by trained observers in the classroom to code specified teacher and student behaviors.

Data Collection Procedures

Data were collected by trained coders and uploaded to a database. Prior to data collection, coders received training with definitions and procedures. The training steps and general procedures for school based data collection are described.

Training. Individuals received training on the operational definitions and use of the handheld device, each demonstrated reliable performance with the procedures for data collection prior to collecting in the classroom. Training included three steps (1) instruction and reliability using videos of classroom observations, (2) reliability in a classroom, and (3) ongoing reliability sessions to prevent observer drift from code definitions.

Step 1 - A list of codes and definitions were provided to each coder and the definitions explained for clarification. A handheld device was assigned to each coder for practice with videos of teachers teaching in classrooms. Coders demonstrated use of the handheld and accuracy with codes through interobserver reliability sessions with the trainer. The trainer (lead coder) worked directly with the primary investigator to ensure accurate implementation of data collection procedures. Coders met at least 80% reliability with the trainer using the video sessions before moving to step two.

Step 2 - The lead coder and trainee observed together in the classroom environment and coded sample observations for further training. Continued

calculation of interobserver reliability met at least 80% accuracy in the classroom environment before coding live observations.

Step 3 - Each coder received a schedule with student information and a checklist for coding direct observations. Coders arrived and checked-in at the school, located the classroom, and collected the observation data for the student. The completed observation file was forwarded to the primary investigator through secure email for storage and analysis.

Data were collected using a procedure specifying the process for entering schools and locating classrooms, identifying students, and steps for entering data into the handheld devices. Teacher and student information were collected through file name designation as well as code frequency. Upon entering a classroom, coders were seated in the back of the room, with clear vision of the target student, but not intrusive to instruction. Coders entered a 20 digit code into the handheld, each digit designating the site, school, student number, observation number, coder identification number, date, and student disability category. During reliability sessions the coder marked "REL" in the date stamp for use in later identification. The primary coder in the reliability dyad marked "PRI" in the date stamp.

Before pressing the start key, the teacher and student behaviors were marked reflecting a start position for the observation. The "START" key was selected and the observation began a countdown from 900 seconds, 15 minutes of observation. The session timed out upon reaching zero and the observation was saved. Upon completion of a set of observations, coders forwarded the

code file via secured email to the primary investigator for storage and analysis.

Frequency of teacher and student behaviors were recorded in real time as observed. Each event signaled the coder to enter a specific code. Duration codes were coded whenever that behavior or activity occurred for five uninterrupted seconds. That is, if a student was actively engaged with a task but looked up to see a person entering the room, the code was not changed to off task unless the student maintained this behavior for a full five seconds. This rule prevented quick movement between codes and provided a more accurate depiction of the way teachers and students normally engaged in the classroom. However, one-on-one instruction with a target student was coded immediately in order to capture individual instruction to the target student that might occur infrequently, in short duration, and that otherwise would not be captured using the five second rule.

Reliability

Data were collected by coders using a series of procedures. To increase the likelihood that coders recorded direct observations accurately and with agreement, the interobserver reliability between coders was collected between the lead coder and each individual coder during observations. The MOOSESTM program calculated the agreement of frequency and duration recording between coders within a 5-second window. Two files were entered into the program resulting in a comparison of frequency agreements and disagreements as well as a duration comparison, to the second, of agreements and disagreements. This information was used to calculate a percentage agreement by code. The point by

point method of agreement was used to assess this interobserver reliability by dividing the agreements by the agreements plus disagreements, multiplied by 100 (Gast, 2010). This percent of agreement was identified for each coded teacher and student behavior using the MOOSESTM software and additional spreadsheet formula analysis (Tapp & Wehby, 1995).

Pairs of code files were used for reliability of observations; 130 additional observations were conducted for use in determining reliability. This represents 16 % of the total number of observations ($N = 827$). Although less than the desired 20 % of total observations, the additional 130 files represented approximately 32.5 hours of data collected to determine the reliability between observers. The percent agreement fell between zero agreement and 100% agreement for individual observation of frequency and duration codes. The files represented data collected from ten different coders. Table 3-3. describes the percent agreement using the point by point method of agreement for each code in addition to the total for only frequency codes, only duration codes, and overall reliability considering all codes. The percent agreement for each individual code was greater than 80%, with combined frequency codes at 87% agreement and combined duration codes at 95% agreement. These findings support the reliability between coded observations and the use of the data for further analysis.

Table 3-3.

Reliability of Coded Observations

	Code	Description	Percent Agreement
Teacher	TI	Teaching	97
	TD	Not teaching	95
	OG	Opportunity to respond, group	88
	OI	Opportunity to respond, individual	87
	PF	Positive feedback	82
	NF	Negative feedback	86
Student	DR	Disruption	84
	OT	Off Task	91
	OF	Passive engagement	95
	AE	Active engagement	95
Totals		Frequency Codes	87
		Duration Codes	95
		All Codes Combined	95

Construct Validity**Measuring Teacher/Student Interactions in the Classroom**

The research field has evolved in the approach to assessing and evaluating the classroom environment. By the 1970s, with over 100 recognized formats for collecting classroom observations, researchers considered variables within the teacher/student relationship occurring in the classroom as a venue for

the explanation of relevancy to student outcomes (Brophy & Good, 1986). Explanations of student outcomes were considered using factors such as classroom instruction dynamics, type and purpose of instruction and whether student or teachers were primary facilitators of instruction. Categories of coded observation have been used to observe and explain potential relationships between teacher and student outcomes. The field has developed over the last 40 years with the inclusion of elaborate technology including statistical procedures and software programs to assist with the collection of intricate volumes of data reflecting student and teacher interactions in the classroom.

Technological advances have moved research forward allowing for more complex and varied types of data collection. Methods allowing measurement of these interactions previously involved broad measures of student outcomes, for example general student achievement gains or frequency counts of a discrete behavior. Measures were previously obtained through paper pencil tallies, student scores on a survey instrument, or conveyed through a written task. In the 1970's, dyadic interactions were measured using these paper/pencil tools (Good & Brophy, 1970; Patterson & Reid, 1970) and continued in use until the 1980's when technology emerged as a tool for data collection of classroom interactions.

Rosenshine (1970) reviewed the research on instrumentation used for evaluating instruction in classrooms finding a need for clarity of the teaching strategies observed, measurement tools assessing more than frequency counts, and specification of the instruction in the classroom impacting student

performance. Although determination of student achievement could be noted in frequency, the specificity and relationship between classroom interactions and student outcomes required further analysis. The use of laptop computers and hand held data collection devices further increased the ability of observers to collect information rapidly and used corresponding software for analysis (Tapp & Wehby, 1995).

Direct observation. A technique involving the direct observation of teacher/student interaction warrants consideration as researchers continue to focus on the specifics of the interactions in classrooms. This technique has been employed to collect frequency and duration information in classrooms providing snapshots of naturally occurring activities in the classroom. For example, through a series of four experiments, Gunter and colleagues (1993) used direct observation behavioral data collected with computers and described results including reductions in student disruptive behavior following intervention. The use of direct observation data lends to the calculation of teacher/student interactions which can then be analyzed and explained.

Calculation of the frequency and duration of teacher and student behavior provides descriptive information of classroom activity. Student and teacher behaviors can be recorded broadly; for example, the frequency of school attendance in general, or more specifically, the attendance of a student in an individual classroom. Other types of descriptions include a percentage of time, a count of observed behaviors, or a comparison of rates of occurrence generated following direct observation of teacher and student behaviors.

This use of technology and analysis has provided researchers an avenue for collecting data and identifying relationships between discrete events occurring in real time within classrooms. This collection process has emerged a reliable method of identifying conditional probability of event sequences. Direct observation techniques collect information in real time and in a natural classroom environment. Direct observation systems were described by Rosenshine (1970) with four primary assessment or descriptive uses (1) variability within or between classroom behaviors (2) agreement within or between classroom behaviors (3) occurrences of behaviors and (4) relationships between behaviors. Since the early 1970's researchers have continued to use a variety of direct observation techniques for similar and expanded purposes. Given the use of direct observation as a tool for collecting occurrences of behavior, this method of data collection reflects a valid format for the use of this data set as an indicator of observed teacher and student behavior in the classroom.

Analysis

This study analyzed a collection of direct observations of teacher/student behaviors from a naturally occurring classroom setting. Participants were identified as members of one and only one group, either a student with or without a challenging behavior. T-test analysis (criterion-group design) was used to compare means of the two groups and determine whether any observed differences in means are significant or due to chance occurrence. The *t*-test involves a comparison of means from two groups (Shavelson, 1996). The criterion-group design is most appropriate in this case as the participants were

chosen because they represented the study group of interest, students with challenging behaviors. The contrast group was chosen by the coder as a student not identified as one with a challenging behavior. Because the identity of every student in the class is not available, it is possible to choose a student with some other behavior challenge; therefore, identification as a truly random sample would not be an accurate description. This design will not provide description of a causal relationship between the two groups; however, it will provide a description of the relationship between the teacher and student variables and allow for acceptance or rejection of null or alternative hypotheses.

In order to complete an analysis of group means, the probability value will be set at $\alpha = .05$, this value will be used to determine statistical significance between group means. Desired statistical power is a value of 0.80, the probability that a true difference between student means and means within the general populations will be detected if one exists. The anticipated Effect Size is 0.5 (Cohen's d), describing a medium effect size. Given the alpha level, desired power and anticipated effect size, the number of observations needed for a two-tailed t -test analysis is a minimum of 102 total observations with at least 51 per group (Soper, 2011). The over 800 observations (390 with challenging behavior and 437 without challenging behavior) exceeds the recommendation.

Design requirements for the t -test include one independent variable that differs quantitatively wherein a participant appears as a member of one and only one of the groups (Shavelson, 1996). In addition, assumptions for the t -test include independence of score (with each participant providing individual

information), a normal distribution of scores, and homogeneity of variance in the two groups. Specific analyses for research questions include the following outcomes.

The use of multiple *t*-test requires consideration of correction due to potential for Type One error. Use of the Bonferroni correction method, adjusting the alpha level of individual tests downward in response to the total number of tests, was incorporated. Debate over hypothesis testing with specific statements relative to existing theory exists (Pereneger, 1998). The analysis of hypotheses related to findings compared with existing research remained at $\alpha = .05$. The alpha level for analyses between groups for question two were adjusted to $\alpha = .01$, reflective of the five analyses. Consideration was given to this decision within the discussion.

Question 1

What are the naturally occurring rates of teacher behavior (opportunities to respond and feedback) and student engagement (active engagement, passive engagement and both active and passive engagement) and disruption for students at the high school level? How do these findings relate to existing research recommendations?

Naturally occurring rates of teacher behaviors, opportunities to respond (group and individual) and feedback (positive, negative) were calculated as rates per minute for each observation. Descriptive findings were calculated including a mean rate, standard deviation and range. A one sample *t*-test analysis was conducted to examine the null and alternative hypotheses and determine the

presence of a statistically significant difference between the findings and research recommendations.

Naturally occurring rates of student engagement were calculated using percentages of student engaged time (active, passive, combined active /passive, off task and disruption) from the individual observations. Descriptive statistics including means, standard deviations and ranges were determined for the collection of observations for students with and without challenging behaviors. A one sample *t*-test analysis was conducted to determine the presence of a statistically significant difference between the findings and research recommendations for active engagement.

Question 2

Given research supporting differences in rates of teacher behavior in regular education classrooms (opportunities to respond and feedback) and levels of student engagement for students, it is hypothesized that there would be differences in teacher behaviors and levels of student engagement for students with and without challenging behaviors.

Descriptive findings were calculated including a mean rate, standard deviation and range for each group, students with and without challenging behavior. This question was addressed through comparison of the mean rate per minute of opportunities to respond and feedback, the percentage of student engagement, and rate of disruption for students with and without challenging behaviors. An independent *t*-test for significance between mean rates of teacher

behavior and student engagement variables was conducted to determine differences between the two groups.

Limitations

Analysis of these observations allowed for a description of teacher rates of opportunities to respond and positive and negative feedback in the secondary classroom setting. The rate of student disruptions and percent of student engagement was described from the classroom observations. The analysis of the data provides information on differences between the teacher behaviors for the two groups of students, those with challenging behaviors and those without challenging behaviors. The observations also provide an opportunity for exploring differences between the student levels of engagement for the two groups of students identified with and without challenging behaviors. Although providing this level of analysis, limitations exist the level of analysis and the use of these data.

External validity. The data collected reflect teacher and student behaviors in one school in one geographical area. There is a limitation to generalizing outcomes from this analysis to other types of schools and of varying demographics. There may be other variables involved in teacher/student behaviors not collected through this observation sample. These variables may account for variation in rate of teacher provided opportunities to respond and levels of student engagement and disruption. This analysis considered only the defined teacher and student variables and acknowledges the possibility of additional interaction factors.

Internal validity. Although the sample of observations is collected with variability of date and time, this sample, over the calendar year, may reflect maturation effects, naturally occurring, on the part of both the teacher and the student. Over a year, teachers may refine their teaching abilities to include greater rates of the observed teacher variables, or students may present with increased engagement as they become more acclimated to the school or classroom environment.

Although efforts were made during the data collection procedure to ensure the classroom environment was not disturbed by the coders, students may have become aware of their presence, creating an observation effect. This potential limitation was addressed as the coders collected observations of more than one student in the room, were seated in areas of the room to reduce disturbance, and avoided the tendency to highlight the observation of a target student. In response to this potential limitation, the number of observations over time allowed for coder movement within the classroom to avoid possible identification by the targeted student.

Finally, the definitions used to identify the teacher and student behaviors were selected and can be found in similar research (Hayling et al., 2008; Maggin, Wehby, Partin, Robertson, & Oliver, 2011). Each definition was trained with reliability prior to the collection of the classroom observations. Although the definitions were measurable, observable and repeatable, limitations may exist in the construct of the teacher and student behavior. The analysis is limited to

findings given the defined teacher and student behaviors. The unique definition, broad or limited, of the observed behavior was used to specify analysis findings.

CHAPTER 4

RESULTS

The purpose of this chapter is to report results from direct classroom observations of teacher and adolescent student behavior. To address research questions, data were analyzed to (a) examine the extent to which teachers' rates of instructional behaviors fall in line with general evidence-based findings or recommendations and (b) examine potential differences in teachers' rates of opportunities for academic responses and feedback and student academic engagement across students identified with challenging behaviors and those without challenging behaviors. Students with challenging behaviors were identified by school administrators given that they (1) had more than three office discipline referrals during the academic year, (2) were a frequent offender of school rules that did not respond to typical discipline procedures, and (3) exhibited problem behaviors in the classroom setting. Students without challenging behaviors were chosen randomly by the data collectors. Analysis of observation occurrences including percentages and rates allow for discussion of descriptive findings and hypotheses testing. Results are discussed within two sections corresponding with research question one and research question two.

Research Question One

The total number of observations ($N = 827$) was used to address question one and describe naturally occurring rates of teacher and student behaviors collected in the regular education classroom at the high school level. The 827 observation sessions reflected 11,956 minutes (199.27 hours) of classroom observation. This total included students identified with challenging behaviors ($n = 390$) and students without challenging behaviors ($n = 437$). Teaching behavior and student engagement levels (active, passive, and off-task behaviors) were calculated as percentages of the observation session. Teacher provided opportunities to respond (group and individual), feedback (positive or negative), and student disruption were calculated as a rate per minute of observation time. A summary of percentages and rates per minute, including the mean, standard deviation and range are provided in Table 4-1.

Teacher behaviors. Participating high school teachers were observed to exhibit 'teaching' behaviors, defined as explaining, demonstrating, or modeling academic content including active supervision of the classroom during 54% ($SD = 0.37$) of the observation time. The remaining 46% ($SD = 0.37$) of observation time teachers were coded as 'not teaching' – meaning that there was no explaining, demonstrating, modeling or active supervision occurring.

Teachers were observed to provide opportunities to respond to both the group as a whole and to targeted students. The mean rate of group opportunities to respond was 0.47 per/minute ($SD = 0.60$) while the mean for individual opportunities to respond was 0.06 per/minute ($SD = 0.12$). Given the observed

Table 4-1.

Mean, Standard Deviation and Range of Naturally Occurring Teacher and Student Behaviors

	Mean	SD	Range
<u>Teacher Behavior</u>			
Teaching	54%	0.37	0.0 - 1.0
Not Teaching	46%	0.37	0.0 - 1.0
OTR Group	0.47 per min	0.60	0.0 - 4.73
OTR Individual	0.06 per min	0.12	0.0 - 1.93
Positive Feedback	0.03 per min	0.06	0.0 - 0.53
Negative Feedback	0.08 per min	0.14	0.0 - 1.71
Positive/Negative Feedback Ratio	1 : 2.43 events		0 – 8 : 0 - 15
<u>Student Behavior</u>			
Active Engagement	42%	0.32	0.0 - 1.0
Passive Engagement	33%	0.29	0.0 - 1.0
Active/Passive Engagement	75%	0.29	0.0 - 1.0
Off Task	18%	0.26	0.0 - 1.0
Disruption	0.09 per min	0.18	0.0 - 1.07

Note. N = 827; OTR = Opportunities to Respond.

rates, group opportunities to respond occurred every 2.17 minutes while individual opportunities to respond occurred every 16.67 minutes.

Teachers provided positive and negative feedback to students during classroom observations, exhibiting a greater frequency of negative feedback. The ratio of positive to negative feedback as 1 : 2.43 (positive, $n = 355$; negative, $n = 866$). Individual occurrences of teacher feedback recorded during direct observation were converted to a rate per minute. Targeted individuals during classroom observations received positive feedback at a rate of 0.03 per/minute ($SD = 0.06$) and negative feedback at a rate of 0.08 per/minute ($SD = 0.14$). Further conversion of rates per minute indicated that students receive positive feedback approximately once every 33 minutes while they receive negative feedback approximately once every 12 minutes.

Student behaviors. Student engagement was observed within three defined categories (active, passive and off-task behavior) and further considered as a combination of active and passive behavior. As a percentage of the average observation, student behaviors were observed to be active during 42% ($SD = 0.32$), passive during 33% ($SD = 0.29$), and off-task during 18% ($SD = 0.26$). Thus, active student behaviors including reading, writing, responding to problems, reacting to prompts, and completing tasks were observed during less than half of the observation time. When both active and passive student behavior is combined, allowing for student behavior including general orientation to the teacher or speaker, engagement was observed during 75% of the observation time ($SD = 0.29$). The remaining 6% of time was coded as 'down time' indicating no opportunity to be engaged.

Student disruption included negative remarks, noises, comments, or actions that disrupted or were considered by data collectors as having the potential to disrupt the learning environment. Student disruption was observed at a rate of 0.09 per/minute ($SD = 0.18$). At this observed rate, one disruption was observed on the average once every 11 minutes.

Comparison of Findings with Research/Recommendations

T-test analysis compared findings of the high school classroom observations with research findings or recommended rates/percentages of occurrence noted as evidence-based practice in the literature. Findings are discussed within the three hypotheses addressing research question one (opportunities to respond, feedback, student engagement). *T*-test results are summarized in Table 4-2.

Hypothesis 1. Hypothesis one considered the average rate of observed opportunities to respond provided to adolescents in the regular classroom with recommended rates from the literature. The observed rates of teacher provided opportunities to respond for the group ($M = 0.47$ per/minute) and individual ($M = 0.06$ per/minute) were compared with recommendations of 4.0 and 12.0 per minute for new information or practice of previously acquired information respectively (CEC, 1987). *T*-test assumptions of random sampling and normal distribution were achieved through target student selection, review of a frequency distribution, and with consideration of the central limit theorem (Shavelson, 1996) noting the approximation of normality for samples of 30 or more. The observed rates per minute for both group and individual rates of opportunities to respond

Table 4-2.

Comparison of Observed Teacher and Student Behaviors with Research (Recommendations or Findings in Parentheses)

				95% CI		
	Mean		<i>t</i>	LL	UL	Cohen's <i>d</i>
<u>Teacher Behavior</u>						
OTR Group	0.47 per min	(4.0)	-169.34**	-3.57	-3.49	-7.51
		(8.0)	-361.29**	-7.57	-7.49	-12.55
OTR Individual	0.06 per min	(4.0)	-922.59**	-3.95	-3.93	-32.83
		(8.0)	-1858.74**	-7.95	-7.93	-66.17
Positive Feedback	0.03 per min					
Negative Feedback	0.08 per min					
Positive/Negative Feedback Ratio	1:2.43 events	(4 : 1)				
<u>Student Behavior</u>						
Active Engagement	42%	(.70)	-25.40**	-0.30	-0.26	-87

Note. *N* = 827; OTR = opportunities to respond; *t* = *t* statistic; CI = confidence interval; LL = lower limit; UL = upper limit.

** *p* < .001, two tailed.

were significantly less than the recommended rates of 4 per minute for teaching new information with group at $t(826) = -169.34$, $p < .001$ (two-tailed), $d = -7.51$, and individual at $t(826) = -922.59$, $p < .001$ (two-tailed), $d = -32.83$. Further, observed rates were also significantly less than the recommended rate of eight per minute for practice of previously learned information with group at $t(826) = -361.29$, $p < .001$ (two-tailed), $d = -12.55$ and individuals at $t(826) = -1858.74$, $p < .001$ (two-tailed), $d = -66.17$. In each of the four analyses of teacher provided opportunities to respond, the null hypothesis is rejected as the sample represented by the direct classroom observations was found to be statistically different from the recommended rate provided in the research.

Hypothesis 2: Research supports the use of feedback at an approximate ratio of four positive feedback occurrences to one negative feedback occurrence (e.g., Stichter et al., 2009). Results from the direct observation of teacher behaviors indicate a positive/negative feedback ratio of 1 : 2.43, one positive feedback occurrence for 2.43 occurrences of negative feedback. This finding was compared with the research recommendations of 4 : 1, four positive feedback occurrences for each negative occurrence using two analysis formats for this hypothesis. First, the frequency of feedback was converted to a rate per minute for the purpose of developing a general rate of occurrence. The mean rate of positive feedback, 0.03 occurrences per minute ($SD = 0.06$), was observed less than the occurrences of negative feedback, 0.08 per minute ($SD = 0.14$). Previous research indicates varying classroom rates of positive and negative feedback occurrences. However, research-based recommendations for a rate

per minute of positive feedback for adolescents are not available for comparison. Therefore, the frequency of teacher feedback was calculated as an overall ratio of occurrence.

Second, the findings indicated only 12 of the 826 observations recorded the recommended ratio of four positive to one negative feedback occurrences, 0.01% of the total observations. Given the naturally occurring rates, the nature of the findings as a ratio of 1 : 2.43 reflecting greater negative than positive feedback occurrences, and the 0.01% finding within observations, the null hypothesis that the ratio is equal to 4 : 1 is rejected.

Hypothesis 3: Hypothesis three considered the average percent of student engagement by adolescents in regular education classrooms with findings from the literature. *T*-test assumptions of random sampling and normal distribution were achieved through target student selection, review of a frequency distribution and with consideration of the central limit theorem (Shavelson, 1996) noting the approximation of normality for samples of 30 or more. Active engagement was observed during 42% of observation time ($SD = 0.32$). Previous findings of active engagement for students with challenging behaviors average approximately 70% and range from 49% to 94% (Baker et al., 2008; Hayling et al., 2008; Hollowood et al., 1994). The *t*-test analysis noted that active engagement observed in this study was significantly less than findings of approximately 70% active engagement in the research $t(826) = -34.51, p < .001$ (two-tailed), $d = -1.20$. The null hypothesis is rejected as a significant difference

was found between the observed average active engagement and what is reported in the literature.

Research Question Two

The second research question considered hypotheses based on research suggesting differences in teacher behaviors and levels of student engagement when comparing students identified with and without challenging behaviors (e.g., Shores, Gunter, et al., 1983; Wehby et al., 1998). Descriptive findings are first described for the two groups including mean, standard deviation and range. Next, four hypotheses are considered, two addressing teacher rates of opportunities to respond and feedback, and two addressing student levels of engagement and disruption. Independent *t*-test analyses for findings of the two groups will be described. Descriptive findings are summarized in Table 4-3 and Table 4-4.

Teacher behaviors. Teacher provided opportunities to respond to the group and positive feedback were found to have equal rates of occurrence across students who were and were not identified as having challenging behaviors. Teachers provided group opportunities to respond at a mean rate of 0.47 per minute in observation sessions including students with ($SD = 0.58$) and without ($SD = 0.62$) identified challenging behaviors. Similarly, teachers provided positive feedback at a mean rate of 0.03 per minute ($SD = 0.06$) in observations including students with and without identified challenging behaviors.

Rates of evidence-based teacher practice were lower with students identified with challenging behaviors for two variables. First, teachers were

Table 4-3.

*Classroom Observations of Students With and Without Challenging Behaviors:
Mean, Standard Deviation and Range of Teacher Behaviors*

	Mean	SD	Range
<u>Teacher Behavior</u>			
Teaching			
With CB	48%	0.36	0.0 - 1.0
Without CB	58%	0.37	0.0 - 1.0
Not Teaching			
With CB	52%	0.36	0.0 - 1.0
Without CB	42%	0.37	0.0 - 1.0
OTR Group			
With CB	0.47 per min	0.58	0.0 - 3.75
Without CB	0.47 per min	0.62	0.0 - 4.73
OTR Individual			
With CB	0.05 per min	0.09	0.0 - 0.67
Without CB	0.06 per min	0.14	0.0 - 1.93
Positive Feedback			
With CB	0.03 per min	0.06	0.0 - 0.53
Without CB	0.03 per min	0.06	0.0 - 0.33
Negative Feedback			
With CB	0.11 per min	0.17	0.0 - 1.71
Without CB	0.05 per min	0.11	0.0 - 0.87
Positive/Negative Feedback Ratio			
With CB	1 : 3.76 events		0 – 8 : 0 - 15
Without CB	1 : 1.42 events		0 – 5 : 0 - 13

Note. N = 827; OTR = Opportunities to Respond; CB = challenging behaviors.

Table 4-4.

*Classroom Observations of Students With and Without Challenging Behaviors:
Mean, Standard Deviation and Range of Student Behaviors*

	Mean	SD	Range
<u>Student Behavior</u>			
Active Engagement			
With CB	36%	0.32	0.0 - 1.0
Without CB	47%	0.30	0.0 - 1.0
Passive Engagement			
With CB	28%	0.28	0.0 - 1.0
Without CB	36%	0.29	0.0 - 1.0
Active/Passive			
With CB	65%	0.33	0.0 - 1.0
Without CB	83%	0.22	0.0 - 1.0
Off Task			
With CB	27%	0.31	0.0 - 1.0
Without CB	10%	0.18	0.0 - 0.88
Disruption			
With CB	0.15 per min	0.23	0.0 - 1.07
Without CB	0.04 per min	0.11	0.0 - 0.67

Note. $N = 827$; OTR = Opportunities to Respond; CB = challenging behaviors.

coded as teaching during a lesser percentage of the observed time in observation sessions including students identified with challenging behaviors ($M = 48\%$, $SD = 0.36$) than when observed in sessions not including students with identified challenging behaviors ($M = 58\%$, $SD = 0.37$). Second, the rate of teacher provided opportunities to respond to the targeted individual was lower for students with challenging behaviors ($M = 0.05$ per/minute, $SD = 0.09$) than for students without challenging behaviors ($M = 0.06$ per/minute, $SD = 0.14$).

Rates of evidence-based teacher practice were higher with students identified with challenging behaviors for two variables. First, teachers were coded as 'not teaching' during a greater percentage of the observed time in observation sessions including students identified with challenging behaviors 52% ($SD = 0.36$) than when observed in sessions not including students with identified challenging behaviors 42% ($SD = 0.37$). Second, teachers were observed making negative feedback statements at a rate of 0.11 per minute ($SD = 0.17$) to students identified with challenging behavior as compared with a rate of 0.05 per minute ($SD = 0.11$) with students not identified with challenging behaviors. Teachers provided negative feedback to students with challenging behaviors approximately once every nine minutes and to students without challenging behaviors approximately once every 20 minutes.

Student behaviors. Student engagement was calculated as a percentage of each observation. Percentages of active and passive engagement for students with challenging behaviors were found to be less than those of students without challenging behaviors. Students identified with challenging behaviors were observed to be actively engaged 36% of the observed time ($SD = 0.32$) while their peers without challenging behaviors were observed to be actively engaged 47% of the observed time ($SD = 0.30$). Similarly, students with challenging behaviors were passively engaged 28% of the observation time ($SD = 0.28$), 8% less than students without challenging behaviors ($M = 36\%$, $SD = 0.29$). Combining active and passive engagement for a general level of classroom engagement revealed 18% greater engagement for students without

challenging behavior ($M = 83\%$, $SD = 0.22$) than for students identified with challenging behavior ($M = 65\%$, $SD = 0.33$).

The percent of off task behavior and rate of disruption were calculated for both groups and revealed greater rates of disruption and percentages of off task behavior among students with identified challenging behavior. Students with challenging behaviors were observed off task ($M = 27\%$, $SD = 0.31$) 17% more than students without challenging behaviors ($M = 10\%$, $SD = 0.18$). Similarly, the rate of disruption was more prevalent for students with challenging behavior at 0.15 per minute ($SD = 0.23$) when compared with students without challenging behaviors 0.04 per minute ($SD = 0.11$). Students with challenging behavior were observed to disrupt about every 6.7 minutes while students without challenging behaviors about every 25 minutes.

Comparison of Findings: Students With and Without Challenging Behaviors

T-test analyses compared findings across observed students who were and were not identified with challenging behaviors. Analyses are discussed within the four hypotheses addressing this research question. *T*-test results are summarized in Table 4-5.

Hypothesis 1. The first hypothesis considered mean rates of teacher provided opportunities to respond for the two groups of students, postulating the rate would not be equal (e.g., Carr et al., 1991; Wehby et al., 1998). *T*-test assumptions of random sampling and normal distribution were achieved through target student selection, review of a frequency distribution and with consideration of the central limit theorem (Shavelson, 1996) noting the approximation of

Table 4-5.

Comparison of Observed Teacher and Student Behaviors: Students With and Without Challenging Behaviors

			<u>95% CI</u>		
		<u>Mean</u>	<u><i>t</i></u>	<u>LL</u>	<u>UL</u>
<u>Teacher Behavior</u>					
OTR Group					
With CB	0.47 per min	0.107	-0.078	0.086	
Without CB	0.47 per min				
OTR Individual					
With CB	0.05 per min	-1.054	-0.026	0.008	
Without CB	0.06 per min				
Positive Feedback					
With CB	0.03 per min	-1.013	-0.013	0.004	
Without CB	0.03 per min				
Negative Feedback					
With CB	0.11 per min	6.049**	0.041	0.079	
Without CB	0.05 per min				
Positive/Negative Feedback Ratio					
With CB	1 : 3.76 events				
Without CB	1 : 1.42 events				
<u>Student Behavior</u>					
Active Engagement					
With CB	37%	-4.759**	-0.146	-0.061	
Without CB	47%				

Note. $N = 827$; CB = challenging behaviors; With CB, $n = 390$; Without CB, $n = 437$; OTR = opportunities to respond; t = t statistic; CI = confidence interval; LL = lower limit; UL = upper limit. ** $p < .001$, two tailed.

normality for samples of 30 or more. Findings did not confirm a significant difference in teacher provided rates of opportunities to respond for students with and without challenging behaviors when offered to the group, both rates at 0.47

per minute, $t(825) = .107$, $p > .01$ (two-tailed) or targeted adolescents with (0.05 per minute) and without (0.06 per minute) challenging behaviors, $t(825) = -1.054$, $p > .01$ (two-tailed). The null hypothesis is not rejected as the findings indicate the rates of opportunities to respond between the two groups to be similar in rate of occurrence.

Hypothesis 2. This analysis addresses the hypothesis that there are differences in the rates of positive feedback to negative feedback for students with and without challenging behavior. Research recommends a ratio of four positive statements to one negative statement (e.g., Stichter et al., 2009). For observations targeting students with challenging behaviors, a ratio of 1 : 3.76 was observed. For one positive feedback occurrence, 3.76 negative occurrences were observed. For students without challenging behaviors, a ratio of 1 : 1.42; for one positive feedback occurrence, 1.42 negative feedback occurrences were observed. Findings for both groups indicated a ratio opposite in direction from research recommendations (4 : 1 ratio) revealing more negative occurrences than positive occurrences during classroom observations.

In addition, each observation for the two groups was further considered within the ratio of positive to negative feedback occurrences as equal to or greater than the recommended 4 : 1. For students with challenging behaviors 0.02% (seven) of the observations ($n = 390$) met or exceeded the 4:1 recommended ratio. For students without challenging behaviors, 0.01% (five) of the observations ($n = 437$) met or exceeded the 4 : 1 recommended ratio.

The magnitude and direction of the findings for the two groups as being opposite the recommended positive to negative ratio is one consideration, the difference between the 1 : 3.76 (students with challenging behaviors) and 1 : 1.42 (students without challenging behaviors) can be further explored by looking at differences in the negative feedback side of the ratio while keeping positive occurrences at one. Students with challenging behavior receive significantly more negative feedback for every one positive feedback instance than do students without challenging behaviors $t(825) = 6.049, p < .001$ (two tailed). The null hypothesis considering differences in the ratio of positive to negative feedback between the two groups is rejected based on differing occurrences of negative feedback.

Hypothesis 3. Research recommends that students be actively engaged during 70% of instructional time. Hypothesis three considers potential differences in the percentage of active engagement for students with and without challenging behaviors (e.g., Baker et al., 2008). *T*-test assumptions of random sampling and normal distribution were achieved through target student selection, review of a frequency distribution and with consideration of the central limit theorem (Shavelson, 1996) noting the approximation of normality for samples of 30 or more. Students with challenging behaviors were coded as being actively engaged during 37% of observed time while students without challenging behaviors were coded the same during 47% of observed time. Neither group mean approached the recommended percentage of 70% active engagement through classroom observation. However, analysis of the two means showed a

statistically significant difference in the percentage of active engagement between students with and without challenging behaviors $t(825) = -4.773, p < .001$. The null hypothesis that the student level of active engagement between the groups is equal is rejected as findings indicate significantly less engagement for students with challenging behaviors when compared with students not identified with challenging behaviors.

Hypothesis 4. It is hypothesized that the mean rate of disruption for students with challenging behaviors is greater than the mean rate of disruption for students without challenging behaviors (Baker et al., 2008; Kauffman, 2001; Montague & Rinaldi, 2001). Findings in this study indicate that the mean rate of disruption for students with challenging behavior (0.15 per minute) is greater than the mean rate of disruption for students without challenging behavior (0.04 per minute). The difference in means of 0.11 per minute was found to be statistically significant $t(825) = 9.190, p < .001$. Results of this analysis support rejection of the null hypothesis and support the alternative hypothesis that the mean rate of disruption is greater for students with challenging behaviors when compared with students without challenging behaviors.

CHAPTER 5

DISCUSSION

This chapter discusses major findings of this study which examined teacher instruction and adolescent student engagement. Variables were considered as components of a teacher/student interaction framework developed within the school setting through exchanges between teachers and adolescents. Pianta et al. (2002) describe these teacher/student interactions within a model including emotional support, classroom organization, and instructional support (see Figure 1). Teacher and student behaviors representative of this interaction model were collected in high school general education classrooms. Students were observed in various content areas and across dates and times throughout a year in an attempt to represent what an adolescent with or without a challenging behavior would typically experience. Students with challenging behaviors were identified through recommendation by a school administrator as one with more than three office discipline referrals, a frequent offender of school rules, not responsive to typical discipline procedures, and with problems occurring in the classroom setting.

Adolescents exhibiting behavioral challenges are at greater risk of academic difficulty (Aud, Fox, et al., 2010; Aud, Hassar, et al., 2010) and academic difficulty leading to failure in school is predictive of students who

ultimately drop out (Block et al., 1978; Kauffman, 2001; Reschly & Christenson, 2006). Students with challenging behaviors reveal unique and frequent office discipline referrals that include defiance, truancy and tardiness (Spaulding et al., 2010), often pulling them from the classroom environment for resolution. In addition, life outcomes are dismal for students who fail or dropout of high school (Day & Newburger, 2002). The frequency with which adolescents present with these predictable, failing behaviors warrants an examination of the interactions these students encounter with their teachers as they receive instruction in the regular classroom.

Research findings support the use of teacher practice to increase teacher/student interaction. Teacher implementation of effective instructional strategies in the classroom demonstrate positive performance outcomes for students experiencing academic and social failure (Conroy et al., 2008; Hanushek, 1992; Nye et al., 2004). In this context, effective instruction has been described within an instructional sequence as including management, organization and instructional strategies (Conroy, 2009; Gunter et al., 2002), the opportunity for engagement with academic content (Brophy, 1983) and the use of scheduling and proximity to promote on task behavior (Guardino & Fullerton, 2010). Further, the specific strategy involving teacher use of opportunities to respond is associated with improved academic performance (Kern & Clemens, 2007; Sutherland et al., 2003; Sutherland & Wehby, 2001), decreased disruption (Kern & Clemens, 2007; Sutherland et al., 2003) and increased levels of student

engagement (Carnine, 1976; Carnine & Fink, 1978; Haydon, et al., 2010; Haydon, et al., 2009).

This study considered naturally occurring teacher and student behaviors in the regular high school classroom within the construct of teacher facilitated instruction. Teacher provided feedback was observed as an index of positive climate and quality of feedback, and teacher provided opportunities to respond were observed to assess instructional learning format and content understanding (see Figure 1). Noting previous research referencing limited interactions between the teacher and students identified with challenging behaviors (Carr et al., 1991; Gunter & Coutinho, 1997; Shores, Jack, et al., 1993), potential differences in teacher behaviors were further examined in the context of whether the student had been identified as one with or without challenging behaviors. Teachers were observed for the purpose of quantifying naturally occurring rates of teacher provided opportunities to respond and feedback, and students were observed to identify levels of engagement within the classroom setting. Two research questions were addressed.

Question One

What are the naturally occurring rates of teacher behavior (opportunities to respond and feedback, positive and negative), student engagement (active engagement, passive engagement and both active and passive engagement), and disruption for students in the regular high school classroom? How do findings relate to existing research recommendations or previous research?

Question Two

Given research supporting differences in rates of teacher behavior (opportunities to respond and feedback) and levels of student engagement for students exhibiting challenging behavior in the regular education classroom, it is hypothesized that there would be differences in teacher behaviors and levels of student engagement for students with and without challenging behaviors. What, if any, differences are evident between the two adolescent groups?

Findings and Relation to Previous Research

Findings are described first in terms of naturally occurring observations of teacher/student interactions at the high school level (question one), and then as a comparison of students identified with and without challenging behaviors (question two). The recording of teacher behaviors through direct observation in the high school classroom setting resulted in descriptive findings including the percentage of 'teaching' behavior, rates of opportunities to respond provided to the group and individuals, and rates of positive and negative feedback to targeted students. The coding of student behaviors revealed the percentage of student engagement and rates of disruption. The calculated rates and percentages were then compared with research recommendations or previous research findings to determine whether and how significantly current findings varied. The collection of teacher and student behaviors was then compared across students identified with and without challenging behaviors. Similarities and differences are summarized in Table 5-1.

Table 5-1.

Summary of Findings: Similarities and Differences

Teacher and Student Behaviors: Comparison with Research	Similarities	Differences
	Variability in 'Teaching'	Opportunities to respond Positive/Negative feedback ratio Student engagement
Teacher and Student Behaviors: Students With and Without Challenging Behaviors	Similarities	Differences
	Group opportunities to respond	'Teaching' behavior
	Individual opportunities to respond	Negative feedback
	Positive feedback	Active engagement
		Disruption Positive/negative feedback ratio

Observed teacher and student behaviors. Similarities and differences between findings and previous research were evident. Differences between findings from this study and previous research were noted in terms of both teacher and student behavior. Similarities and differences are discussed here and include implications for future research.

Variability in teaching. Using a broad definition of ‘teaching’, explaining a concept or topic, demonstrating a procedure, modeling a skill, or active supervision of the classroom, teachers of adolescents in this sample were observed teaching during only 54% of the observed time. Conversely, during 46% of the observed time teachers were observed engaging in no interaction with or supervision of students. The observations spanned the school calendar year, the days of the school week, time of day and course content, albeit with a greater emphasis on English and mathematics courses. The range (zero to 100%) of ‘teaching’ within a 15 minute observation time frame is evidence that some observations recorded no teaching at all while others recorded ‘teaching’ during the entire observation. This range may be in some part be explained by the type of content presented or a teacher’s intent to focus on opportunities for student independence during instruction – variables which were not accounted for in the observation. Alternatively, a general high school instructional presentation format may simply require less teaching time and more student work or interaction or may suggest bursts or spans of time during which teachers teach, thus explaining the relatively limited amount of teaching behavior. But it may also suggest findings unique to individual teachers and their teaching

approach. In any case, this finding suggests that the typical teacher provides instruction during only about half of the allocated instructional time. This certainly raises a question as to what types of activities students are involved when teachers are not instructing and whether teacher time could be used more effectively.

An in-depth examination of teaching behavior would help to provide clarification of individual teacher differences within classrooms and is recommended as an area for future research. This research should include a methodical look at the type and amount of teaching necessary to positively impact levels of student engagement; a research approach using sequential analysis of teacher and student behaviors could be considered. This type of analysis allows for the calculation of the probability that one behavior would be exhibited prior to or following a given occurrence. Previous research using this type of analysis revealed positive findings in its use as a tool for functional analysis of teacher and student behavior in the classroom (Gunter, Jack, Shores, Carrell, & Flowers, 1993). Through this study, the amount of time spent explaining, demonstrating, modeling and supervising was found to be variable and limited in the classrooms. Future studies should explore and define supports to increase teaching behaviors in the typical high school setting. Further, ranges of teaching behavior should be explored to determine recommendations for best practices in the typical high school classroom.

Opportunities to respond. Teacher provided opportunities to respond, directed toward the group or individual, were observed significantly less than the

recommended four to six (new information) and eight to 12 (practice) occurrences per minute (CEC, 1987). Specific opportunities to respond for the group were observed about once every 2.17 minutes while individual opportunities to respond occurred about once every 16 minutes. While there is some variation in recommended amounts depending upon whether instruction is focused on new information versus practice, the observed rates are dramatically less than recommended amounts under either condition. This mirrors previous findings showing minimal interactions between teachers and students as it relates to opportunities to respond and engagement with the curriculum (Carr et al., 1991; Montague & Rinaldi, 2001; Wehby et al., 1998). Given the well-established relationship between engagement and achievement (Greenwood et al., 2002), this finding is especially frustrating. Future research must look at strategies and procedures for affecting teaching behavior in ways that encourage higher rates of effective engagement practices.

Positive/Negative feedback ratio. Teachers provided little feedback to students in the classroom. On average students received positive feedback about once every 33 minutes and negative feedback about once every 12 minutes. When considered as a ratio of positive to negative feedback, the students observed received greater frequency of negative teacher responses than they did positive teacher responses. In addition to being low in terms of overall rates of teacher feedback, the ratio of positive to negative is opposite the recommended 4 : 1 positive to negative feedback interaction. In fact, it shows that teachers used more than double the negative feedback given positive

feedback occurrences. This finding suggests the students observed at the high school level received minimal occurrences of teacher provided feedback; and, when feedback was received, it was more often negative in nature.

Students received more than twice as many occurrences of negative feedback as recommended in the literature. It is possible that this finding is connected to teacher responses to student disruption. A disruption occurred approximately every 11 minutes with negative feedback a little more than every 12 minutes. Teacher negative feedback falls close to the observed number of disruptions, considering the general classroom as a whole and it certainly seems logical that teachers are providing negative feedback to students in response to these negative behaviors. Because the coding definition for disruption included student behaviors that, in the view of the coder, had the potential to disrupt, the slight difference in the disruption and negative feedback rates may be due to the inclusion of 'potential to disrupt' in the definition. Thus, teachers may simply ignore a small percentage of disruptions. This may also reflect a series of wrong or incorrect student responses to teacher prompting. Responding "No, that is incorrect" would have been recorded as a negative response as well. In any case, teachers were far more likely to provide feedback for a negative behavior than for a positive one. Future research should further consider the relationship between student disruption rates and teacher negative feedback rates in the classroom. In addition, a more in-depth look at the types of student activities, engagements, and contexts that most result in teacher feedback would better distinguish the types of student behavior to which teachers are responding and

could prove to be helpful in developing strategies to increase positive feedback and decrease both negative feedback and the disruptions that prompt them.

Student engagement. Student engagement included on task behavior defined as reading, writing, responding to questions, reacting to prompts and task completion. Recommended rates of student engagement (active, passive or combined) are not available; however, a general understanding that student engagement level is a strong predictor of student achievement is evident in the research (Greenwood et al., 2002; Tucker et al., 2002). Previous research found general levels of student engagement for students exhibiting behavior concerns between 49% and 94% in an instructional context (Baker et al., 2008; Hayling et al., 2008). When both active engagement and passive engagement variables are combined from observations the amount of total student engagement is about 75% of observed time. Separately, active engagement, although observed with greater frequency than passive engagement, was observed just over 40% of the time. The combined findings are within the range of previous findings; however, active engagement involving student actions of reading, writing, responding, or task completion were observed less than half the observation time. Much of the student behavior in the classroom involved simply looking at the teacher or being off-task, accounting for over 50% of the observed time.

With over 30% of the observed time identified as passive engagement, it seems reasonable to question the relative benefits of active versus passive engagement. Students at the high school level be able to absorb and retain information from passive engagement. Students have as many as 12 years of

practice in demonstrating passive engagement behaviors as they track the teacher with their eyes, appearing to be listening to avoid teacher reprimand, while potentially paying little or no attention to what is being said. Future research must examine both student understanding given this prominent classroom dynamic, passive engagement, and methods for assessing and increasing active engagement with this adolescent population

Student disruption. Students engaged in a disruptive behavior within the classroom about once every 11 minutes, affirming previously identified teacher concerns regarding difficulties with student behavior in the classroom settings (USDOE, 2011a). Although not every occurrence of disruption observed resulted in a teacher response, the student action revealed potential for causing the disruption had the teacher observed the action or chosen to respond. This suggests a frequency of student disruption with potential to cause interruption of the learning sequence on the average of four times per 45 minute lesson.

Given the number of disruptions observed and the potential detriment to the learning sequence, further examination of disruption is warranted. Of interest are questions related to when the disruptions are most likely to occur during instruction, specific teacher behaviors that coincide with student disruptions, and specific teacher behaviors without impact on student disruption. In addition, future research should seek to define disruption with greater specificity by focusing on the type and frequency while also considering the relationship between teacher behaviors and student disruption in the regular classroom. Understanding the teacher behaviors that both predict and follow student

disruption will allow for prescriptive teacher behaviors as a means of decreasing the probability of disruptive occurrences.

In summary, findings from this study describe a typical high school learning environment as being characterized by rather stagnant teacher/student interactions. Teacher behaviors indicated a dearth of the types of behaviors generally associated with student engagement. Teachers were observed to demonstrate, model or explain content only slightly more than half the time. Further, opportunities to respond were provided far less frequently than what research recommends, and students received negative feedback more often than positive feedback from their teachers. This is important because it illuminates the issue of teacher behavior being a predictor for student behavior. If we know that student engagement with the academic content predicts higher achievement and that there are behaviors in which teachers can engage that will increase student engagement then the desired course of actions seems clear. Teachers are the impetus for change in the classroom environment and identifying the type and frequency of teacher behaviors necessary to stimulate positive teacher/student interaction is critical. However, an even more important issue may be identifying methods of encouraging teachers to engage in these teaching behaviors.

Students with and without challenging behaviors. The second research question considered teacher and student behaviors in relation to whether the student was designated as one with or without challenging behaviors. Similarities between the two groups were noted in terms of the overall

rate of group and individual opportunities to respond and rate of teacher provided positive feedback. Differences between the groups were apparent in areas of 'teaching' behavior, negative feedback, active student engagement, and positive/negative feedback ratio; these are summarized in Table 5-1.

Group and individual opportunities to respond. Generally, teachers provided students with limited opportunities to respond. From the observations, students are provided teacher response prompts about once every two minutes in a group setting, with rates similar for students with and without challenging behaviors. Thus, teachers offer similarly low rates of opportunities to respond to students with and without challenging behaviors in group settings. Similarly, teachers provided individual opportunities to respond at similarly low rates to students with and without challenging behaviors.

Future research should consider strategies for increasing teacher provided opportunities to respond for all students in the typical high school classroom. In general, research should seek to identify the nature and impact of high levels of teacher delivered opportunities to respond among all students. That is, the possibility exists that students with challenging behavior would respond differently to higher levels of opportunities to respond. More specifically, it is not clear what impact increased teacher opportunities to respond might have on the engagement and disruption levels for students with challenging behaviors in the regular classroom. Related to this increase in teacher provided opportunities to respond, an examination of the type and frequency of student responses to the prompts should be considered. Understanding the types of teacher prompts

more apt to generate response by students with challenging behaviors will provided a means to encourage the teacher/student interaction involving students with challenging behavior in the typical high school classroom. This should include a look at prompts for verbal responses, written responses, responses requiring peer interaction, and consider the corresponding student engagement level.

Positive Feedback. Students with and without challenging behaviors received minimal positive feedback in the regular classroom. Teacher provided positive feedback was similar and occurred about once every 33 minutes regardless of student identification. Teachers were not aware of the observer's selection of target student, but were observed to provide similar rates of positive feedback. This supports the variability noted with other research findings (Schumaker et al., 1982; Sutherland, Alder et al., 2003; Sutherland, Wehby et al., 2002; Wehby et al., 1995) and suggests that adolescents in regular classrooms receive teacher provided positive feedback with limited frequency, potentially only once in a 45 minute course period. Alternately, this may suggest that positive feedback provided by the teacher is not sought by adolescents and therefore is provided in limited quantities by the teachers. Further, high school students may acquire positive acknowledgement in some other format; for example, peer acknowledgement or personal satisfaction with accuracy in performance. Future research should consider the types and frequency of desired adolescent feedback including the impact of the desired feedback on student academic and behavioral performance. Understanding the impact of

various positive feedback types and delivery schedules will assist in clarifying the how teachers might most effectively support and encourage student engagement (Pianta & Hamre, 2009). Further, it will allow for recommendations differential rates of teacher provided feedback for students with and without challenging behaviors in the regular classroom setting.

Teaching behavior. The percentage of teaching during observation was found to be different for students with and without challenging behaviors, reflecting 58% teaching during the observations of students without challenging behaviors and 48% during observations of students with challenging behaviors. Analysis of the difference of means identified significance between the percent of teaching when students with and without challenging behaviors were observed, although the cause of this difference is unclear. The teachers and classrooms were similar throughout observations of the two groups but reflected a variety of other variables including the content presented, the activity for the lesson, the time of day, the day of the week, and the time during the class (beginning, middle or end).

Future research should explore the contributions of teaching behavior to understand possible predictable differential effects of specific teacher behaviors across students of all types. Of course this presents a conundrum. Are teacher differences in instruction across students due to the disruption from students identified with challenging behaviors, or is the disruption, used to identify students as one with a challenging behavior due to the lack of teaching behaviors in the classroom? The answer to this question evolves from determining which

presented first, the student behavior or the teaching behavior. Two formats would be appropriate when considering this line of questioning: one addressing the cause/effect relationship between teaching behaviors and student engagement and a second related to systematic analysis of teacher behavior and the response on student engagement. Sequential analysis of teacher and student behavior will allow for determination of the events prior to and resulting from an origin; in this case, the opportunities to respond prior to student engagement and resulting student behaviors following increased opportunities to respond. Systematically introducing rates of teacher behaviors in the typical classroom, and determining the resulting levels of student engagement, will provide the opportunity to analyze this relationship.

Negative Feedback. Teacher provided negative feedback occurred significantly more often when the target student was a student with a challenging behavior. This likely reflects the finding that students with challenging behavior revealed significantly more disruption than students without challenging behaviors. This may also be due to the generally low levels of feedback of any kind and the possibility that teachers simply respond only to those requiring attention. In other words, teachers would provide even less total feedback if disruptive behaviors were to decrease. This finding continues to demonstrate the disproportionate frequency of negative feedback presented to students identified with challenging behaviors.

Future research addressing negative feedback should begin with a focused examination of the purpose of negative feedback. If in fact the teacher is

providing negative feedback in response to student disruption, it is worthy of examining the functionality of the student disruption. One possible function of the disruption is an attempt by the student to receive any type of feedback—any feedback may be better than no interaction at all. If the disruption is serving as an attempt to interact with the teacher, identification of teacher behaviors most conducive to increasing student engagement would be warranted and should include systematic increases in positive feedback, looking for subsequent decreases in student disruption and negative feedback. This can be conceived of as a vicious cycle wherein limited teaching and behavior results in decreased student engagement which causes increased disruption and student attention seeking behavior which causes even further decreased levels of teaching. Research in this area should seek to identify the type and rates of teacher behaviors necessary to break this negative chain of events and predict a positive student outcome.

Active Engagement. Student active engagement was observed at significantly greater percentages for students without challenging behaviors suggesting increased involvement with the curriculum for those students seated in the same classroom setting but not identified as a student exhibiting challenging behaviors. This suggests a number of potential classroom implications. First, this difference may be a product of teacher response to the increased level of disruption found in the classroom by the students with challenging behaviors. As the students receive feedback or prompts from the teacher, the student is no longer actively engaged with the curriculum, or the

student is not engaged and the teacher ignores the off-task student. Second, this may be due to an interaction with the teaching behavior findings for the observations involving students with challenging behaviors in which less teaching was observed and less teaching results in less active engagement. Third, this may be connected with the similarities found in opportunities to respond and positive feedback between the two groups, suggesting that the observed rates of opportunities to respond and positive feedback were beneficial to the students without challenging behavior and not for students with challenging behavior as it relates to continued student active engagement. Future research should seek to identify the environmental variables contributing to active engagement for students with challenging behaviors, including the teacher behaviors necessary to support increased academic engagement.

Feedback Ratio. Students with challenging behaviors received negative feedback more than twice as often as the students without challenging behavior. Although similar in positive feedback, the negative portion of the ratio for students without challenging behaviors (1 : 1.42) is less than that for students identified with challenging behaviors (1 : 3.76). With observations reflecting nearly 200 classroom hours, this suggests the positive/negative feedback ratio for students with and without challenging behaviors reflects a serious deficit for students most in need of higher ratios of positive feedback.

Future research should consider variables surrounding the positive/negative feedback ratio including when and if receipt of positive and negative feedback impact on-task behavior, rates of disruption, and levels of

student engagement with the curriculum. In addition, it is important to ascertain whether or not adjustments to this ratio of positive/negative feedback by the teacher directly impact student engagement. For example, can teacher behavior be increased in the typical classroom to reflect the recommended 4 : 1 positive/negative ratio? If this ratio can be achieved, how is student engagement and disruption impacted? Or, can this ratio be adjusted through increased demonstration, modeling, active supervision, and explanation (teaching) toward the recommended ratio of four positive to 1 negative occurrences of feedback? Implications for teaching strategies in classrooms with students exhibiting challenging behaviors can be generated from an understanding of the teaching behaviors critical to sustained student engagement.

Again, the origin of limited teacher/student interactions for students identified with challenging behaviors continues to be unclear: is a lack of teaching behaviors and strong instruction leading to increased disruptive behaviors or are disruptive behaviors resulting in limited instructional interactions with students? Students with challenging behaviors participated in classrooms with less teaching and greater frequencies of negative feedback and they exhibited less active engagement with the curriculum, limiting opportunities for positive interactions between teachers and students. Determining the origin of the limited interactions between teachers and students with challenging behaviors is a circular argument. The teacher is postured to present best practices and promote positive interactions with students leading to increased student engagement, responsibility ultimately remains with the teacher.

In summary, teachers facilitate instruction within a model including emotional support, instructional support and classroom organization (Pianta & Hamre, 2009). “Teacher beliefs, actions, and practices are the foundation of positive teacher-student relationships...” (Murray & Pianta, 2007, p. 110). Responsibility remains with the adult to create a positive interaction (Pianta & Hamre, 2009). Unfortunately, findings here noted limited interactions, primarily negative, with adolescents exhibiting challenging behaviors in the typical high school classroom. However, teachers have the ability to develop and nurture a positive relationship with students, and findings from this study highlight a need for increased attention to the population of students exhibiting challenging behaviors. Research should continue to identify teacher behaviors impacting student learning; researchers should consider the use of teacher practices identified to address the needs of students with challenging behaviors.

Limitations. A number of limitations warrant discussion as they have potential to inhibit findings. First, classroom observations were collected from one school in one geographical area and are limited to specifics of the school demographics. Future studies should include observations from multiple high school classrooms, representing various school demographics which may further explain teacher, student and classroom variables impacting the teacher/student interaction.

Although data were collected over a year, findings may be impacted by other teacher/student interaction factors reflective of maturation effects, naturally occurring, by teacher and student. Teachers may refine their teaching practices

over time. Students may present with increased engagement at varying times during the school year. As students become more familiar with teachers and the content, interactions may reach a more fluent and frequent state. Teachers' tolerance of behaviors may also differ at points during the school year.

Analysis of the direct observations is limited to the definitions of teacher behaviors (feedback and opportunities to respond) and student behaviors (engagement and disruption) provided. Definitions used to identify the behaviors were selected from and can be found in similar research (Hayling et al., 2008; Maggin et al., 2011). Definitions were measurable, observable and repeatable; yet, may ultimately be too broad or specific to capture nuances in the teacher/adolescent student interactions. The broad definition of teaching may be specified to capture the distinction in type of teaching behavior, demonstration or lecture. A specific definition, for example, disruption which included potential of the action to disrupt, may capture an elevated frequency of disruption. Future studies should consider the outcomes of various definitions used in direct observation of teacher/student interactions in the regular classroom environment for refinement of the constructs. A sequential analysis of teacher/student interactions could clarify behavior definitions. An analysis of this type would identify the sequences of teacher and student behaviors including the probability that a given behavior would precede or follow. Identification of the specific teacher/student behaviors occurring in sequence would allow for more precise operant definitions in the systematic study of those variables. For example, analysis of a sequence including teaching demonstration with opportunity to

respond in contrast with a sequence including teaching lecture with individual work and written assignment and level of student engagement.

Observers attempted random selection during observation, but may have included other students, not identified as one with a challenging behavior, but exhibiting similar behavioral difficulties. Even with this potential limitation, identification of differences in teacher behaviors toward students with challenging behaviors, and differences in engagement between students with and without challenging behaviors was evident. Future research should seek to explore definitions of 'challenging behavior' from the perspective of the administrator, counselor, or classroom teacher for comparison with this select group of students. In addition, students identified under IDEA (2004) as a student with an emotional and behavioral disorder should be compared with students not identified under IDEA (2004) but exhibiting similar classroom disruptive behaviors for behavioral similarities.

A comparison of group means limits discussion of contributing student factors, teacher factors, environmental considerations, and instructional considerations with findings. Future research should include analysis of additional elements contributing to the frequency and duration of teacher/student interactions as precursors to student engagement with curriculum and student achievement. This may also include analysis of the students as members of classrooms, classrooms within schools, and school within districts as a means to determining attributes unique to students, teachers and schools.

Summary and Conclusion

In summary, the results of this study appear to suggest limited teacher behaviors of feedback and opportunities to respond and limited student engagement with content in the high school classroom. This is supported through findings of minimal opportunities to respond, limited feedback in general (positive and negative), increased negative responses especially for students with challenging behaviors, and low levels of student active engagement with the curriculum. Students with challenging behaviors were found less engaged with curriculum, more disruptive in the classroom, and less likely to receive teacher positive feedback during class. These findings further identify unique differences in frequency and duration of teacher and student behaviors for students identified with and without challenging behaviors, adding to the literature naturally occurring rates of teacher and student behaviors in the regular high school classroom.

Reflections upon the results of this study are met with mixed emotion with the findings both surprising and discouraging. Regarding student/teacher interactions, I was surprised to find the limited teaching during the observations as well as the limited interactions with students. I anticipated higher rates of teacher provided positive feedback and opportunities to respond from teachers as methods to engage and encourage the students. Unfortunately, my experiences in the high school classroom with students identified with challenging behaviors were affirmed through the findings. When the observations of students with and without challenging behaviors were compared,

the increased negative interactions, increased classroom disruptions and limited student engagement identified for students with challenging behaviors was apparent. My challenges as a teacher in the regular classroom seem to continue as challenges for teachers in the regular education setting working with students exhibiting challenging behaviors. Although discouraged with this affirmation, I am encouraged by the potential for future research suggested through these findings including the identification of strategies, opportunities to respond and teacher provided feedback, for increasing positive teacher/student interactions for students with challenging behaviors.

Overall, implications of findings suggest a need to continue to support high school teachers as they interact with students exhibiting challenging behaviors in the regular classroom. Teacher and student behaviors continue to reveal evidence of connections, yet optimum frequency and rates of teacher behavior resulting in student engagement are still unclear. A continued look at typical teacher behaviors in the regular classroom toward students exhibiting challenging behaviors is warranted. Findings from continued research in this area may assist teachers with a better understanding of strategies for classroom structure which promote instructional formats yielding positive interactions in the classroom between teachers and students exhibiting challenging behaviors.

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CURRICULUM VITAE

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Profile

A doctoral candidate at the University of Louisville studying curriculum and instruction in the area of special education. Research interests include mathematics interventions for students with learning disabilities and positive behavior supports for students with challenging behaviors.

Education

2008-present Enrolled in the PhD program, Curriculum and Instruction, University of Louisville
Doctoral Candidate
Areas of Interest: special education instructional strategies for students with challenging behaviors and instructional strategies for students with learning difficulties in the area of mathematics.

2006-2008 Graduate Coursework, University of Louisville
Coursework toward K-12 Administration and Director of Special Education.

2000 Masters of Arts in Education, Bellarmine University
Coursework in curriculum and instruction for students with learning and behavior disorders.

1991 Bachelors of Arts in Education, University of Kentucky
Elementary Education (K-4) and Special Education, Learning and Behavior Disorders

Teaching Certification

Teacher Consultant in Programs for Exceptional Children

Teaching in the Early Elementary Grades K-4 (And Self-Contained Grades 5-6)

Teacher of Exceptional Children--Learning and Behavior Disorders, Grades K-12

Professional Experience

- 2009-Present Program Director, University of Louisville, Project ABRI
Director of training and implementation of *Project ABRI—Academic and Behavioral Response to Intervention*, a collaborative initiative with the Kentucky Department of Education. Training and technical support provided to select schools within the state for implementation of a response to intervention process including data based decision-making.
- 2008-2009 Graduate Assistant, College of Education and Human Development, Department of Teaching and Learning, University of Louisville
Research responsibilities, collaboration with local school district, strategy modeling and training.
- 2008, Summer Instructor, University of Louisville
Exceptional Children in the Regular Classroom
Educational programming for exceptional children in regular classrooms; curricular approaches in mainstreaming.
- 2008 Consultant, Exception Children Services, Oldham County Schools, KY
Consultation with administrators and staff (preschool - grade 12) regarding services for students with learning and behavior disabilities. Professional development for regular education and special education teachers regarding instructional strategies, procedures and services for students with disabilities.
- 2003-2008 Assistant Director of Exceptional Children Services, Oldham County Schools, KY
Application of district special education policy and procedure, consultation with administrators and staff (preschool – grade 12), and professional development for regular education and special education teachers.
- 2000-2003 Behavior Consultant, District-wide, Oldham County Schools, KY
Training for special education teachers, instructional assistants and school staff in behavior strategies, developed individual student programs for students with challenging behaviors (preschool – grade 12), developed and implemented school responses for students with challenging behavior, and developed and implemented behavior programs with teachers in special class settings.
- 2001-2002 Instructor, Bellarmine University
Course: Exceptional Children
Educational program development for exceptional children in the regular classroom. Undergraduate and graduate level students.
- 1996-2000 Special Education Teacher, Oldham County Schools, KY
Developed and delivered specially designed instruction at the high school level through service delivery models including collaboration in the regular education

classroom, resource instruction, and instruction in a special class setting for students with behavior disorders.

- 1994-1996 Special Education Teacher, Fayette County Schools, KY
Developed and delivered specially designed instruction at the high school level in a resource program and special class setting for students with behavior disorders.

Publications

- Scott, T. M., Alter, P. J., & **Hirn, R. G.** (2011). An examination of typical classroom context and instruction for students with and without behavioral disorders. *Education and Treatment of Children*, 34(4), 619-641.
- Scott, T. M., **Hirn, R.**, & Barber, H. (in press). Affecting disproportional outcomes by ethnicity and grade level: Using discipline data to guide practice in high school. *Preventing School Failure*.

Presentations

- Scott, T. & **Hirn, R.** (2011). Instruments Assessing Classroom and Teacher Quality: A Literature Review and Case Study. Presentation at the 8th International Conference on Positive Behavior Support, Denver, CO.
- Hirn, R.** and Lingo A. (2010). Addressing the Diversity of Student Academic and Behavior Needs through University/School Partnerships. Presentation at the Teacher Education Division of the Council for Exceptional Children, Saint Louis, MO.
- Hirn, R.** and Lingo, A. (2010). Intervention with Elementary Students Struggling in Mathematics: Enhancing Teacher Preparation through Collaboration. Presentation at the Teacher Education Division of the Council for Exceptional Children, Saint Louis, MO.
- Scott, T. & **Hirn, R.** (2010). Teacher Behaviors as Predictors of Student Outcomes: Results of Large-scale Classroom Assessment. Presentation by the Teacher Educators of Children with Behavioral Disorder 34th Annual Conference, Tempe, AZ.
- Hirn, R.** (2010). Academic Peer Tutoring Strategies and Students with Challenging Behaviors: Considerations for Implementation. Presentation by the Teacher Educators of Children with Behavioral Disorder 34th Annual Conference, Tempe, AZ.
- Scott, T., Lingo, A., Cooper, J. & **Hirn, R.** (2010). Project ABRI: Academic and Behavior Response to Intervention. Poster presentation at the 2010 National Positive Behavior Intervention and Supports Leadership Forum, Chicago, IL.

- Hirn, R.** (2010). Enhance Understanding of Middle/High School Content. Presentation at the Learning Disabilities Association Summer Institute, Louisville, KY.
- Hirn, R.** & Mancil, G. R. (2010). Academic and Behavior Response to Intervention: Strategies and Tactics for Classroom Teachers. Presentation at the Learning Disabilities Association Summer Institute, Louisville, KY.
- Scott, T., Lingo, A., Abell, M. & **Hirn, R.** (2010). Scaling PBS and RtI in Kentucky: Using Video Conferencing to Support Fidelity. Presentation at the 7th International Conference on Positive Behavior Support, St. Louis, MO.
- Hirn, R.**, Whitney, J. T., & Lingo, A. (2010). A Targeted Intervention for Children with Challenging Behaviors: Positive Results with a Mathematics Fluency Building Strategy. Presentation at the Midwest Symposium for Leadership in Behavior Disorders, Kansas City, MO.
- Hirn, R.** (2009). Data Based Decision Making: Models, Procedures and Uses. Presentation at the Teacher Educators for Children with Behavioral Disorders Conference, Tempe, AZ.
- Scott, T., Lingo, A., Abell, M. & **Hirn, R.** (2009). Project ABRI—Academic and Behavior Response to Intervention. Presentation at the 44th Annual Exceptional Children's Conference, Louisville, KY.
- Lingo, A., **Hirn, R.** & Scott, T. (2009). Project ABRI—Academic and Behavior Response to Intervention. Poster presentation at the 2009 National PBIS Leadership Forum, Chicago, IL
- Lingo, A., Fenty, N., Alter, P. & **Hirn, R.** (2009). Developing Math Fluency in Students with Challenging Behaviors. Presentation at the 6th International Conference on Positive Behavior Support, Jacksonville, FL.
- Bronger, T. & **Hirn, R.** (2008). Literacy Strategy: Instructional Decisions Informed by Diagnostics. Presentation at the 43rd Annual Exceptional Children's Conference, Louisville, KY.
- Hirn, R.** (2003). The Program of Studies and Behavior Programming for Students. Presentation at the Behavior Institute 2003, Louisville, Ky.
- Hirn, R.** (2003). Collaboration for Exceptional Learners. Presentation at the Summer Professional Development, Syracuse, NY.
- Moll, A., Sanders, M. Bronger, T. & **Hirn, R.** (2002). Collaboration for Exceptional Learners. Presentation at the Summer Institute, Western Oregon University, Newport, OR.
- Hirn, R. G.** (2000). Let's DO Math!: Creative Strategies for Teaching Algebra and Geometry. Presentation at the Behavior Institute 2000, Covington, Ky.

Areas of Training Experience:

- Exceptional Children Services Policy and Procedure
- University of Kansas, Content Enhancement Routines and Learning Strategies, SIM Trainer and member of the Kentucky SIM Trainer Cadre
- Multi-tiered intervention models and instructional strategies
- Strategies for data collection and analysis
- New teacher training/induction including individual education program writing, general policy overview and instructional strategies
- Collaborative Instructional Delivery Models
- Behavior Intervention Plan writing and implementation strategies
- Literacy Strategies for students in Middle and High School

Trainings Conducted within Kentucky:

- Franklin County Schools, Response to Intervention district development
- Franklin County Schools, Individual Education Program Writing
- Individual Education Program writing for Kentucky Department of Education
- Collaboration Instructional Delivery Models
- Jefferson County Public Schools, Summer Professional Development Institute
- Kentucky Cooperative Institute training

Professional Memberships and Affiliations

National Education Association

Current Member

Kentucky Education Association

Current Member

Council for Exceptional Children

Current Member

Kentucky Department of Education, Behavior Consultant Network

Awards

Kentucky Department of Education, Stella A. Edwards

Special Education Teacher of the Year, Finalist, 1997

Special Education Teacher of the Year, 2000

Professional Activities

Proposal Reviewer (2010). Proposal Review Committee Member for 2011 Council for Exceptional Children Conference.

References available upon request