

INVESTIGATING THE CONSTRUCT VALIDITY OF OFFICE DISCIPLINE
REFERRALS AS A MEASURE OF SCHOOL-WIDE POSITIVE
BEHAVIOR SUPPORT

by

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A DISSERTATION

Presented to the Department of Educational Leadership
and the Graduate School of the University of Oregon
in partial fulfillment of the requirements
for the degree of
Doctor of Education

June 2008

University of Oregon Graduate School

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Title:

"Investigating the Construct Validity of Office Discipline Referrals as a Measure of School-Wide Positive Behavior Support"

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June 14, 2008

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An Abstract of the Dissertation of
Matthew Edward Coleman for the degree of Doctor of Education
in the Department of Educational Leadership to be taken June 2008
Title: INVESTIGATING THE CONSTRUCT VALIDITY OF OFFICE DISCIPLINE
REFERRALS AS A MEASURE OF SCHOOL-WIDE POSITIVE BEHAVIOR
SUPPORT

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School-Wide Positive Behavior Support has emerged as an effective approach to impact challenging student behaviors at the individual level while building and maintaining a positive learning environment for all. Office discipline referrals are widely utilized within the field of School-Wide Positive Behavior Support as a measure of behavior and behavior change at the individual, group and whole school level. Though widely utilized, the validity of office discipline referrals as an outcome measure has received little attention. This study presents evidence of the construct validity of office discipline referrals as an outcome measure of School-Wide Positive Behavior Support.

The primary purpose of this study was to provide evidence of the construct validity of office discipline referrals. The concept of a nomological network was utilized and

empirical evidence linking various student predictor variables with office discipline referrals was investigated. The study employed case study methodology with an embedded quasi-experimental design to investigate the correlations between ten independent predictor variables and office discipline referrals. The initial analysis produced weak correlations and limited evidence for the proposed network. A second analysis was conducted including attendance as a co-morbid variable with office discipline referrals. This analysis identified stronger, more compelling evidence supporting the existence of a nomological network for office discipline referrals with attendance. Further regression analysis of the predictor variables blocked within four domains (academic, access, socio-economic status, and student group status) found even more evidence supporting the nomological network of office discipline referrals with attendance.

The results from this study support the validity of office discipline referrals with attendance as a measure of School-Wide Positive Behavior Support at the high school level. The inclusion of attendance as a measure at the high school level is supported and recommended for schools implementing School-Wide Positive Behavior Support. Academic learning (cumulative grade-point-average) was identified as the strongest predictor variable and adds credibility that an explicit link between academics and behavior exists and should be further investigated within the field of Positive Behavior Support. Finally, this study provides an example of School-Wide Positive Behavior Support implementation at the high school level.

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ACKNOWLEDGMENTS

I would like to thank Dr. Gerald Tindal for his guidance over the past seven years and for not allowing me to finish the program with the three infamous letters – ABD. I would also like to thank Dr. Keith Hollenbeck for his technical expertise, wisdom and connections in the Springfield School District. I owe you more than you know, as I would not have been able to bring this dissertation to completion without your incredible support. In addition, I would like to thank Dr. Phil McCullum for his commitment to the practice of school administration as well as the ride from Cottage Grove to Eugene when my Mustang broke down. Finally, thank you to Dr. Jean Stockard for her willingness to answer a *cold call* to participate on my committee.

I also want to acknowledge the Beaverton School District for the many opportunities provided to me both personally and professionally. I would like to thank the students and staff at Westview High School, Mountain View Middle School, and Aloha High School. The support I received at all three schools was unconditional and not necessarily warranted – but much appreciated. I must also thank Dr. Mike Howser for pulling me aside at Dr. Katz’s year-end party to tell me, “You will get your doctorate and you will do it at the University of Oregon.”

Finally, thank you to my wife and fellow Duck, Susan. Believe it or not, I do recognize all that you have done to support me in my professional development over the past seven years. It is time for me to return the favor. Thank you for everything!

To Griffin, Ella, Drew and Brynne. May this serve as an example of our family's commitment to education both now and in the future.

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CHAPTER I

INTRODUCTION

Over the past fifteen years, School Wide Positive Behavior Support (SWPBS) has emerged as an effective approach to impact challenging behaviors at the individual level, while building and maintaining a positive school climate for teaching and learning (Colvin, Kamefenui, & Sugai, 1993; Putnam, Handler, Rameriz-Platt, & Luiselli, 2003; Sugai and Horner, 2006; Sugai, et al., 2000). The application of SWPBS has been shown to have a positive impact across elementary and middle school settings in reducing office discipline referrals (Nelson, Martella & Galand, 1998) and in improving behavior within and outside of the classroom environment (Putnam, Handler, Rameriz-Platt, & Luiselli, 2003; Sugai & Horner, 2006). Unfortunately, little evidence and few exemplary examples of successful implementation at the high school level have been documented (Bohanon-Edmonson, Flannery, Eber, & Sugai, 2005; Warren, et al., 2006).

The validity of office discipline referrals (ODRs) as an outcome measure has received very little attention over the fifteen-year evolution of SWPBS. Irvin, Tobin, Sprague, Sugai and Vincent (2004) utilized the unified approach to construct validity (Messick, 1988) to evaluate ODRs as indices of school-wide climate, as measures of the effect of behavioral interventions, and as tools for identifying areas of behavioral support needed across a school environment. Their study found that ODRs can be used for decision-making and that they are valid indices of SWPBS implementation. More over,

Irvin et al., (2004) was one of two studies found that focused on establishing the construct validity of ODRs as a measurement tool.

The purpose of this study is to provide evidence of the construct validity of ODRs as a measurement tool. Providing further evidence is important as ODRs are widely utilized as a measure of individual and whole school behavior within SWPBS implementation (Sugai, et al., 2005). The use of ODRs as a measure has been encouraged (Sprague, Sugai, Horner, & Walker, 1999) and widely accepted as an effective measure of SWPBS implementation and application (Tobin, Sugai, & Colvin, 2000). The acceptance of ODRs as a metric of disruptive behavior and as an index of SWPBS implementation efforts has not been without caution (Wright & Dusek, 1998). Individual schools define behaviors independently and often develop behavioral management systems independently. The non-standardized, independent definition of what constitutes a referral begs questions of validity in utilizing ODRs as a measurement within the field.

This study utilized the concept of a nomological network, first introduced by Cronbach and Meehl (1955), to provide evidence as to the validity of ODRs. The nomological network will be established through identifying the relationships that exists between various student variables and ODRs. The variables fall within three different domains. These domains include (a) student access as measured by classroom engagement and school participation; (b) academics as measured by academic skill and academic learning; and (c) demographic as measured by sex, socio-economic status (SES), talented and gifted (TAG) identification and participation in Special Education (SPED) and/or English as a Second Language (ESL) programs. The variables also fall

into two separate categories, distal or proximal. Proximal factors are those a comprehensive high school affects directly. Distal factors are those a comprehensive high school has little direct affect on or are not able to affect at all.

This study is designed to provide evidence of the validity of ODRs as a measure of SWPBS by nesting ODR's in a proposed nomological network. Figure 1 is a proposed network for ODRs.

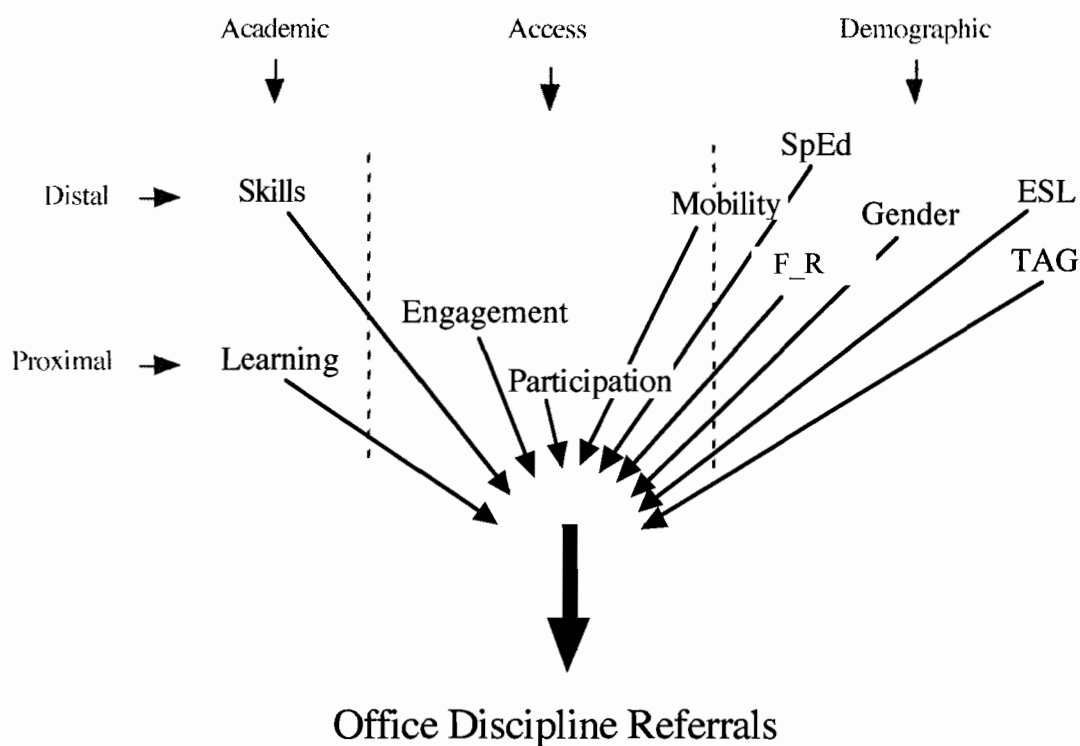


Figure 1. A Proposed Nomological Network for ODRs

This model is used to explain and predict ODRs. I anticipate that correlations between the different variables exist and the strength of the relations will vary. I also predict that variables cluster in terms of their domain category as access, academic and demographic

and their relation to ODRs will vary accordingly. The relative strength of the correlations and the proposed networks ability to predict ODRs will provide evidence supporting the construct validity of ODRs as a measure of SWPBS.

CHAPTER II

LITERATURE REVIEW

School-Wide Positive Behavior Support

SWPBS is an evidence-based approach to developing positive and proactive school environments by (a) focusing on prevention and intervention, (b) utilizing theoretically sound practices, and (c) implementing or changing organizational systems (Sugai and Horner, 2006). SWPBS enhances the learning environment for specific individuals with behavior issues while limiting the disruption of these individuals on the greater school environment (Walker, Ramsey & Gresham, 2005). Critical features of an effective SWPBS implementation include defining and teaching behavioral expectations, establishing acknowledgement systems for appropriate behavior, utilizing of school-wide and individual data to monitor and adjust, and the implementation of a three tiered support system for individuals, groups and the school as a whole (Warren, et al., 2006; Lewis & Sugai, 1999).

Focus on Prevention and Intervention

SWPBS utilizes a three tiered prevention model borrowed from the mental health field (Sailor, Stowe, Turnbull, and Kleinhammer-Tramill, 2007). The three-tiered approach in SWPBS includes primary, secondary and tertiary levels that are defined by specific individual characteristics that correspond with evidence-based intervention strategies (Sugai, 2002). The primary level is made up of the entire school community and the intervention strategies at this level are comprised of school wide efforts. The

secondary level focuses on small groups of students needing specific attention requiring more support than can be afforded at the primary level. The tertiary level includes students with very specific needs requiring interventions tailored to the individual.

Primary prevention utilizes school-wide efforts to prevent problematic behaviors and provides a positive host environment for the entire school community. Establishing and teaching school-wide behavioral expectations in various school settings is one of the critical features of effective SWPBS and is a form of primary level intervention.

Establishing an acknowledgment system is another critical feature and another example of a primary level intervention. Other examples of school-wide intervention efforts include sound instructional practices, relevant curriculum, and structures or systems that support relationships between students and staff. Students who are able to respond appropriately to school-wide interventions and thus do not receive behavioral referrals reflect the individuals in the primary level.

Secondary level prevention efforts are designed to assist students who need more than primary level interventions to be successful in school. Secondary interventions include group-based efforts or simple individualized programs that target specific needs or behaviors. One example of a secondary intervention is a “check in – check out” program. In this type of program, an individual student is matched with an adult who *checks in* with the student at regular intervals. The intervals can be daily, weekly, or every other week depending on the needs of the individual student. Other examples of group-based efforts include academic support (math lab, writing workshops, tutorials, etc.), personal support (grief groups, behavioral groups, etc.) and social support (cultural

groups, interest groups, etc). Students who need support, above and beyond the school-wide efforts, to be successful and to avoid behavior referrals reflect the individuals in the secondary level.

Tertiary level interventions are designed at the individual student level to meet very specific individual needs. Examples of individual interventions may include self-contained programs for students with significant emotional or behavioral needs or students with individualized behavior plans. Tertiary level interventions tend to be very specific, highly structured, and focused on the individual. A student who benefits from this level of support also needs strong group-based (secondary) and strong school-wide intervention (primary) programs.

Utilizing Theoretically Sound Practices

Sugai (2002) acknowledged two critical components of effective implementation of SWPBS. These components were derived from Applied Behavior Analysis and include functional behavior assessments and behavior intervention plans. Collectively, these two practices provide a foundation for a function-based perspective when organizing school structures, systems and practices at various levels of a school's organizational structure. The various levels include the whole school, the classroom, specific settings and the individual student. The following provides examples of theoretically sound practices at each of the levels.

Whole school practices include clearly identifying and defining a small number of school-wide expectations; building an instructional model or lessons to teach and reinforce the stated expectations; identifying a means for reinforcing and encouraging the

stated expectations; creating systems to discourage, respond to, and prevent problem behavior; and utilizing a monitoring system to inform and enhance school-wide efforts. Classroom practices include maximizing instructional time, utilizing various instructional strategies to maximize student engagement and on-task behaviors, and engaging in proactive behavioral management strategies. Specific settings include non-classroom areas within or outside of a school. Examples of specific settings include the cafeteria, hallways, gyms, bathrooms, lockers, athletic fields, etc. Practices and strategies for specific settings include active supervision, positive reinforcement, clear and consistent consequences, and pre teaching of expected behavior for problematic situations. Individual student practices may include team-based support planning, function-based intervention planning, pro social replacement behavior instruction, and comprehensive support planning and implementation (Sugai, 2002).

Sugai (2003) identified the need to link the theoretically sound practices to a function-based approach to analyzing and planning for intervention. In a function-based approach, antecedents to the problem behavior are identified and examined in conjunction with the function of the behavior. Identifying the purpose of the behavior, as well as the possible antecedents, provide guidance for the selection of intervention strategies that will be effective. Function-based thinking within SWPBS implementation is a critical element for success.

Implementing or Changing Organizational Systems

A primary tenet of successful implementation of SWPBS is the development of sound organizational structures and systems that support theoretically sound practices.

Four key elements have been identified as essential components of a systems-based approach to implementation. The four elements include outcomes, practices, data, and systems. Each of the four interact with each other to support student behavior, staff behavior, decision-making, and ultimately social competence and academic achievement at the student level. (Sugai & Horner, 2002).

Outcomes include the behavior or academic targets that provide the focus of implementation. Practices include the interventions and strategies utilized to support students at the various levels of the learning organization. Data represents the information that is utilized to inform decision-making and is explicitly linked to the outcomes. Systems represent the various forms of support necessary for effective and sustainable implementation and need to be developed at the classroom, school-wide, and district levels.

Data-Based Decision-Making

Sugai and Horner (2002) articulated clear structures for making data-based decisions as a critical component to SWPBS implementation. They identified building a sound organizational system to include the development of data management systems that provide data that informs decisions at every level and serves as a measure of implementation efforts. This approach requires data relevant to the specific level be available and that data-making decision processes be established and utilized regularly. The type of data being used for decision-making depends on the level within the organization that is being monitored or considered. For example, school level data may include standardized test scores, grades, or attendance. Classroom level data may include

common assessments or curriculum-based measures. Individual student level data may include IEP goals and objectives or functional behavior assessments.

ODRs are common measures often utilized to provide information for decision making at the whole school, classroom, individual, and setting specific levels. The SWPBS literature base (Sprague, et al. 1999; Sugai, et al. 2005; and Tobin, Sugai, & Colvin, 2000) identified the need to employ data management systems capable of providing specific information via ODRs. As described in the introduction, ODRs are used extensively within schools implementing SWPBS to make decision at all four levels. The pivotal role ODRs play in the implementation of SWPBS warrants further study of the validity of ODRs as a metric.

ODR as a Measure

ODRs as an outcome measure, and specifically the validity of ODRs, has received little attention within the field of SWPBS. Irvin, Tobin, Sprague, Sugai, and Vincent (2004) conducted a review of the SWPBS literature base to develop an argument for the construct validity of ODRs. In their review, Irvin et al. interpreted a variety of evidence within the framework provided by the unified approach (Messick, 1988). They focused on the validity of ODRs when assessing school-wide behavioral climate, the effectiveness of intervention programs, and the needs of individual schools in developing positive school climates. Accordingly, Irvin, et al (2004), “found a substantial basis for interpreting and using ODR measures in these ways” (p. 143). The findings were not without the identification of important issues needing to be addressed. Issues included use of ODRs as a measure at the individual level, understanding ODRs as a *stream* of

interactions, the reliability of ODRs as a measure, standardization of data management systems, and other more theoretical issues around the interplay of individual cultures, values, etc.

Irvin, Horner, Ingram, Todd, Sugai, Sampson, and Boland (2006) designed a study to further apply Messick's approach that focused on the "validity of use of ODR data for decision-making" (p. 11). Specifically, they studied the validity of use, utility and perceived impact of use within schools. Those authors concluded that their study provided some "preliminary evidence for validity of use and utility of ODR data for decision-making" (p. 20) and identified the need for further evaluation efforts. According to the authors, the efforts should focus on the actual use of ODRs for decision making, the validity of outcomes associated with actions or interventions driven by the use of ODRs for decision-making, and the possible consequences of use of ODRs for decision-making.

Both studies described used the unified approach focusing primarily on the use of ODRs as an index of school climate and utilization of ODRs as a decision-making tool at the school-wide, classroom, individual, and setting specific levels. In the initial study (Irvin, et al., 2004), the authors referenced the use of a nomological network to link the evidence to support the use and interpretation of ODRs as a measure. Utilizing the concept of a nomological network and actually developing a network of constructs for the interpretation and use of ODRs will provide evidence of the construct validity of ODRs as a measure.

The studies utilized existing research focused primarily on the use of ODRs in elementary and middle school settings. The high school setting is unique in that student behaviors exhibit themselves in different ways, as students get older. Common problem behavior in middle school includes defiance, insubordination, fighting, and confrontation. Common problem behavior in high school includes truancy, skipping class, drug and alcohol use, and defiance (Bohanon-Edmonson, Flannery, Eber, & Sugai, 2005). The shift in how behavior is exhibited or externalized also reflects a shift in what is captured through ODRs. Many high schools do not produce ODRs specific to attendance as they have other mechanisms for tracking and addressing students with truancy issues. This study will first consider ODRs generated at the school level and then consider ODRs with attendance included (ODR-A).

This study is based upon the concept of a nomological network to provide further evidence of the construct validity of ODRs as a measure. However, this study will look to provide empirical evidence linking student factors as predictors of ODRs. With regards to functional behavior thinking, this study links ODRs to a variety of factors that could be considered antecedents to behavior. Establishing a link would provide further evidence to the construct validity of ODRs as well as provide evidence for further research on how to focus intervention to mitigate the impact of the various predictor factors tested.

Nomological Network

Nomological networks as a means of developing the construct validity of measurement tools was first introduced by Cronbach and Meehl (1955). The rationale behind the development of a network is to provide evidence that links a measure or tool

to theoretical constructs that are established. Developing a nomological network provides a framework for establishing meaning and ultimately providing evidence of the construct validity of the measure or tool. Irvin, et al., (2004) utilized the concept of a nomological network by providing evidence of the link between ODRs and the use and utility of ODRs as a means of preventing juvenile delinquency, assessing the effects of interventions at various levels, and in evaluating programs.

The use of nomological networks to establish validity has been utilized in a variety of fields within and outside of education (Conroy, et al., 2007; Wichman, et al., 2006; and King, et al., 2005). Cronbach and Meehl (1955) stated that, “As research proceeds, the construct sends out roots in many directions, which attach it to more and more facts or other constructs” (p. 289). This study is an attempt to *grow roots* in the opposite direction of the studies cited focused on validating the use and interpretation of ODRs. Establishing roots connecting student predictor factors to ODRs will provide further evidence supporting the validity of ODRs as an effective and appropriate measure within the field of SWPBS. The following describe the different domains and variables within domains that make up the proposed nomological network for ODRs.

Access

Classroom engagement. Classroom engagement is conceptualized as a behavior that is determined in part by the conditions of a classroom and by attributes of an individual that place them at risk for school problems (Downer, Rimm-Kauffman, & Pianta, 2007). Behavioral engagement enlists participation or involvement in academic tasks as well as social or extracurricular activities (Fredricks, Blumenfeld, & Paris, 2004).

The focus of classroom engagement within the access domain will be on student behavioral engagement in academic activities. Behavioral engagement in social or extracurricular activities will also be considered within this domain.

Fredricks, Blumenfeld and Paris (2004) evaluated the literature on behavioral, emotional and cognitive engagement in classrooms and in school environments. Their work provided a definition of behavioral engagement that included involvement in learning and active participation in academic tasks. Effort, persistence, concentration, attention, question asking and participation in class discussions were identified as behaviors associated with high levels of behavioral engagement. The relationship between behavioral engagement and dropping out of school was found throughout the research literature. Examination of the research connecting behavioral engagement and dropping out identified certain school behaviors (e.g. truancy and suspension) as precursors to dropping out (Connell, Halpern-Feshler, Clifford, Crichlow, & Usinger, 1995).

In a study focused on the impact of student employment outside of school, Sing, Chang and Dika (2007) developed a rating scale to assess three engagement items. The engagement items include lack of motivation or academic apathy (alpha = .70), academic engagement (alpha = .80) and academic effort (alpha = .70). These three engagement items connected to the definition of behavioral engagement (Fredricks, Blumenfeld, & Paris, 2004) and were utilized in this study to measure school engagement.

School participation. As previously cited, behavioral engagement enlists participation or involvement in academic tasks as well as social or extracurricular

activities (Fredricks, Blumenfeld, & Paris, 2004). Fredericks and Eccles (2006) found that the breadth of extra and co-curricular activities was a positive predictor of school belonging, psychological resilience, and positive peers. They also found breadth of activities to predict lower distress and lower proportion of risky peers. Their measure of breadth of extra curricular and pro-social activities was utilized in this study.

Extracurricular activities included team sports, performing arts, school-involvement groups or academic clubs. Examples of pro-social activities included service-oriented clubs, volunteering, civil rights work, or church youth groups.

Eccles and Barber (2003) suggested that involvement in non-academic activities at school and within the community enhance school engagement and contribute to positive youth development. These findings are consistent with a variety of studies linking participation in various extra-curricular and pro-social activities with positive youth outcomes to include academic, psychological and behavioral adjustments (Eccles & Barber, 1999; Fredricks, Blumenfeld, & Paris, 2004; and Fredricks & Eccles, 2005). Specifically, a growing body of research is connecting participation in extracurricular activities with fewer problem behaviors such as delinquency and substance abuse (Barber, Eccles, & Stone, 2001; Younis, Yates, & Su, 1997).

Mahoney's (2000) research implied that extracurricular involvement was linked to a reduction in negative school behaviors and that extracurricular involvement may be an effective means to reduce problem behavior. Bohnart and Garber (2007) provided further evidence of the link between participation in extracurricular activities and lower

levels of externalizing behaviors. Their findings identified that less involvement in extracurricular activities was associated with higher levels of externalizing behaviors.

Academics

McIntosh, Flannery, Sugai, Braun, and Cochrane (in press) studied the relationship between academics and student behavior as students transitioned from middle school to high school. In their work, academics included academic skills, as measured by a large-scale assessment of reading, and academic learning, as measured by grade point average within the core curriculum. Their research found a strong relationship existed between academics and student behavior and that while academic skills may impact student behavior, student behavior almost always impacts student learning. In this particular study, academic skills was measured by reading scores on a large scale reading assessment and academic learning was measured utilizing actual student GPAs in core curricular courses.

Academic skills. McIntosh, Horner, Chard, Boland and Good (2006) conducted a longitudinal study and found that a predictive relationship between reading scores and problem behavior existed for elementary students. The link between reading and problem behavior reflected an interaction between academic skills and behavior in elementary students. One possible explanation was that academic tasks presented an aversive situation for students with low academic skills. While few studies have focused specifically on the secondary level, it is assumed that the presence of such interaction at the elementary level would continue and potentially become stronger as students progressed through the educational system.

McIntosh, et al.'s (2006) study was designed to test part of a “dual pathway” (p. 277) model that considered the predictive power of both behavioral and academic screening measures from kindergarten through fifth grade. The dual pathways represented two distinct pathways that lead to severe problem behavior. The pathways included a social behavior deficit pathway and an academic deficit pathway. The results found both types of screens were strong predictors of future behavior issues and that the inclusion of academic with behavioral screens increased the predictive power of the behavioral screen by itself. While this study provided evidence of the predictive validity of ODRs, it also suggested a relationship between ODRs and academic skills existed.

Academic learning. Bryant, et al.'s (2000) research stated that level of achievement as measured by self-reported grade point averages (GPA) shared a reciprocal relationship with school misbehavior. They found that low levels of either achievement or misbehavior resulted in an increase in the other over time. Choi (2007) looked at the strength of relationship between GPA and problem behavior across various racial and ethnic subgroups. The findings suggested that the reciprocal relationship between GPA and school misbehavior was consistent across various subgroups, regardless of race or ethnicity. The use of GPA as a measure of academic achievement has been widely accepted and used within the educational and psychological research fields (Bryant, et al, 2000; Choi, 2007; Masten, et al., 2005; & McIntosh, et al., In Press)

As reflected above, an empirical relationship between GPA and student misbehavior exists. Considering ODRs are designed to document student misbehavior, it seemed logical that an empirical relationship existed between GPA and ODRs. This

particular study looked to verify the empirical relationship between GPA, as a measure of academic learning, and ODRs. This study also measured the relative impact of academic learning on ODR by analyzing the impact of academic learning relative to the other factors presented in the proposed nomological network.

Demographic Variables

Mobility. Mobile students are those students who change schools either between or within school years. For the purpose of this study, mobility was measured by looking at how recently a student had entered the school district as a representation of changing schools between school years. This definition did not account for natural changes (e.g. from eighth grade in a middle school to ninth grade in a high school) as the measurement reflected the entry date into the school district. This measure of mobility assessed a geographic change for the individual student that does not fall within the normal starting or finishing point for a student within the K-12 school system (Demie, Lewis, & Taplin, 2005).

High rates of mobility have been associated with lower levels of achievement, higher rates of behavior issues (Engec, 2006; Ingersoll, Scamman, & Eckerling, 1989) and lower rates of graduation (South, Haynie, & Bose, 2007). Engec (2006) found that students who were non-mobile outperformed their mobile classmates on the Iowa Test of Basic Skills (ITBS). The mean ITBS scores for non-mobile students (75.18; ES, .23) was greater than the mean score for mobile students (60.96; ES, .15). The difference between the two groups was found to be statistically significant. This particular study also identified a negative relationship between mobility and poor school behavior.

Ingersoll, Scamman, and Eckerling(1989) also found a negative relationship between student mobility and academic achievement and they suggested the effect may be greater for younger students due to the higher rates of mobility at the elementary level. Strand and Demie (2006) conducted a similar study and found similar results. However, when controlling for other factors associated with mobility (e.g. special education, fluency in English, socio-economic disadvantage), the authors found no significant relationship between mobility and student achievement. Strand and Demie (2007) followed up their original study by focusing on the impact of mobility on secondary students. The secondary study found that mobility had a significant negative impact with achievement, even when controlled for other factors connected to mobility.

Engec's (2006) study coupled with Strand and Demie's (2007) findings indicated that a negative relationship between mobility and both achievement and behavior existed and that the effect at the secondary level was significant. Pupil mobility was associated with a variety of causes. Students moved because of job changes, family break-up, seasonal employment, exclusion from school, more or less affordable housing, as well as a variety of other reasons. The focus of this study was to establish an empirical link between mobility and ODRs at the secondary level as suggested in the nomological network in Figure 1. This study did not control for the different factors associated with mobility.

Socio-economic status, special education status, and gender. Numerous studies cited discipline being administered disproportionately among males, students with low socio-economic status (SES), and students receiving special education (SpEd) services

(Skiba, Peterson, & Williams, 1997; Leone, Mayer, Malmgren, & Meisel, 2000; and Achilles, McLaughlin, & Croninger, 2007). Skiba, Michael, Nardo, and Peterson (2002) found that racial and gender difference were more robust than SES and that the differences remained when controlling for SES. Boys were found to engage more in disruptive behavior than girls. Achilles, McLaughlin, and Croninger's recent study (2007) found gender and SES status to be highly correlated with various SPED groups who experienced exclusion from school in the form of a disciplinary consequence. This research clearly identified issues of disproportionate rates of disciplinary consequences being administered based on student SES status, SpEd status, and gender. I predicted these three demographic variables would correlate with ODRs as ODRs are used to document disciplinary infractions and consequences.

ESL status and TAG status. A thorough search of the literature did not identify previous studies concerning ESL or TAG status and school discipline. These demographic factors were included in this study.

This literature review demonstrated that ODRs are being used as an important indicator of school-wide discipline efforts. However, this literature review also showed that the research on this topic at the high school level is scant at best. Further, the research on predictor variables was also lacking. Therefore, this study proposed to answer three questions:

1. Office discipline referrals are predicted best by which of these ten variables (a) cumulative grade-point-average, (b) reading score, (c) mobility, (d) school engagement, (e) school participation, (f) gender, (g) special education status,

- (h) English-as-a-second-language status, (i) talented and gifted status, and (j) free and reduced meals status?
2. Is there a significant difference in office discipline referrals between a SWPBS high school and a non-SWPBS high school?
 3. Which distal or proximal domain groupings [(a) Academics - cumulative grade-point-average score and Reading score; (b) Socio-Economic Status – Mobility score and free and reduced meals status; (c) School Access – school engagement and school participation; and, (d) Student Status – special education status, English as a second language status, and talented and gifted status] best predicts office discipline referrals?

CHAPTER III

METHODOLOGY

This study employed a case study design utilizing both literal and theoretical replication logic (Yin, 2003). Two similar high schools are studied. One high school was in full implementation of SWPBS and the other had not implemented SWPBS. Identification of empirical links between the various student variables and ODRs provided evidence of the proposed nomological network. I predicted moderate to high correlations between the student variables and ODRs, with the SWPBS high school having stronger correlations as a result of the implementation of SWPBS. Differences between the relative strength of correlations between the two different cases were predicted and would further support the existence of the proposed nomological network for ODRs.

If moderate to high correlations were not found with ODRs, the inclusion of attendance as an outcome measure will be added and analyzed using multiple regression analysis and labeled as Office Discipline Referrals – Attendance (ODR-A). Specifically, the subset of students who have ODR-As will be selected to measure the impact of utilizing attendance as a co-morbid variable with ODRs. This subset of students with ODR-As were treated as two sub-groups within the original case study. Thus, an embedded single-case study design was used to compare the correlations between ODRs with the independent variables, and ODR-A with the independent variables. The independent variables were analyzed by grouping the variables. The groups are: (a)

Academics – cumulative grade-point-average and reading scores; (b) SES – mobility score and free and reduced meal status; (c) School Access – school engagement and school participation; and, (d) Student Status – special education status, English-as-a-second-language status, and/or talented and gifted status.

Participants

Each case to be studied was drawn from the same suburban school district. The two schools utilized a four by four, alternating day, block schedule. Students attended four classes per day that were approximately 87 minutes in length. The schools provided the same continuum of special education resources and utilized similar delivery models. Likewise, the schools shared the same level of resource allocation for English-as-a-second language programs. The schools shared the same level of district support, resource allocation, central office direction, etc. Both schools had investigated SWPBS, though only one of the two schools had implemented SWPBS. Data was collected from tenth grade students within the two high schools. Table 1 provides descriptive statistics of each school's demographic profile as well as demographic information specific to the participants in the study.

Table 1

School Demographics – PBS School and NonPBS School

<i>School</i>	<i>Students</i>	<i>White</i>	<i>Asian American</i>	<i>African American</i>	<i>Hispanic</i>	<i>F_R</i>	<i>TAG</i>	<i>SPED</i>	<i>ESL</i>
A	2653	62%	19%	3%	13%	21%	29%	13%	8%
B	2040	67%	14%	2%	16%	20%	31%	11%	9%

Participant and School Demographics for PBS School

	<i>Students</i>	<i>White</i>	<i>Asian American</i>	<i>African American</i>	<i>Hispanic</i>	<i>F_R</i>	<i>TAG</i>	<i>SPED</i>	<i>ESL</i>
	208	62%	24%	3%	9%	19%	25%	10%	6%
School	2653	62%	19%	3%	13%	21%	29%	13%	8%

Participant and School Demographics for NonPBS School

	<i>Students</i>	<i>White</i>	<i>Asian American</i>	<i>African American</i>	<i>Hispanic</i>	<i>F_R</i>	<i>TAG</i>	<i>SPED</i>	<i>ESL</i>
	181	66%	15%	3%	15%	24%	15%	13%	7%
School	2040	67%	14%	2%	16%	20%	31%	11%	9%

Case Study A – High School with PBS

The high school is in the third year of implementation of SWPBS and had a 40 percent decrease in discipline referrals over the first two years of implementation and had seen a continued reduction over the first half of the 2007-08 school year. The

implementation plan focused on developing universal or school-wide efforts in year one, group-based interventions in year two and is currently working on developing individual supports in year three.

The first year efforts included the development of a common language with regards to school-wide expectations. The expectations were developed and taught explicitly at the beginning of the year with follow up lessons taught over the remainder of the school year. The expectations were both communicated and reinforced in a variety of ways. As part of the initial implementation, PBS School eliminated *In School Suspension* (ISS) and replaced it with a *Saturday School* model. The rationale for this change was based on functional behavior thinking with the belief that ISS as a consequence was actually reinforcing the function of the student's behavior and thus was not an effective deterrent to problem behavior. Table 2 shows the number of referrals resulting in suspension or Saturday School as well as the number of missed school days over the course of the first two years of SWPBS implementation.

Table 2

Number of Incidents and Number of Missed School Days Per Year

<i>School Year</i>	<i>Suspension or Saturday School</i>	<i>Incidents Resulting in Missed School Days</i>
04/05	1070	1654
05/06	520	705
06/07	507	480

The classic SWPBS efforts described were important, yet only part of the first year of implementation. *Collaborative Achievement Teams* (CAT) were introduced in the first year and are considered a critical aspect of the school's universal or school-wide efforts. All 9th and 10th grade students are part of a CAT team. CAT teams included 60 students who had English and Social Studies together and are shared by two counselors, an administrator, a resource room teacher, and a campus supervisor. The counselors, administrator, resource teacher, campus supervisor and English and Social Studies teacher met together every two weeks for 85 minutes. The CAT teams used a protocol that was developed utilizing functional behavior logic (see Appendix C). The CAT teams focused on the individual student with the expressed intent to provide intervention specific to a student's need and to progress monitor over the course of the intervention cycle. The CAT teams also served as the buildings pre-referral team for Special Education, often referred to as *Teacher Assistance Team* (TAT) or *Building Intervention Team* (BIT). In 2005-06, CAT teams discussed over 350 ninth and tenth grade students compared to the 65 students discussed by the school's TAT over the course of the 2004-05 school year.

Other universal strategies were employed to include staff development in the area of cultural competency, functional behavior thinking, and assessment for learning. The school made a concerted effort to diversify the staff and has more than doubled the number of African-American and Hispanic staff in the past two years. The student leadership program developed an inclusive model to identify leaders and ensured a

leadership group that represented the entire student body. These efforts, as well as others not discussed, built the base of the primary level of school-wide intervention.

As PBS School moved toward the second year of implementation, the SWPBS efforts shifted in focus to secondary or group-based intervention strategies and structures. These interventions tended to be academic and social-emotional in nature and were designed to meet the specific needs of individuals within a small group setting. Several of the interventions were classroom-based while others were conducted in small group settings. The following describes a few of the interventions implemented in the first two years.

Algebra-Geometry Survey was an example of an intervention provided through an actual course. The course itself was designed for tenth, 11th and 12th grade students who struggle with mathematics. The course was developed collaboratively between the Math, Special Education, and English as a Second Language department. The course itself was team taught with two teachers and supported personnel sharing 50 students within one of the eight class periods. The teaming allowed for on-going flexible grouping and collaboration between math teachers and the other specialists involved. The success of the course prompted the application of the basic elements to both Algebra and Geometry in the 2007-08 school year.

Toward the end of the first year and into the second, various culturally-specific leadership groups were formed. The first two groups included an African-American and Hispanic leadership cadre. The cadres met during study hall time so that students did not miss any curricular time to participate. Both groups have established service-related

outcomes that direct the groups' on-going activities. For example, the African-American leadership cadre established an annual leadership conference specific to African and African-American students. The Hispanic leadership cadre has initiated several cultural events designed to both educate and celebrate Hispanic culture and heritage. These two groups laid the foundation for other groups to include the Native American Talking Circle, the Pacific Islander Club, and the Filipino leadership group.

The establishment of the various cultural leadership groups was an example of a group-based intervention focused on building connections between students and the school. Table 3 reflects the percentage of students who were suspended or excluded from school across various sub-groups prior to implementing SWPBS and after two years of implementation. The pattern suggested the group-based efforts discussed had a positive impact.

Table 3

Percent of Student Sub-Groups Suspended or Excluded from School

<i>School Year</i>	<i>Student Body</i>	<i>White</i>	<i>African-American</i>	<i>Hispanic</i>
04/05	19%	13%	45%	42%
05/06	10%	7%	19%	18%
06/07	7%	6%	12%	11%

The two different groups described previously provide specific, detailed examples. Similar groups have been formed and implemented. Examples of groups specific to academic support included a variety of literacy-based groups, core curricular

support for ESL students in the mainstream, and a drop in writing lab. Other examples of social and emotional groups included a Latina girls group, grief groups, gang-affected youth groups, and a group for girls who struggled to be positive. These group-based interventions continued to evolve and were designed to provide a continuum of support specific to individual needs.

Tertiary level interventions were designed to provide individual support to the most impacted students. PBS School had an *Intensive Learning Center* that was designed to meet the learning needs of students with significant learning disabilities. This program drew students from across the district and served approximately 80 students. Another example of an individual program was the *Behavior Resource Center* (BRC). The BRC was implemented in the 2005-06 school year and served approximately 10 students per year. The level of support to students varied depending on the needs of the student. PBS School was also developing a program to serve individual students who did not qualify for special education services and were struggling to be successful both behaviorally and academically.

The school-wide, group-based, and individual supports described accurately depict the SWPBS efforts of PBS School. See Appendix D for a general overview of the efforts across the three levels of prevention and intervention. The data presented in Table 2 and Table 3 suggested the implementation resulted in positive outcomes for the school as a whole and for individual students. Table 4 reflected the overall discipline referral data per 100 students for PBS School prior to implementation and the two years following.

Table 4

ODRs per 100 Students for PBS School

<i>School Year</i>	<i>ODRs</i>	<i>Suspensions / Expulsions / Saturday School</i>
04/05	31.9	27.9
05/06	20.9	18.9
06/07	19.0	17.0

Case Study B – High School without PBS

This case study consisted of approximately 500 tenth grade students. The school had a SWPBS exploration team formed who attended an initial training sponsored by the district. Implementation was only being considered and had not been initiated. Although SWPBS was not being initiated, the school did engage in a variety of efforts designed to address the needs of students. These efforts will be described in a similar fashion to the PBS school in Case Study A.

The school-wide discipline focus of the 2005-06 school year was to lower the number of students late to class and to address attendance issues across all grade levels. The staff agreed to not release students in the first or last 20 minutes of class. A set of common expectations was established for hall passes and the use of the pass system was enforced and reinforced throughout the school year. A full time, certified staff member was directly responsible for the implementation of the new attendance/tardy system and spent the majority of her time addressing students who had issues with truancy. The focus for 2006-07 was mitigating the disruption of electronic devices.

The school also invested time and resources in school-wide efforts to eliminate social barriers between various subgroups of students. The primary effort in 2006-07 was a week-long focus on breaking down barriers between various subgroups within the school. The program was geared toward the entire student population with approximately 300 students participating in intensive, group-based seminars. The week of activity was followed up by several lessons taught through an established advisory program consisting of approximately 20 mixed aged students with one faculty advisor.

The school improvement and staff development efforts focused specifically on literacy. Literacy strategies were shared each and every time staff members were together. The focus of the sharing was for individual teachers to develop a range of tools to help students increase their literacy skills. A literacy coach was employed to assist teachers at the classroom level with the implementation of the various tools. Other school improvement and staff development efforts focused on middle school articulation, the investigation and implementation of the *Middle Years Program*, and assessment for learning.

In 2006-07, the nonPBS school introduced a group-based intervention course for students who did not meet the 8th grade benchmark on the reading portion of the Oregon Statewide Assessment. The course was designed to develop individual literacy skills to be utilized in mainstream classes. The staff development previously described supported the individual skills being directly taught in the intervention course. The school had seven sections serving approximately 170 students. Individual counselors developed and introduced other forms of group-based interventions (i.e. grief groups). These efforts

were not a part of any coordinated effort and were specific to the interest or expertise of individual counselors.

Individual programs were designed to meet the needs of the most impacted students (both academically and behaviorally). The *Behavior Resource Center* (BRC) was implemented in the 2005-06 school year and served approximately 10 students per year. The level of support to students varied depending on the needs of the student. Most students in the program spent more than 50 percent of their instructional time in a small group format. The curriculum, instructional program, and individual behavior plans were structured to meet the specific needs of the individual students.

The school-wide, group-based, and individual supports described accurately depict the nonPBS school's efforts. As mentioned, this high school did not subscribe to SWPBS or any other structured program to guide their efforts. Table 5 reflected the overall discipline referral data per 100 students for the NonPBS School over the same three year period as provided in Table 4 for the PBS School.

Table 5

ODRs per 100 Students for NonPBS School

<i>School Year</i>	<i>ODRs</i>	<i>Suspensions / Expulsions / Saturday School</i>
04/05	23.1	20.0
05/06	47.0	35.9
06/07	28.4	24.9

Table 6 shows the number of ODRs per 100 students for the student body of the PBS School and the NonPBS School. SWPBS was implemented in 2005-06 in the PBS School. The three points of data produce a time-series pattern of consistent reduction in the PBS school and no discernable pattern for the nonPBS school.

Table 6

ODRs per 100 Students for PBS School and NonPBS School

<i>School Year</i>	<i>ODRs for PBS School</i>	<i>ODRs for NonPBS School</i>
04/05	31.9	23.1
05/06	21.9	47.0
06/07	19.0	28.4

Procedures

Student information related to the various factors being investigated were collected in two ways. Extant data was collected through the support of district personnel and survey data was collected via student surveys in tenth grade English classrooms. The various factors were correlated with ODRs at the individual student level. Only students with scores connected to each of the measure were considered in this study. As an example, a student who did not take the 9th grade Explore exam was excluded from the data analysis.

The recruitment of teacher participation was solicited through the district's research office. Participation was optional for the teacher. Teachers who agreed to participate engaged student participation using a form of passive consent. Parents were

notified by mail and had the option of excluding their student from the study. Data for students in 10th grade English classes with teachers who chose not to participate were excluded from the study. Furthermore, student data that was incomplete for any reason was not included.

Measures

School Engagement

Engagement was measured utilizing a student survey designed to measure academic apathy, engagement and effort. The rating scale was developed and used as a component of the *School and Social Experiences Questionnaire* designed by Sing, Chang, and Dika (2007). The measure included seven items connected to academic engagement (alpha = .80), four items connected to academic effort (alpha = .70) and six items connected to academic apathy (alpha = .70). All items employed a rating scale. The rating scales were adjusted so that individual scores could be added to produce an overall school engagement score. The score range was from 17 to 68 with a lower score reflecting a lower degree of engagement and a higher score representing a higher degree of school engagement. See Appendix A for an example of the school engagement survey.

Student Participation

Student participation was assessed utilizing a student survey on school participation (Fredericks & Eccles, 2006). The survey asked students if they have participated in activities across five different contexts. The five areas included athletic teams, pro-social activities, performing arts, academic clubs, and school involvement. Students received a score of 0 to 5 depending on the number of participation contexts

they respond “yes” to within the survey.

Academic Skills

Academic Skills were calculated utilizing the reading scores from the 9th grade ACT Explore exam. The ACT Explore is a large-scale, standardized assessment given annually in the district to all 9th grade students in the state of Oregon. Scores on the assessment ranged from 1 to 25. A score of below 13 was considered to be low, a score between 14 – 18 was considered to be average and a score of 19 or above was high.

Academic Learning

Grade point average, as a measure of academic learning, was used in the study. Student GPA was not weighted by course and was scored on a 4 point scale with As worth 4 points, Bs worth 3 points, Cs worth 2 points, Ds worth 1 point and Fs worth 0 points. Any other course marks were not included, like a pass, no pass, satisfactory, unsatisfactory, incomplete, etc. The range of student GPA was from 0.00 to a 4.00. The GPA included all course work taken through the fifth semester of students’ high school career.

Mobility

Mobility was measured by a student’s entry date into the school district. A student entering the district as a sophomore received a 1 representing one year in the district. A student who entered the district as a kindergartner received a rating of 11. Thus, mobility reflected the number of continuous years of enrollment within the school district. For mobility, the higher the score the less mobile a student was. As cited in the literature review, this measure of mobility represents geographic change at the individual level that

did not fall within the normal starting or finishing point for a student within the K-12 school system (Demie, Lewis, & Taplin, 2005).

Demographic Variables

Gender, SpEd status, ESL status, TAG status, and SES status are considered as demographic variables. SES was associated with student participation in the Free and Reduced Meals (F_Rs) program. Each of the variables were coded as either yes or no with relation to the four programs listed. Gender was coded as either male or female.

ODRs

ODRs, as a measure of student behavior, were accessed through the district's electronic student information system. Students were placed on a continuum from 0 to 10 based on the number of ODRs received. Student behavior resulting in suspension or expulsion was weighted. An ODR resulting in a suspension counted as two ODRs on the continuum. An ODR resulting in expulsion was counted as six ODRs. The weighting was based on the three levels posited by the extensive literature base on SWPBS suggesting students with 2 – 5 ODRs a year fell into the secondary category and students with 6 or more fall into the tertiary level (Sugai, 2002; Warren, et al., 2005). Specifically, students who are being suspended need some level of extra support provided by secondary interventions. A student who has been expelled received an individualized program as described by tertiary intervention.

ODR-A

Attendance as an additional outcome measure was added to individual students overall ODR mark to produce an ODR-A score. Students received at least one mark for

attendance that falls below the average attendance for the entire group of tenth graders who participated. Students received additional marks for every five-percentage point further below the average. The average attendance for both groups was 94%. Thus, a student with attendance of 91% received one mark added to the original ODR score. A student who had attendance of 75% received an additional four marks added to ODRs to generate an ODR-A score. Table 7 shows the number of ODR-As for the student body of the PBS School and the NonPBS School compared to the same number of ODRs.

Table 7

Number of ODRs and ODR-As Split by School

	<u>PBS School</u>		<u>NonPBS School</u>	
	<u>ODR</u>	<u>ODR-A</u>	<u>ODR</u>	<u>ODR-A</u>
0 referrals	191	142	154	113
1 referral	4	39	13	36
2 referrals	4	9	6	8
3 referrals	4	5	3	10
4 referrals	0	5	1	3
5 referrals	0	0	0	2
6 referrals	0	0	1	3
7 referrals	0	0	0	1
8 referrals	2	3	2	2
9 referrals	0	0	1	1
10 referrals	2	3	0	3

Importantly, Table 7 also demonstrates that adding attendance as an office referral category (ODR-A) changed the number of referrals per category for both schools. While

the PBS School had the greatest increase from 0 referrals to 1 and 2 referrals, the NonPBS had increases across almost all referral rates.

Analysis

This study used case study design logic previously described. Within the case study, quantitative statistical analysis was utilized. The initial analysis identified correlations between the student variables and ODRs. Identification of empirical links between the various student variables and ODRs provided evidence of the proposed nomological network. Issues of collinearity were considered prior to introducing regression statistics to measure the relationship between ODRs and the 10 different variables as a whole (as a nomological network), as well as measuring how the different variables regressed in relation to each other.

The next analysis included attendance as a co-morbid variable with ODRs. The same set of statistical analysis described for ODRs was conducted on ODR-A. It was predicted that the correlations and predictive power of the 10 variables would increase with the inclusion of attendance as a co-morbid variable, ODR-A.

The third analysis focused on identifying differences between the PBS School and the NonPBS school. A repeated-measures ANOVA was conducted to determine if a significant difference existed between the schools and/or between ODR and ODR-A. Finally, student data from the PBS School was analyzed. Specifically, data from students receiving an ODR-A was grouped by type. The groups were: (a) Academics – cumulative GPA and reading scores; (b) Access – school engagement and school participation; (c) SES – mobility score and free and reduced meals status; and, (d) student status – SpEd

status, ESL status, and TAG status. Correlation and regression analyses were conducted for each of the groups in relation to ODRs and ODR-A.

CHAPTER IV

RESULTS

The purpose of this study was to investigate nomological network surrounding office discipline referrals as they pertained to a high school environment. Ten variables were utilized in this office discipline referral network evaluation: (a) Cumulative grade-point-average (Cumulative GPA), (b) Reading score, (c) Mobility, (d) School engagement (SE), (e) School participation (SP), (f) Gender, (g) special education (SpEd) status, (h) English-as-a-second-language (ESL) status, (i) Talented and gifted (TAG) status, and (j) Free and reduced meals (F_R) status

Results are presented in two main parts. First, analyses are reported for the entire population of the study. Second, a sub-analysis for the PBS school is provided. Finally, a summary of the research findings is furnished.

Question One: Ten Independent Variables Predicting ODRs and ODR-A

Question One asked if the dependent variable of interest, office discipline referrals (ODRs), had a high linear correlation with any of the 10 independent variables: (a) Cumulative GPA, (b) Reading score, (c) Mobility, (d) F_R status (e) SE, (f) SP, (g) Gender, (h) SpEd status, (i) ESL status, and (j) TAG status.

Before introducing regression statistics, it is important to examine all correlations for issues of collinearity. For the correlation results of this study, as presented in Table 8, collinearity does not appear to be present because the two highest correlations were

Table 8

Correlation Matrix for ODRs

	<i>ODRs</i>	<i>Cum GPA</i>	<i>Reading</i>	<i>Mobility</i>	<i>SE</i>	<i>SP</i>	<i>SpEd</i>	<i>ESL</i>	<i>F_R</i>	<i>TAG</i>
Cum GPA	-0.47									
Reading	-0.21	0.48								
Mobility	-0.04	0.11	0.07							
SE	-0.04	0.06	-0.02	-0.03						
SP	-0.16	0.29	0.16	-0.02	-0.04					
SpEd	0.06	-0.19	-0.27	0.07	0.02	-0.09				
ESL	0.13	-0.16	-0.17	0.07	-0.02	-0.08	0.74			
F_R	0.15	-0.13	-0.06	-0.01	0.12	-0.06	0.36	0.37		
TAG	0.02	0.19	0.31	0.23	-0.01	0.05	-0.08	-0.11	-0.08	
Gender	-0.08	0.23	0.13	-0.01	-0.03	0.22	-0.10	-0.11	-0.06	0.05

between (a) the SpEd status and ESL status ($r = .74$; $r^2 = .55$) and (b) the Cumulative GPA score and the Reading Score ($r = .48$; $r^2 = .23$).

For any correlation over .80, Sager and Baron (1994) advocated that the two items may be too closely related to provide useful information and that one should be dropped. Logically, because the above noted constructs were not the focus of this investigation and because all correlations were below .80, all measured variables were utilized in the regression analysis.

Using Table 8, Office Discipline Referrals (ODRs) were not highly correlated (a .6 or higher) to any of the measured constructs, ranging from (a) ODRs and Cumulative GPA ($r = .47$; $r^2 = .22$) to (b) ODRs and F_R status ($r = .15$; $r^2 = .02$) to (c) ODRs and TAG status ($r = .02$; $r^2 = .004$). Again, Table 8 shows all of the correlations pertinent to ODRs and the other measured variables.

Regression Statistics for All Students by ODRs and ODR-A

The next section analyzed the regression statistics for the entire group for ODRs. Again, no dependent variables were dropped from the regression analysis because of a collinearity issue. Further, data between the two schools was collapsed because of no significant differences for ODRs between schools, $t(388) = -0.65$, $p = .52$, was present.

The coefficient of determination (R^2) found in Table 8 ($R^2 = .26$) indicated a moderate relationship among the ODRs and the scores of (a) Cumulative GPA, (b) Reading score, (c) Mobility, (d) F_R status (e) SE, (f) SP, (g) Gender, (h) SpEd status, (i) ESL status, and (j) TAG status. Twenty-six percent of ODRs' variability could be explained by those 10 factors. Table 8 regression coefficients for ODRs evinced that five

scores (Cumulative GPA, SpEd Status, ESL Status, F_R Status, and TAG Status) were statistically important ($p < .0001$, $p = .01$, $p = .02$, $p = .03$, and $p = .004$, respectively) in explaining variation in ODRs. However, the educational significance of those scores comes into question when one relooks at the their specific correlations in Table 9.

Table 9

Summary for Regression of ODRs on 10 Independent Variables

Count	386
Num. Missing	4
<i>R</i>	.51
<i>R Squared</i>	.26
Adjusted <i>R Squared</i>	.24
RMS Residual	1.16

ANOVA Table for ODRs

	<i>DF</i>	<i>SS</i>	<i>MS</i>	<i>F-Value</i>	<i>P-Value</i>
Regression	10	177.11	17.71	13.18	<.0001
Residual	379	509.46	1.34		
Total	189	686.57			

*Table 9 continued**Regression Coefficients for ODRs on 10 on Independent Variables*

	<i>Coefficient</i>	<i>Std. Error</i>	<i>Std. Coeff.</i>	<i>t-Value</i>	<i>P-Value</i>
Cumulative GPA	-0.07	.08	-0.46	-8.56	<.0001*
Reading	-0.01	.02	-0.04	-0.81	.4200
Mobility	-0.01	.02	-0.02	-0.40	.6899
SE	-0.01	.01	-0.03	-0.56	.5777
SP	-0.03	.06	-0.03	-0.63	.5323
SpEd Status	-0.79	.29	-0.19	-2.73	.0067*
ESL Status	0.82	.37	0.15	2.25	.0253*
F_R Status	0.38	.16	0.12	2.42	.0161*
TAG Status	0.45	.16	0.14	2.89	.0041*
Gender	0.01	.08	0.01	0.17	.8628

* = Significantly different at .05 level.

Because of the moderate correlations presented in Table 8 that influenced the regression statistics in Table 9, I further examined these data with a Dependent versus Fitted Plot (see Figure 2). This plot visually described those students with zero ODRs cluster at the bottom of the plot in a straight line of points suggesting that their predicted values have little or no correlation to the actual values. Further rationalization is that the over-representation of zero ODRs is statistically overshadowing the construct of interest – variables that predict ODRs.

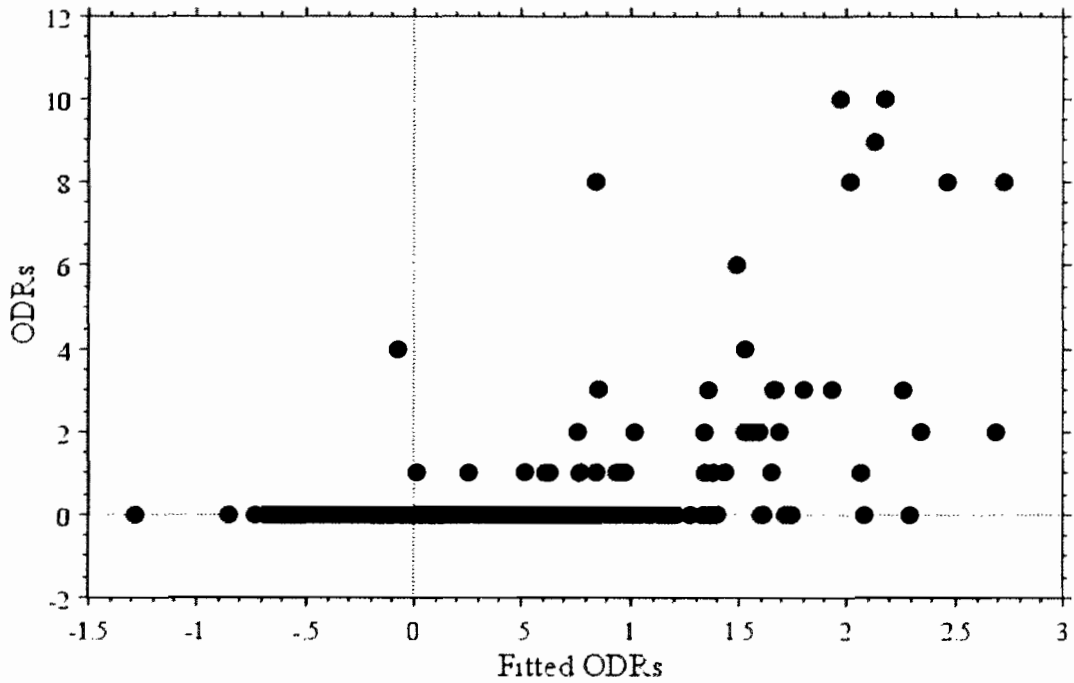


Figure 2. Dependent versus Fitted Plot

Figure 2 further indicated that data should be re-analyzed using different models.

Therefore, data are analyzed using two separate models: (a) all students versus ODRs with attendance figured into a co-morbid variable, and (b) the PBS school alone with variable blocked by domain groupings for ODR data and then again for ODR-A data.

The next section re-analyzes the regression statistics for the entire group for ODRs when the factor of attendance is utilized as a co-morbid variable. This variable is identified as ODR-A in the following tables. First, overall correlations for ODR-A and the 10 variables are presented in Table 10 and then regressions statistics for ODR-A and those 10 variables are given in Table 11.

Table 10 explains that Office Discipline Referrals-Attendance (ODR-A) did not produce strong correlation across all of the measured constructs. Correlations ranged from (a) ODR-A to Cumulative GPA ($r = .64$; $r^2 = .41$) to (b) ODR-A to Talented and Gifted status ($r = .07$; $r^2 = .005$). Again, Table 10 shows all of the correlations pertinent to ODRs and the other measured constructs.

The coefficient of determinations (R^2) found in Table 11 indicated a moderate relationship among the Office Discipline Referral-Attendance scores and the scores of (a) Cumulative GPA, (b) Reading scores, (c) Mobility status, (d) SE, (e) SP, (f) SpEd status, (g) ESL status, (h) F_R status, (i) TAG status, and (j) gender. Forty-four percent of ODR-A's variability could be explained by those 10 factors. Table 11 regression coefficients for the ODR-A score showed that six scores (Cumulative GPA, Mobility, Gender, SpEd Status, ESL Status, and TAG Status) were statistically important ($p < .0001$, $p = .01$, $p = .001$, $p = .02$, $p = .04$, and $p = .02$, respectively) in explaining variation in Office Discipline Referrals-Attendance (ODR-A). However, as was mentioned previously the educational significance of these scores comes into question when one relooks at the those specific correlations presented in Table 10.

Table 10

Correlation Matrix for ODR-Attendance (ODR-A)

	<i>ODRs</i>	<i>Cum GPA</i>	<i>Reading</i>	<i>Mobility</i>	<i>SE</i>	<i>SP</i>	<i>SpEd</i>	<i>ESL</i>	<i>F_R</i>	<i>TAG</i>
Cum GPA	-0.64									
Reading	-0.32	0.48								
Mobility	-0.16	0.11	0.07							
SE	-0.07	0.06	-0.02	-0.03						
SP	-0.17	0.29	0.16	-0.02	-0.04					
SpEd	0.09	-0.19	-0.27	0.07	0.02	-0.09				
ESL	0.12	-0.16	-0.17	0.07	-0.02	-0.08	0.74			
F_R	0.13	-0.13	-0.06	-0.01	0.12	-0.06	0.36	0.37		
TAG	-0.07	0.19	0.31	0.23	-0.01	0.05	-0.08	-0.11	-0.08	
Gender	-0.003	0.23	0.13	-0.01	-0.03	0.22	-0.10	-0.11	-0.06	0.05

Table 11

Summary for Regression of ODR-A on 10 Independent Variables

Count	386
Num. Missing	4
<i>R</i>	.68
<i>R</i> Squared	.46
Adjusted <i>R</i> Squared	.44
RMS Residual	1.42

ANOVA Table for ODR-A

	<i>DF</i>	<i>SS</i>	<i>MS</i>	<i>F-Value</i>	<i>P-Value</i>
Regression	10	641.78	64.18	31.64	<.0001
Residual	375	760.74	2.03		
Total	385	14.02	.52		

*Table 11 continued**Regression Coefficients for ODR-A on 10 Independent Variables*

	<i>Coefficient</i>	<i>Std. Error</i>	<i>Std. Coeff.</i>	<i>t-Value</i>	<i>P-Value</i>
Cumulative GPA	-1.41	.10	-0.65	-14.00	<.0001*
Reading	-0.03	.02	-0.06	-1.30	.20
Mobility	-0.06	.02	-0.10	-2.54	.01*
SE	-0.01	.01	-0.03	-0.79	.43
SP	-0.02	.07	-0.01	-0.26	.80
SpEd Status	-0.82	.36	-0.13	-2.30	.02*
ESL Status	0.93	.46	0.12	2.03	.04*
F_R Status	0.31	.20	0.07	1.56	.12
TAG Status	0.45	.19	0.10	2.32	.02*
Gender	0.57	.15	0.15	3.75	.001*

* = Significantly different at .05 level.

Question Two: Differences in ODRs or ODR-A by Building

The next questions asked whether there was a difference between ODR and ODR-A by building (PBS vs. non-PBS). A repeated-measures ANOVA was conducted on the data. Table 12 results showed that no interaction was observed ($p = .18$), but a significant main effect ($p < .0001$) was found for ODR type. ODR scores were significantly lower than ODR-A as noted in the means table in Table 12. Full statistics are presented in Table 12.

Table 12

Repeated Measures ANOVA Table for ODR vs ODR-A

	<i>DF</i>	<i>SS</i>	<i>MS</i>	<i>F-Value</i>	<i>P-Value</i>
School	1	5.27	5.27	1.11	0.29
Subject(Group)	388	1843.34	4.75		
ODR Type	1	56.29	56.29	89.00	<.0001
ODR x Sch	1	1.15	1.15	1.82	0.18
ODR x Subject(Grp)	388	245.38	0.63		

Means Table for ODR versus ODR-A by School

	<i>Count</i>	<i>Mean</i>	<i>Std. Dev.</i>
PBS ODR	208	0.31	1.36
PBS ODR-A	208	0.77	2.02
Non-PBS ODR	182	0.40	1.30
Non-PBS ODR-A	182	1.01	2.02

Bonferroni/Dunn for ODR versus ODR-A by School

	<i>Mean Diff.</i>	<i>Crit. Diff.</i>	<i>P-Value</i>
PBS vs. Non-PBS	0.16	0.31	0.29
ODR vs. ODR-A	-0.53	0.11	<.0001

The significant difference in the ODR main effect is visually explicated in Figure 3, the interaction bar plot, below. While the means table from Table 12 provides a numerical value, Figure 3 depicts the enormous increase between ODRs and ODR-A. Further, Figure 3 illustrates that when attendance is added to office discipline referrals, the differences between means for the PBS school and the NonPBS school was .09 for ODRs, but was .24 for ODR-As.

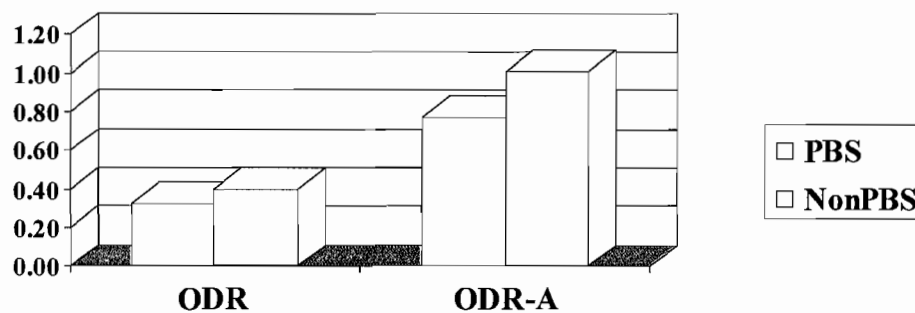


Figure 3. Interaction Bar Plot of ODR versus ODR-A

Question Three: PBS School with Domain Groupings for ODRs

The next section details the domain groupings for the ODR data. The domain groups are: (a) Academics - Cumulative GPA score and Reading score; (b) SES – Mobility score and F_R status; (c) School Access – SE and SP; and, (d) Student Status – SpEd status, ESL status, and TAG status. Only students with ODR-As (66 total students) were included in this analysis.

Academic Groupings and ODRs

Table 13 shows the correlation between ODR and Cumulative GPA to be a negatively moderate correlation, $r = -.53$. As a group, Cumulative GPA and the

Reading score account for only 29 percent of the variance of ODRs. Only the variable of Cumulative GPA ($p < .0001$) was significant in explaining the dependent variable (ODR). Table 13 provides full statistics.

Table 13

ODR versus Academic Groupings

Correlation Matrix for Academics

	ODRs	Cum GPA
Cum GPA	-0.53	
Reading	-0.20	0.50

Regression Summary for Academics

ODRs vs. 2 Independents

Count	66
Num. Missing	0
R	0.54
R Squared	0.29
Adjusted R Squared	0.27
RMS Residual	1.95

Table 13 continued

ANOVA Table for Academics

ODRs vs. 2 Independents

	<i>DF</i>	<i>SS</i>	<i>MS</i>	<i>F-Value</i>	<i>P-Value</i>
Regression	2	97.90	48.95	12.85	<.0001
Residual	63	240.04	3.81		
Total	65	337.94			

Regression Coefficients for Academics

ODRs vs. 2 Independents

	<i>Coefficient</i>	<i>Std. Error</i>	<i>Std. Coeff.</i>	<i>t-Value</i>	<i>P-Value</i>
Cum GPA	-1.39	0.30	-0.58	-4.70	<.0001
Reading	0.05	0.07	0.09	0.72	0.48

School Access Groupings and ODRs

Table 14 shows the correlation between ODRs and School Participation to be a negative correlation, $r = -.25$. As a group, School Engagement data and the School Participation data accounted for only 8 percent of the variance of ODRs. No variable was a significant ($p = .08$) predictor of the dependent variable (ODR). Table 14 provides full statistics.

Table 14

*ODR versus School Access Groupings**Correlation Matrix for School Access*

	ODRs	SE
SE	-0.13	
SP	-0.25	0.02

Regression Summary for School Access

ODRs vs. 2 Independents

Count	66
Num. Missing	0
R	0.28
R Squared	0.08
Adjusted R Squared	0.05
RMS Residual	2.23

ANOVA Table for School Access

ODRs vs. 2 Independents

	<i>DF</i>	<i>SS</i>	<i>MS</i>	<i>F-Value</i>	<i>P-Value</i>
Regression	2	26.14	13.07	2.64	0.08
Residual	63	311.80	4.95		
Total	65	337.94			

*Table 14 continued**Regression Coefficients for School Access*

ODRs vs. 2 Independents

	<i>Coefficient</i>	<i>Std. Error</i>	<i>Std. Coeff.</i>	<i>t-Value</i>	<i>P-Value</i>
SE	-0.04	0.04	-0.12	-1.02	0.31
SP	-0.45	0.22	-0.25	-2.04	0.05

SES Groupings and ODRs

Table 15 shows that the only meaningful correlation was between ODRs and Mobility, $r = .11$, and that was a low correlation. As a group, Mobility and Free and Reduced Meal (F_R) status account for only one percent of the variance of ODRs. No variable was significant ($p = .68$) in explaining the dependent variable (ODR). Table 14 provides full statistics.

Table 15

ODR versus SES Groupings

Correlation Matrix for SES

	<i>ODRs</i>	<i>Mobility</i>
Mobility	0.11	
F_R	-0.02	0.02

*Table 15 continued**Regression Summary for SES*

ODRs vs. 2 Independents

Count	66
Num. Missing	0
R	0.11
R Squared	0.01
Adjusted R Squared	0.01
RMS Residual	2.30

ANOVA Table for SES

ODRs vs. 2 Independents

	<i>DF</i>	<i>SS</i>	<i>MS</i>	<i>F-Value</i>	<i>P-Value</i>
Regression	2	4.18	2.09	0.40	0.68
Residual	63	333.76	5.30		
Total	65	337.94			

Regression Coefficients for SES

ODRs vs. 2 Independents

	<i>Coefficient</i>	<i>Std. Error</i>	<i>Std. Coeff.</i>	<i>t-Value</i>	<i>P-Value</i>
Mobility	0.07	0.08	0.11	0.87	0.39
F_R	-0.13	0.66	-0.03	-0.20	0.84

Student Status Groupings and ODRs

Table 16 shows a moderate correlation between ODRs and ESL status to be a moderate, $r = .31$. As a groups, Special Education status, ESL status, the TAG status accounted for only 13 percent of the variance of ODRs. However, the ESL status variable was a significant ($p = .004$) predictor of the dependent variable (ODR). Table 15 provides full statistics.

Table 16

ODR versus Student Status Groupings

Correlation Matrix for Student Status

	<i>ODRs</i>	<i>SpEd</i>	<i>ESL</i>
SpEd	-0.01		
ESL	0.31	0.40	
TAG	0.07	-0.04	-0.07

Regression Summary for Student Status

ODRs vs. 3 Independents

Count	66
Num. Missing	0
R	0.36
R Squared	0.13
Adjusted R Squared	0.09
RMS Residual	2.18

Table 16 continued

ANOVA Table for Student Status

ODRs vs. 3 Independents					
	<i>DF</i>	<i>SS</i>	<i>MS</i>	<i>F-Value</i>	<i>P-Value</i>
Regression	3	43.39	14.46	3.05	0.04
Residual	62	294.55	4.75		
Total	65	337.94			

Regression Coefficients for Student Status

ODRs vs. 3 Independents					
	<i>Coefficient</i>	<i>Std. Error</i>	<i>Std. Coeff.</i>	<i>t-Value</i>	<i>P-Value</i>
SpEd	-0.97	0.78	-0.16	-1.24	0.22
ESL	5.07	1.71	0.38	2.97	0.004
TAG	0.59	0.82	0.09	0.72	0.48

PBS School with Domain Groupings for ODR-A

This next section details the PBS School alone with 10 variables blocked by domain groupings for ODR-A data. Again, those groups were: (a) Academics – Cumulative GPA score and Reading score; (b) SES – Mobility score and F_R score; (c) Access – SE and SP; and, (d) Student Status – SpEd status, ESL status, and/or TAG status.

Academic Groupings and ODR-A

Table 17 shows the foremost correlation was between ODRs and Cumulative GPA. It was a negatively moderate correlation, $r = -.65$. The Academic group (Cumulative GPA and the Reading score) accounted for 43 percent of the variance of ODRs. Only the variable of Cumulative GPA ($p < .0001$) was significant in explaining the dependent variable (ODR). Table 15 provides full statistics.

Table 17

ODR-A versus Academic Groupings

Correlation Matrix for Academics

	<i>ODR-A</i>	<i>Cum GPA</i>
Cum GPA	-0.65	
Reading	-0.29	0.50

Regression Summary for Academics

ODR-A vs. 2 Independents

Count	66
Num. Missing	0
R	0.65
R Squared	0.43
Adjusted R Squared	0.41
RMS Residual	1.92

Table 17 continued

ANOVA Table for Academics

ODR-A vs. 2 Independents					
	<i>DF</i>	<i>SS</i>	<i>MS</i>	<i>F-Value</i>	<i>P-Value</i>
Regression	2	170.71	85.35	23.24	<.0001
Residual	63	231.42	3.67		
Total	65	402.12			

Regression Coefficients for Academics

ODR-A vs. 2 Independents					
	<i>Coefficient</i>	<i>Std. Error</i>	<i>Std. Coeff.</i>	<i>t-Value</i>	<i>P-Value</i>
Cum GPA	-1.78	0.29	-0.68	-6.10	<.0001
Reading	0.03	0.07	0.05	0.44	0.66

School Access Groupings and ODR-A

Table 18 shows the only important correlation was between ODR-A and School Participation. It was a negative correlation, $r = -.30$. The Access group (SE data and SP data) accounted for only 11 percent of the variance of ODR-A. Only the SP variable was a significant ($p = .01$) predictor of the dependent variable (ODR-A). Table 18 provides full statistics.

Table 18

*ODR-A versus School Access Groupings**Correlation Matrix for School Access*

	<i>ODR-A</i>	<i>SE</i>
SE	-0.15	
SP	-0.30	0.02

Regression Summary for School Access

ODR-A vs. 2 Independents

Count	66
Num. Missing	0
R	0.33
R Squared	0.11
Adjusted R Squared	0.08
RMS Residual	2.38

ANOVA Table for School Access

ODR-A vs. 2 Independents

	<i>DF</i>	<i>SS</i>	<i>MS</i>	<i>F-Value</i>	<i>P-Value</i>
Regression	2	44.86	22.43	3.96	0.02
Residual	63	357.27	5.67		
Total	65	402.12			

*Table 18 continued**Regression Coefficients for School Access**ODR-A vs. 2 Independents*

	<i>Coefficient</i>	<i>Std. Error</i>	<i>Std. Coeff.</i>	<i>t-Value</i>	<i>P-Value</i>
SE	-0.05	0.04	-0.14	-1.20	0.23
SP	-0.60	0.24	-0.30	-2.52	0.01

SES Groupings and ODR-A

Table 19 shows that the only meaningful correlation for this grouping was between ODR-A and F_R Status, $r = .11$, and that could be classified as a poor correlation. The SES group (Mobility and F_R status) account for only one percent of the variance of ODR-A. No variable were significant ($p = .65$) in explaining the dependent variable (ODR). Table 19 provides full statistics.

Table 19

*ODR-A versus SES Groupings**Correlation Matrix for SES*

	<i>ODR-A</i>	<i>Mobility</i>
Mobility	0.03	
F_R	-0.11	0.02

Regression Summary for SES

ODR-A vs. 2 Independents

Count	66
Num. Missing	0
R	0.12
R Squared	0.01
Adjusted R Squared	0.01
RMS Residual	2.51

ANOVA Table for SES

ODR-A vs. 2 Independents

	<i>DF</i>	<i>SS</i>	<i>MS</i>	<i>F-Value</i>	<i>P-Value</i>
Regression	2	5.42	2.71	0.43	0.65
Residual	63	396.70	6.30		
Total	65	402.12			

*Table 19 continued**Regression Coefficients for SES*

ODR-A vs. 2 Independents

	<i>Coefficient</i>	<i>Std. Error</i>	<i>Std. Coeff.</i>	<i>t-Value</i>	<i>P-Value</i>
Mobility	0.02	0.09	0.03	0.26	0.80
F_R	-0.65	0.72	-0.11	-0.90	0.37

Student Status Groupings and ODR-A

Table 20 reveals that the only meaningful finding was a moderate correlation between ODR-A and ESL status, $r = .33$. The Student Status group (Special Education status, ESL status, and TAG status) accounted for only 12 percent of the variance of ODR-A. However, the ESL status variable was a significant ($p = .005$) predictor of the dependent variable (ODR-A). Table 20 provides full statistics.

Table 20

ODR-A versus Student Status Groupings

Correlation Matrix for Student Status

	<i>ODR-A</i>	<i>SpEd</i>	<i>ESL</i>
SpEd	0.02		
ESL	0.33	0.40	
TAG	-0.01	-0.04	-0.07

*Table 20 continued**Regression Summary for Student Status*

ODR-A vs. 3 Independents	
Count	66
Num. Missing	0
R	0.35
R Squared	0.12
Adjusted R Squared	0.08
RMS Residual	2.39

ANOVA Table for Student Status

ODR-A vs. 3 Independents					
	<i>DF</i>	<i>SS</i>	<i>MS</i>	<i>F-Value</i>	<i>P-Value</i>
Regression	3	48.76	16.25	2.85	0.04
Residual	62	353.36	5.70		
Total	65	402.12			

Regression Coefficients for Student Status

ODR-A vs. 3 Independents					
	<i>Coefficient</i>	<i>Std. Error</i>	<i>Std. Coeff.</i>	<i>t-Value</i>	<i>P-Value</i>
SpEd	-0.84	0.86	-0.13	-0.98	0.33
ESL	5.46	1.87	0.38	2.92	0.005
TAG	0.09	0.90	0.01	0.10	0.92

Results Summary

The following is a summary of this study's most important results. Overall, Office Discipline Referrals (ODRs) were not highly correlated against the 10 measured variables: (a) Cumulative GPA, (b) Reading score, (c) Mobility, (d) F_R status (e) SE, (f) SP, (g) Gender, (h) SpEd status, (i) ESL status, and (j) TAG status. Moreover, the coefficient of determinations (R^2) of this analysis showed that only 26 percent of ODRs' variability could be explained by those 10 factors. Within this analysis, Cumulative GPA was the best predictor variable of ODRs.

When ODRs were re-calculated utilizing attendance as a co-morbid variable, the Office Discipline Referral – Attendance (ODR-A) was created. While this new variable created better correlations, it did not produce high correlations between ODR-A and all of the 10 measured variables. However, the R^2 for ODR-A and the 10 independent variables was .46, which was almost double the previous calculation for ODR. As with the previous analysis, cumulative GPA was the best predictor variable of ODR-A.

When differences between ODR and ODR-A by building (PBS versus NonPBS) were calculated, only one significant main effect ($p < .001$) was found. The main effect was for ODR type, with ODR-A having the higher mean score. Importantly, no interaction between building (PBS versus NonPBS) and ODR type was noted.

The next analysis grouped the 10 variables. Those groups were: (a) Academics - cumulative grade-point-average score and reading score; (b) SES –

Mobility score and F_R status; (c) School Access – SE and SP; and, (d) Student Status – SpEd status, ESL status, and/or TAG status. Again, a reduced sample including only students who received an ODR-A and who attend the PBS school were analyzed. While individual variables within some of the groupings significantly predicted the dependent variable (either ODR or ODR-A), not all variables within a group contributed significantly.

CHAPTER V

DISCUSSION

The purpose of my study was to provide evidence supporting the construct validity of ODRs as a measurement tool used within the field of SWPBS. In this study, I examined the empirical relationships between 10 variables within a proposed nomological network for ODRs. My findings, as shown in Figure 4, demonstrate that the theoretical nomological network I created produced a powerful construct validity pattern for ODR-As at the high school level.

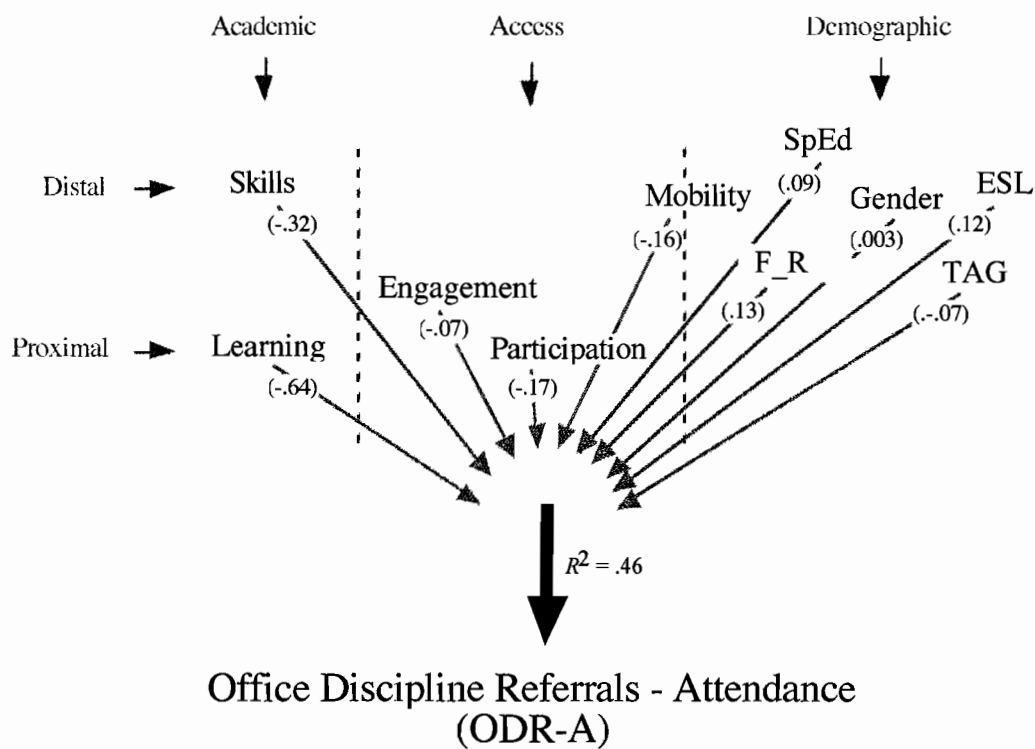


Figure 4. A nomological network for ODR-A

The ODR-A metric described was further analyzed by blocking variables into domain groups. Only students who received a score for ODR-A and who attended the PBS School were analyzed (66 total students). Three of the four domain groups expressed statistically significant influence on ODR-A. The domain group with the greatest effect on ODR-A was the Academic group (Cumulative GPA and Reading score), followed by the Student Status group (SpEd status, ESL status, and TAG status), and finally the Access group (SE and SP). The SES group (mobility and F_R status) did not have a statistically significant impact on ODR-A. These findings lend support to the existence of the revised nomological network for ODR-A (Figure 4). Key findings and implications from this analysis will be discussed within this chapter.

The results of this study support the existence of a nomological network for ODRs with attendance (ODR-A). The existence of a network provides evidence of the construct validity of ODR-A as a metric to be used with SWPBS implementation. The rationale for support will be described in the key findings section of this chapter.

The remainder of this discussion section will examine limitations of the study, key findings, implications, and suggestions for future research.

Limitations

This study utilized case study methodology (Yin, 2003) with an embedded quasi-experimental design to explore the relationship between the ten independent student variables making up the nomological network for both ODRs and ODR-A. While exploratory in nature, the quasi-experimental design was employed to identify empirical links and to consider the relationships of the variables and variables

blocked by domain with both ODRs and ODR-A. The use of both case study and quasi-experimental methodology produced specific threats to the validity of the results. While this study presents some limitations, the exploratory nature of its design lends itself to replication research focused on these potential threats.

Limitations will be discussed in two main groupings: (a) limitations pertaining to internal validity and (b) limitations pertaining to external validity.

Internal Validity

Parker (1990) defined internal validity as the “extent to which error variance is experimentally controlled” (p. 613). An issue inherent to case study design is the limited ability to draw causal inferences from the results due to the inability to control for extraneous variables. The use of the quasi-experimental design within the case study and the use of statistical analysis techniques increased the internal validity of the study. The major internal validity threat that should be considered when interpreting the results is interaction with selection.

Interaction with selection. The methods section identified different trends in discipline referrals at the two different high schools. The SWPBS school reduced the rates of referral in both years following implementation of SWPBS. The non-SWPBS school did not present a discernable pattern or trend based on the same three years of data. One of the premises of SWPBS implementation is that the treatment or implementation of SWPBS can and does affect ODRs. The inclusion of a SWPBS and non-SWPBS school was intended to limit this particular threat. However, without random assignment this argument could still be made as a rival hypothesis.

External Validity

Parker (1990) defined external validity as “the degree to which research findings can be generalized across time, settings and persons” (p. 615). Yin (2003) suggested generalizing results within case studies relied upon analytical generalization of a set of results to a broader theory. The design of this study employed replication logic as both a school implementing SWPBS and a school not implementing SWPBS were studied. Replication logic within case study designs limits the threats to external validity and increases the ability to generalize the results. However, one should consider (a) the interaction of setting and treatment and (b) the interaction of history and treatment.

Interaction of setting and treatment. This threat to external validity is similar to the interaction with selection threat previously discussed in the internal validity section. The treatment (SWPBS implementation) is intended to impact the setting where ODRs are being collected. As with the interaction with selection, the inclusion of a SWPBS and non-SWPBS school was intended to limit this particular threat. As mentioned above, without random assignment a rival hypothesis based upon this thinking might exist.

Interaction of history and treatment. I was unable to identify the behavioral history of students coming into either high school and was not able to control for extraneous variables that may have pre-existed and possibly impacted the dependent measure and possibly the 10 independent variables. As an example, both high schools receive students from three feeder middle schools. Two of the feeder middle schools

sent students to both high schools. Thus, each high school has one middle school feeder program that is independent. Discipline programs may differ between the two independent middle school feeders. While history may have been a contributing factor, no middle school is instituting SWPBS currently. The lack of historical data at the student level presents the possibility that students may interact with a PBS environment differently than with a non-PBS environment. The type of interaction with the environment affects the outcome measure of ODR. The inability to control for history and the interaction between history and treatment limits the ability to generalize these findings to other settings.

Key Findings

Evidence of the Nomological Network

Bohanon-Edmonson, et al. (2005) highlighted how behaviors are externalized differently in high school as compared to both elementary and middle school. The authors identified attendance as one of the primary behaviors exhibited more by high school students than their younger counterparts. The inclusion of attendance in ODR-A produced stronger correlations between ODR-A and the ten independent variables. The inclusion almost doubled the ability of the nomological network to account for the variability of ODR-A ($R^2=.46$). The moderate correlations of several independent variables, as well as the moderate strength of the coefficient of determination provide compelling evidence that the nomological network for ODR-A does exist.

The stated purpose of this study was to provide evidence to support the construct validity of ODRs as a measure of SWPBS. The expressed intent was to

provide empirical evidence linking student variables as predictors to ODRs and to build on the emerging body of evidence supporting the use of ODRs as a measurement tool (Irvin, et al., 2004; Irvin, et al., 2006). Attendance was added to ODRs within this study as the correlations and relative predictive power of the initial nomological network was low. The addition of attendance as a co-morbid variable with ODRs at the high school level is logical as attendance is a common behavior (Bohanon-Edmonson, et al., 2005) not often captured as data in the form of ODRs. In contrast, poor attendance or truancy is not a common behavior expressed by elementary and middle school students.

The inclusion of attendance and the subsequent analysis better aligns this study with the validity research previously cited. The results of this study support the existence of a nomological network for ODR-A (see Figure 4), providing evidence of the construct validity of ODRs (at the elementary and middle school levels) and ODR-A (at the high school level) as a measure of SWPBS. This finding adds to the body of research supporting the use of ODRs as a measurement tool and would suggest that high schools include some measure of attendance when measuring SWPBS implementation efforts. This implication will be further addressed in this implication section.

Academic Learning – Strongest Predictor

Academic learning in the form of cumulative GPA was identified throughout the analysis to be the strongest predictor of ODR and ODR-A. In the initial analysis, cumulative GPA ($r = -.47$, $r^2 = .22$) was the best predictor of ODRs. It was also one

of five variables (cumulative GPA, SpEd status, ESL status, F_R status, and TAG status) with regression scores deemed statistically significant ($p < .05$) with regards to explaining the variation in ODRs. As stated in the results section, the significance of the five scores should be questioned when considering the correlations across the five variables. That said, the correlation for cumulative GPA was much higher than any of the four others including the next highest, F_R status ($r = .15$, $r^2 = .02$).

The second form of analysis utilized the same technique as the first with the addition of attendance as a co-morbid variable with ODRs. Again, cumulative GPA was the best predictor of ODR-A. It was one of six variables (Cumulative GPA, Mobility, Gender, SpEd status, ESL status, and TAG status) with regression scores deemed statistically significant. Once again, the statistical significance is questioned considering the overall correlations for each of the variables. In this analysis, the correlation for cumulative GPA ($r = -.64$, $r^2 = .41$) was much higher than any of the other five variables including the next highest, Mobility ($r = -.16$, $r^2 = .03$)

McIntosh, et al. (in press) identified a strong relationship between academics and student behavior. Their research focused on students transitioning from middle school to high school and defined academics to include both academic learning (Cumulative GPA) and academic skills (as measured by a large-scale reading assessment). The results from my first two analysis support the assertion that academic learning is a strong predictor of ODRs or ODR-A. This finding was further supported by the blocked analysis of the Academic domain group.

Interestingly, academic skills as measured by a Reading score were not found to be statistically significant ($p < .05$) in either of my initial analysis or in the blocked analysis by domain. The correlation of ODR to Reading ($r = -.21$, $r^2 = .04$) was lower than ODR-A to Reading ($r = -.32$, $r^2 = .10$). In both cases, the reading scores failed to meet the threshold for statistical significance for ODRs ($p = .42$) and for ODR-A ($p = .2$). These results were surprising considering the high predictive power of reading scores at the elementary level (McIntosh, et al., 2006) and the strong relationship between academics as students' transition from middle school to high school (McIntosh, et al., in press). These results do not support the assumption articulated in the literature review that low academic skills as a powerful predictor of poor behavior would continue to persist as students get older.

The block analysis of the domain grouping provides further evidence of the link between academics and behavior. The Academic group (Cumulative GPA and Reading score) accounted for forty-three percent of the variance in ODR-A. Within the block, cumulative GPA ($p < .0001$) was statistically significant in explaining the variance of ODR-A. Reading scores ($p = .66$) were not statistically significant. Similar results were found when analyzing the Academic block with ODRs.

The block analysis further illustrates the predictive power of academic learning in relation to both ODRs and ODR-A. It also suggests that the use of academic skills may not be near as powerful at the high school level as the literature might suggest. The literature base focuses primarily on elementary and middle school students and often connects academic learning (Cumulative GPA) and academic skills

(reading scores) into a single measure. The findings of this study would suggest that academic achievement at the high school level is a stronger predictor of behavior than measures of academic skills.

Correlations for SE, SP and Mobility

The literature on school engagement (Fredricks, et al., 2004; and Downer, et al., 2007), school participation (Eccles & Barber, 2003; Fredericks, et al., 2004; and Fredericks & Eccles, 2005) and mobility (Engec, 2006; Ingersol, et al., 1989; and Strand & Demie, 2007) proposed that relationships exist between these three individual variables both problem behavior and poor attendance. It was predicted that each of these variables would have moderate to strong correlations with ODRs and ODR-A. The data from this study did not match the predicted strength of correlation.

Example of SWPBS Implementation

However brief, this study does provide an example of SWPBS at the high school level. Warren, et al. (2006) cited the lack of high school implementation examples in the literature as a critical issue within the field of SWPBS. This study provided evidence of one school's efforts and highlights critical features of the school's implementation plan. Utilizing case study methodology (time-series analysis) whole school data presented in the description of the PBS school reflects a pattern of decreasing ODRs per 100 students over the two years following implementation. No discernable pattern was observed across the same three years for the nonPBS school. The percentage of students receiving ODRs and the percentage of students across various subgroups also decreased following SWPBS

implementation. Based on the extensive body of literature cited throughout this study, effective implementation of SWPBS should produce the noted effect described in Case Study A.

The comparison of the PBS School and the NonPBS School's time series pattern further illustrate the effect of SWPBS implementation. The NonPBS School did not demonstrate any discernable pattern over the same three year time period covered in Case Study A. The patterns for both Case Study A and Case Study B reflect the theoretical proposition that SWPBS implementation resulted in reduction in ODRs over time.

Bohanon, Fenning, Eber, and Flannery (2007) developed a blueprint for secondary student support and specifically high school SWPBS implementation. The authors noted the strong body of research around promising practice while identifying few examples of high schools implementing SWPBS beyond the primary intervention level as a significant issue. While not the primary purpose, this study does provide an example of a high school that has effectively implemented SWPBS beyond the primary level. The use of case study analytic strategies, including time series analysis and pattern-matching (Yin, 2003), support the proposition that the PBS School has successfully implemented SWPBS and could be used as an example of successful implementation at the high school level.

The following section will highlight several implications connected to the key findings presented.

Implications

ODR-A as a Valid Measure of SWPBS Implementation

Wright and Dusek (1998) suggested the acceptance of ODRs as a metric of disruptive behavior and as an index of SWPBS implementation be considered with caution. They highlighted that individual schools define behaviors and develop behavioral management systems independently. The non-standardized, independent definition of what constitutes a referral begged the question of validity ODRs as a measurement tool within the field.

The non-standardized, independent definition of ODRs presented one of the largest threats to the internal validity of this study. Specifically, the use of ODRs as an instrument was not controlled for at the individual or school level. The acceptance of non-standardized, independently defined ODRs as a measure of implementation and application throughout the SWPBS literature is the problem this study was designed to address.

Emperical evidence of a nomological network for ODR-A was found and supports the construct validity of ODR-A as a measure of SWPBS. These findings add to the research base on the construct validity of ODR-As (Irvin, et al., 2004; Irvin, et al., 2006) and suggest that ODR-As are a valid and effective measure of SWPBS implementation and application. Further, the findings in this study support the use of ODR-A at the high school level.

Inclusion of Attendance as a Measure of High School Implementation.

The limited research with regards to the validity of ODRs as a measure has been at the elementary and middle school level. As cited, one of the primary means of externalizing behavior for high school students is choosing to attend or not attend school. It stands to reason that the inclusion of attendance as a part of the ODR metric at the high school level is necessary and provides a means of comparison with ODRs alone at the elementary and middle school level.

The findings in this study clearly identify the need for high schools to include some measure of attendance when measuring SWPBS efforts. As previously discussed, attendance is one of the primary indicators of problematic behaviors in high school students. This form of expressing behavior is unique to the high school level and needs to be included as a measure of individual and whole school behavior.

The evidence documenting the implementation efforts of PBS Schoolin the methodological section is a classic example of the type of evidence that is collected, analyzed, and utilized by schools implementing SWPBS. It is important to note that no attendance data is presented as part of the documentation of implementation. It is recommended that attendance data be collected for the school as a whole as well as at the individual level. Schools implementing SWPBS schools often group students as primary, secondary, and tertiary based on the number or type of ODRs received. It is recommended that high schools collect, analyze and utilize attendance data at the individual student level. Specifically, schools should categorize individual students as

primary, secondary and tertiary based on individual non-attendance patterns. This information should be used as an additional measure of SWPBS.

Focus on Academic Intervention to Impact Student Behavior

This study provides further evidence linking school achievement and behavior and supports the idea that academic school success is linked to student behavior. The findings connect with research suggesting academic learning (Cumulative GPA) shares an inverse relationship to school misbehavior (Bryant, et al., 2000 and Choi, 2007). The findings also support current research efforts within the field of SWPBS (McIntosh, et al., in press) to study the relationship between academics (achievement and skills) and school behavior.

Bohanon-Edmondson, et al. (2005) provided a blueprint for high school SWPBS implementation and highlighted most high school implementation efforts have focused on the school as a whole (primary level). The authors identified the lack of secondary and tertiary interventions as a significant issue. The findings of this study suggest secondary and tertiary efforts should focus on academic school success. Specifically, support for students within a three-tiered model should concentrate on academic interventions as evidenced by the strong relationship identified between academic success and student behavior.

The perception of many people within the field of education is that SWPBS is a behavior program designed to address individual behavior and the behavioral climate of the school-as-a-whole. This study provides further evidence of the link between academics and behavior. Furthermore, the findings suggest that SWPBS

implementation plans should consider academic interventions at all three levels as a primary tenet of effective implementation.

Academic Learning Is the Strongest Predictor

Academic learning as measured by cumulative GPA was identified as the strongest predictor variable for both ODR and ODR-A (see Figure 5). The difference in correlation strength between all of the predictor variables tested suggest that schools should place more weight on an individual's cumulative GPA when considering a student's risk for problem behavior.

Surprisingly, the research found lower correlations for reading scores with ODRs and ODR-A. While the academic domain demonstrated a statistically significant effect, academic achievement carried the domain as reading was not found to be a significant predictor for ODRs or ODR-A. While this finding supports the link between academics (academic learning and academic skills) and behavior, it calls into question the power of specific (rather than general) academic skills as a predictor variable. The initial analysis and specifically the analysis of the blocked Academic group suggest academic learning as measured by cumulative GPA is the strongest predictor of student behavior.

Schools often collect and utilize information regarding factors that place students at risk of school failure. Many of the predictor variables, as well as the dependent variable in this study, are included as part of a broad analysis of student risk. The information is used for a variety of purposes to include forecasting and placement in intervention programs. This study suggests schools should consider

prior academic achievement as one of the strongest predictor variables when considering decisions at the individual, group or school levels.

Use of SWPBS at the High School Level

The inclusion of the implementation efforts of the PBS School serves the purpose of providing an example of high school implementation. It also illustrates the potential impact SWPBS can have on rates of ODR, number of suspended days, and percentage of students suspended across the school as a whole and across ethnic sub-groups. The purpose of documenting such an example is to provide a tangible model for high school SWPBS implementation efforts that go beyond the primary level of intervention. The documented impact suggests that high schools should consider implementing SWPBS as a means to reduce student misbehavior, to decrease days of lost instruction due to discipline consequence and to improve school climate as a whole. As noted previously, the example did not include evidence related to the impact on attendance at either the school or individual student level.

Future Research

Validation of ODRs as a Metric

Considering the widespread use of ODRs as a measurement tool within the field, continued validation research would further solidify and enhance the decisions being made at the individual, group and whole school levels. The field of SWPBS and the evidence of the impact of SWPBS have been built using ODRs as the primary measure. However, this study provides evidence supporting the validity of ODR-A as a measurement tool. The limitations described previously, suggest the evidence

produced in this study should not be considered conclusive. Considering the pivotal role ODR-As play within the field of SWPBS, further research is both warranted and necessary.

Nomological Network of ODRs at the Middle School Level

This study was designed to provide empirical evidence linking student variables as predictors to ODRs and to build on the emerging body of evidence supporting the use of ODRs as a measurement tool (Irvin, et al., 2004; Irvin, et al., 2006). Limitations of this study aside, the findings provide evidence of the nomological network for ODR-A (see Figure 4). The inclusion of attendance as a co-morbid variable was made based on the unique nature of the expression of student behavior in high school as compared to elementary and middle school (Bohanon-Edmondson, et al., 2005). The evidence supports ODR-A as a valid measure at the high school may align with the cited research. A similar study investigating the nomological network of ODRs should be conducted utilizing middle school data that would align directly with the cited research.

Explore the Link Between Academics and Behavior

The nomological network for ODR-A clearly identified academic learning as the strongest predictor of ODR-A. As discussed, academic learning as a predictor variable was the strongest across all forms of statistical analysis. These results and subsequent findings would support the recent surge of research focused on exploring the link between academics and behaviors within the field of SWPBS. The findings in this study support the notion that SWPBS research should focus on the explicit link

between academics and behavior. Further research is warranted and would assist the field in developing continuums of academic interventions designed to help meet the behavioral needs of students.

Nomological Network as a Measurement Instrument

The use of ODRs as a measure is both encouraged (Sprague, et al., 1999) and widely accepted as an effective measure of SWPBS implementation and application (Tobin, et al, 2000). As presented previously in this chapter, the addition of attendance as a co-morbid variable with ODRs is supported and suggested as a measure at the high school level. Other tools have been designed to measure various benchmarks of implementations. These tools include the School-wide Evaluation Tool (Horner, et al., 2004) and the Benchmarks of Quality (Cohen, Kincaid, & Childs, 2007). Both of these tools are designed to measure and guide a school's efforts with regards to organizational structures and other aspects of SWPBS implementation. While these tools are important, they do not provide information specific to the types of interventions necessary at the primary, secondary or tertiary levels.

Future research should focus on the use of a nomological network for ODRs and ODR-A. ODR and ODR-A may provide a framework for developing a tool that informs implementation efforts specific to the development of continuums of interventions. The analysis of individual predictor variables with ODRs prior to implementation may highlight areas of concern that need to be addressed. For example, if a moderate to high correlation was found for gender (disproportionate

number of boys versus girls), the school may look to design and deliver interventions specific to boys. If the intervention efforts are effective, a weaker correlation would be anticipated when utilizing the same tool as a post-treatment measure.

Another research venue should concentrate on instrument development and evaluation of ODR-As. The research presented in the literature review found successful SWPBS implementation should result in stronger correlations for predictor variables in the academic and access domains. The body of research around demographic variables suggested successful implementation would result in weaker correlations. The use of this type of tool as a pre-assessment may identify specific areas that need to be addressed. The post-assessment use of the same tool could measure the effectiveness of intervention efforts above and beyond the tools currently utilized within the field. Instrument research and development of such a tool would certainly benefit the field and would assist in the development of interventions at the primary, secondary and tertiary levels.

APPENDIX A
SCHOOL ENGAGEMENT SURVEY

School Engagement Survey

Student ID _____

Please respond to the following questions utilizing the scale provided.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I enjoy school because learning things will help in the future.	1	2	3	4
Academic success is important for success in life.	1	2	3	4
I look forward to school because I like subjects I am studying.	1	2	3	4
My teachers encourage me to learn.	1	2	3	4
Participation in classes is fun.	1	2	3	4
I often study things that interest me.	1	2	3	4
My school experiences are generally positive.	1	2	3	4
I feel I am responsible for my learning.	1	2	3	4
I always try hard, no matter how difficult the work.	1	2	3	4
When I fail, that makes me try that much harder.	1	2	3	4
I always try to do my best in school	1	2	3	4
	Usually	Sometimes	Rarely	Never
How often come to class without pencil or paper.	1	2	3	4
How often come to class without books.	1	2	3	4
How often come to class without homework done.	1	2	3	4
	10+ times	3-9 times	1-3 times	None
Number of times late for school in past 4 weeks.	1	2	3	4
Number of times missed school in past four weeks.	1	2	3	4
Number of times skipped classes in the past four weeks.	1	2	3	4

APPENDIX B
STUDENT PARTICIPATION SURVEY

School Participation Survey

Please respond to each of the five questions below by circling yes or no. If you answer yes, please list the different activities/clubs/etc. you are involved in.

YES / NO

In the past 18 months, have you participated in school sports or other organized sports teams outside of school?

Please list the different teams.

YES / NO

In the past 18 months, have you participated in volunteer efforts, service clubs, or religious groups within or outside of your school community?

Please list the different types of activities.

YES / NO

In the past 18 months, have you participated in any type of performing arts groups? For example, band, theater, dance, etc.

Please list the different groups.

\

YES / NO

In the past 18 months, have you participated in academic clubs? (i.e. Robotics, Math Counts, Brain Bowl, Model United Nations, Speech and Debate, etc.)

Please list the different types of clubs.

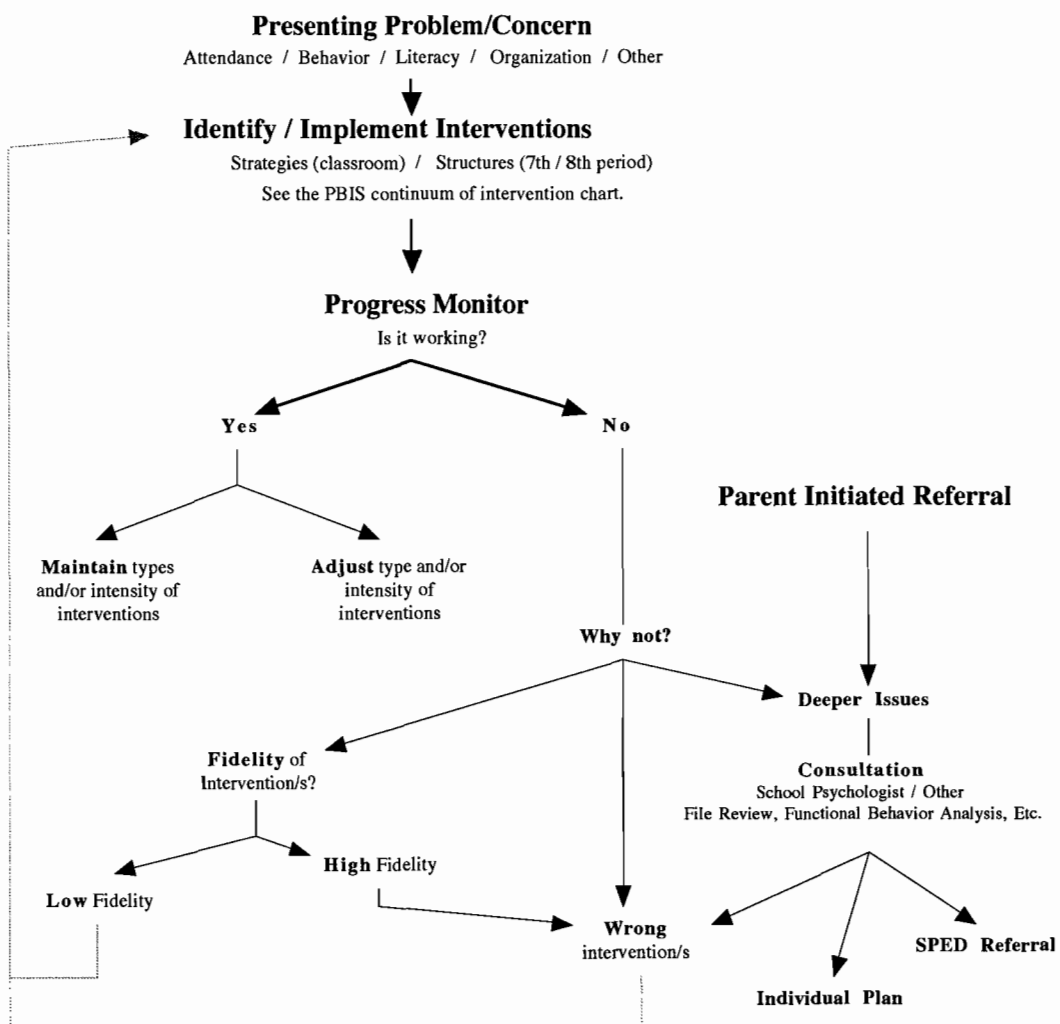
YES / NO

In the past 18 months, have you participated in school related activities such as leadership, leadership cadres, cheerleading, or student government?

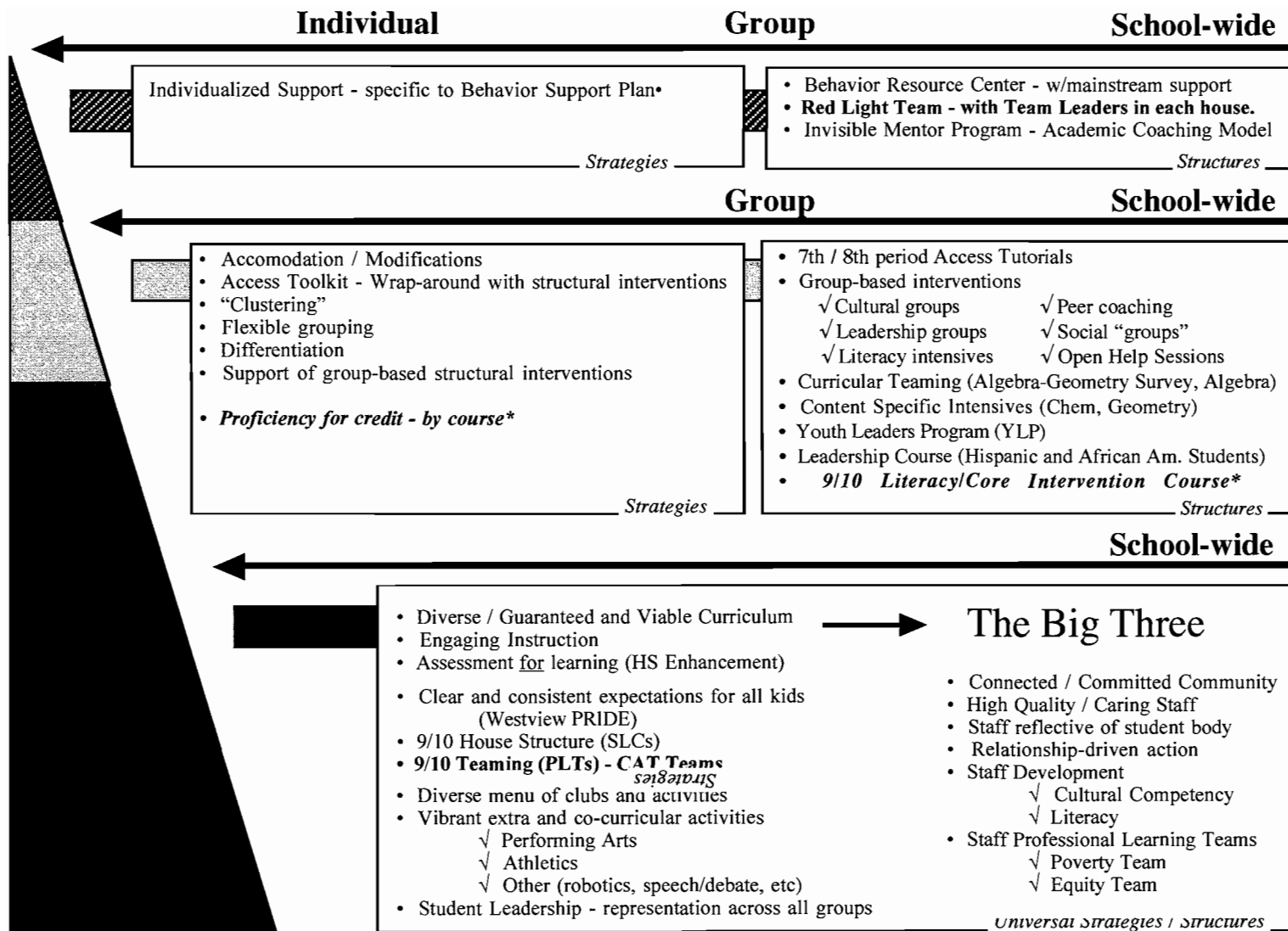
Please list the different types of activities.

APPENDIX C

COLLABARATIVE ACHIEVEMENT TEAM (CAT) PROTOCOL



APPENDIX D
SWPBS IMPLEMENTATION OVERVIEW



Individual

Individualized Support - specific to Behavior Support Plan*

Strategies

Group

- Behavior Resource Center - w/mainstream support
- **Red Light Team - with Team Leaders in each house.**
- Invisible Mentor Program - Academic Coaching Model

Structures

Group

- Accommodation / Modifications
- Access Toolkit - Wrap-around with structural interventions
- "Clustering"
- Flexible grouping
- Differentiation
- Support of group-based structural interventions
- **Proficiency for credit - by course***

Strategies

School-wide

- 7th / 8th period Access Tutorials
- Group-based interventions
 - √ Cultural groups
 - √ Peer coaching
 - √ Leadership groups
 - √ Social "groups"
 - √ Literacy intensives
 - √ Open Help Sessions
- Curricular Teaming (Algebra-Geometry Survey, Algebra)
- Content Specific Intensives (Chem, Geometry)
- Youth Leaders Program (YLP)
- Leadership Course (Hispanic and African Am. Students)
- **9/10 Literacy/Core Intervention Course***

Structures

School-wide

- Diverse / Guaranteed and Viable Curriculum
- Engaging Instruction
- Assessment for learning (HS Enhancement)
- Clear and consistent expectations for all kids (Westview PRIDE)
- 9/10 House Structure (SLCs)
- **9/10 Teaming (PLTs) - CAT Teams**
- Diverse menu of clubs and activities
- Vibrant extra and co-curricular activities
 - √ Performing Arts
 - √ Athletics
 - √ Other (robotics, speech/debate, etc)
- Student Leadership - representation across all groups

The Big Three

- Connected / Committed Community
- High Quality / Caring Staff
- Staff reflective of student body
- Relationship-driven action
- Staff Development
 - √ Cultural Competency
 - √ Literacy
- Staff Professional Learning Teams
 - √ Poverty Team
 - √ Equity Team

Universal strategies / structures

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